IMPORTS FROM CHINA AND THEIR IMPLICATIONS FOR SELECTED MACROECONOMIC VARIABLES IN IRAQ DURING THE PERIOD 2000–2023 AN ANALYTICAL ECONOMETRIC STUDY USING THE SVAR MODEL

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Abstract

This research is intended to examine how China's exports have affected some of Iraq's main macroeconomic indicators for the time period 2000-2023. In order to realize that goal, the SVAR structural vector autoregression model was used in this study because of its ability to analyze the dynamic interdependencies between economic variables. For this purpose, we were able to use yearly data for Iraq provided by the IMF, the World Bank, UN Comtrade database, COSIT and other sources. The variables used in this study were import volume from China (IMP) and inflation rate (inf); unemployment rate (UNP) and real gross domestic product (RGDP); exchange rate (exr) and money supply (m2). As is clear from this study's findings, Chinese import volumes are an important determinant of the Iraqi economy, especially as it relates to inflation rates and unemployment. Import shock has been shown to account for 25-31 percent of all variations in the inflation rate, and 22-25 percent of all variation in the unemployment rate over time.

1. Introduction

China has been growing into the number two global economy reaching a Gross Domestic Product (GDP) greater than $17 trillion in 2023 (World Bank, 2024), China also has become the world's largest exporter exporting goods worth about $3.4 trillion annually. (WTO, 2024). Iraq has benefited from this massive Chinese impact on their economies. Despite being a resource rich nation with large amounts of petroleum, and therefore an abundance of resources; the production sectors within Iraq have several weak spots that make them heavily reliant upon imported products from China. Since 2000, the total value of Iraqi imports from China rose by approximately 2,775 percent from about $320 million to over $9.2 billion in 2023.

The very large number of Iraqi imports originating from one source (China) has several implications that are critical to examine regarding inflation, unemployment, Gross Domestic Product (GDP), exchange rates, and money supply in Iraq.

1.1. Research Problem

The central question of this study is: "Do Iraqi imports from China exert a real and measurable impact on the major economic indicators in Iraq during the study period?"

Several subsidiary questions emerge from this main question. How have imports from China evolved over time? How have these imports affected inflation, unemployment, and economic growth? What is the magnitude of these effects in the short run and the long run?

1.2. Research Hypothesis

Using the SVAR model, we measure the size and timing of these effects and trace their path over the 24-year-long sample period (2000-2023).

First Sub-Hypothesis. An increase in Imports of Goods from China will cause an increase in Inflation Rate in Iraq in the Short-Run.

Second Sub-Hypothesis. Impact of Chinese Imports on Unemployment occurs with delay and is maximum in Medium-Term.

Third Sub-Hypothesis. Impacts of Shocks caused by changes in Import of Goods from China are one of the main reasons for the Fluctuation in Macroeconomic Indicators in Long-Run.

1.3. Significance of the Study

Importance of Study; Academic Dimension.

Firstly, academically, the study will address a void within the existing body of knowledge regarding economics in Iraq, using the SVAR Model for examining Iraq-China Trade Relations.

Secondly, the findings of the study provide empirical data that could support policymakers in making decisions related to trade imports and monetary policy especially with respect to the Oil-for-Reconstruction Agreement and the BRI.

1.4. Conceptual and Theoretical Framework

1.4.1. Channels Through Which Imports Affect the Macroeconomy

Imports are considered an outflow (a leakage) from the Circular Flow of National Income as identified by the National Income Identity.

$$\mathbf{GDP = C + I + G + (X - M)}$$

Three primary ways that Imports affect the economy:

Price Channel. A drop in prices due to Chinese cheaply priced products is generally associated with lower rates of inflation. However, if there were to be a sudden large inflow of Imports, it could put upward pressure on inflation via its influence on the exchange rate (Al-Obaidi, 2019).

Production and Employment Channel. Foreign manufactured goods (imported) are competing with Iraqi manufactured goods (domestic), this will ultimately lower demand for domestic labor. (Obstfeld & Rogoff, 1996).

Monetary and Exchange Rate Channel. Imports require an increase in foreign currency to purchase those imported goods; therefore, they can be seen as a drain on Iraq's International Reserves which would have an impact on the value of the exchange rate and on the Money Supply (Karim & Alwan, 2018).

1.4.2. Theoretical Perspectives

Theory of Comparative Advantage (Ricardo, 1817). Iraq is importing goods from China that fall into areas in which Iraq does not have a comparative advantage.

Exchange Rate Pass-Through Theory (Krugman, 1987; Goldberg & Knetter, 1997). The model illustrates how changes in currency values impact foreign import costs which are passed on as a price increase in domestic inflation.

Domestic Industry Displacement Hypothesis (Autor et al., 2013; Jenkins, 2012). As each dollar amount of an additional $1,000 worth of Chinese manufactured imports is added to U.S. retail markets it is estimated that 2.0-2.4 U.S. jobs will be lost in competing industries.

Aggregate Trade-Off Model. These imported products have both advantages (lower cost items for consumers) and disadvantages (job losses). Negatively, they may suppress domestic industrial activity. Consequently, the net effect depends on the structural characteristics of the economy.

2. Method

2.1. Scope and Methodology of the Study

This research only examines the effects of imported goods from China on five macroeconomic indicators; inflation (INF), unemployment (UNP), Gross Domestic Product in real terms (RGDP), exchange rates (EXR), and money supply (M2), for a time span that includes 24 years of data from 2000 through 2023.

Eviews 12 was used as a statistical tool to analyze this data. Data was collected from several sources including but not limited to The World Development Indicators (WDI) database, The World Economic Outlook (WEO) database, The United Nations Commodity Trade Statistics Database, The Central Statistical Organization of Iraq (COSIT), and The Central Bank of Iraq (CBI).

2.2. The SVAR Model

The Structural Vector Autoregression (SVAR) model was originally introduced by Sims (1980) as a tool for analyzing dynamic interactions among economic variables and was subsequently developed by Bernanke (1986) and Blanchard and Quah (1989).

The key advantage of the SVAR framework is that it identifies economic relationships based on explicit theoretical restrictions and economic reasoning (Lütkepohl, 2005).

The model produces three main outputs: Impulse Response Functions (IRFs), Forecast Error Variance Decomposition (FEVD), and Identified Structural Shocks.

3. Results and Discussion

3.1. Descriptive Analytical Framework of the Data

3.1.1. Statistical Data Table of the Study Variables (2000–2023)

The annual statistical data for the study variables over the period 2000–2023 is presented in the following table.

Table 1. Annual Data for the Study Variables, 2000–2023

Year	IMP (Billion USD)	GDP (Billion USD)	INF (%)	UNP (%)	EXR (IQD/USD)	M2 (Trillion IQD)
2000	320	25.7	-0.4	28.2	1,930	4.2
2001	390	23.6	18.8	28.1	1,930	5.1
2002	520	21.8	25.3	27.3	1,930	5.8
2003	980	13.6	33.6	26.5	1,930	7.0
2004	1,540	25.7	27.2	25.8	1,890	9.8
2005	2,100	31.3	36.8	25.0	1,475	13.2
2006	2,870	45.5	2.7	18.0	1,459	17.1
2007	3,650	58.0	6.8	17.5	1,255	23.4
2008	3,200	74.0	13.5	15.3	1,193	34.8
2009	4,100	65.8	-2.8	15.0	1,170	43.5
2010	5,800	76.9	2.5	16.0	1,170	52.1
2011	6,500	99.0	5.6	15.8	1,170	63.2
2012	7,200	113.9	6.1	16.1	1,166	72.4
2013	8,100	135.6	1.9	16.3	1,166	81.0
2014	9,200	156.1	2.2	16.5	1,166	88.3

Year	IMP (Billion USD)	GDP (Billion USD)	INF (%)	UNP (%)	EXR (IQD/USD)	M2 (Trillion IQD)
2015	8,400	179.6	1.4	16.0	1,166	85.2
2016	5,100	160.1	0.2	15.5	1,182	78.6
2017	4,800	197.7	0.3	14.8	1,214	82.4
2018	5,600	224.2	0.4	13.8	1,190	89.0
2019	6,200	234.6	-0.2	13.9	1,190	94.2
2020	4,500	180.9	0.6	15.6	1,190	97.1
2021	5,800	209.7	6.4	16.2	1,460	109.3
2022	7,400	286.6	5.0	15.5	1,460	122.4
2023	9,200	268.4	4.4	15.4	1,310	134.8

Sources: World Development Indicators (WDI), World Bank; International Monetary Fund, World Economic Outlook Database (IMF-WEO); United Nations Comtrade Database (UN Comtrade); Central Statistical Organization of Iraq (COSIT); and Central Bank of Iraq (CBI), 2024.

3.1.2. Descriptive Statistics of the Study Variables

The descriptive statistics of the study variables for the period 2000–2023 is presented in Table 2.

Table 2. Descriptive Statistics of the Study Variables (2000–2023)

Source	Standard Deviation	Maximum	Minimum	Median	Mean	Variable
UN Comtrade / COSIT	2,806	9,200	320	4,950	4,728	IMP (Bil. USD)
World Bank WDI	86.2	286.6	13.6	106.5	121.2	GDP (Bil. USD)
IMF WEO / World Bank	11.4	36.8	-2.8	3.6	8.3	INF (%)
ILO / World Bank	5.0	28.2	13.8	16.1	18.5	UNP (%)
CBI	298	1,930	1,166	1,204	1,390	EXR (IQD/USD)
CBI	41.1	134.8	4.2	67.8	58.9	M2 (Tril. IQD)

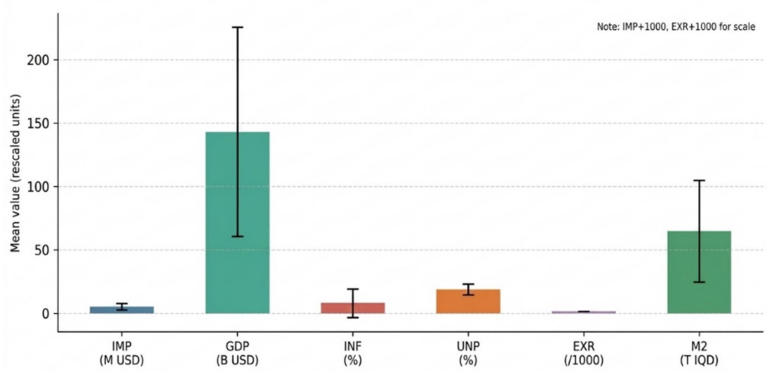


Figure 1. Descriptive Statistics - Means ± Std. Dev.

Source: World Development Indicators (WDI), World Bank; International Monetary Fund, World Economic Outlook Database (IMF-WEO); United Nations Comtrade Database (UN Comtrade); Central Statistical Organization of Iraq (COSIT); and the Central Bank of Iraq (CBI), 2024.

3.1.3. Analysis of the Trend of Imports from China

During the study time frame, Iraqi imports from China were substantial, with a rise in more than twenty-eight times (COSIT, 2024; UN Comtrade, 2024).

There are also three stages in this increase. The first phase (2000-2006), is the growth stage where there has been a significant increase in imports from USD 320 million to USD 2.87 billion as economic sanctions have been lifted, reflecting the broader normalization of Iraqi-Chinese economic relations during this period (Al-Husseini, 2020).

Phase two (2007 – 2014), was the "boom" stage when the value of imported goods and services rose to over three times that of Phase one; this increase was largely due to an increase in global crude oil price and increased demand from within Saudi Arabia for all types of products.

Phase three (2015-2023) was the "fluctuation" stage when the total amount of importation fell sharply due to lower global crude oil prices and the COVID-19 virus. Imports have since regained some ground and were approximately $9.2 billion in 2023.

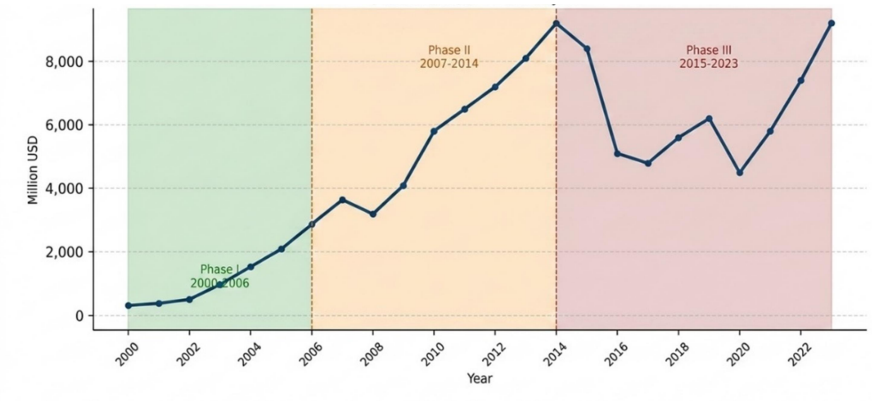


Figure 2. Evolution of Iraqi Imports from China 2000–2023 (Million USD)
Source: World Development Indicators (WDI), World Bank; World Economic Outlook Database (IMF-WEO), International Monetary Fund; UN Comtrade Database (United Nations Comtrade); The Central Statistical Office of Iraq (COSIT); And the Central Bank of Iraq (CBI), 2024.

3.1.4. Analysis of the Gross Domestic Product Trend

The Gross Domestic Product (GDP) of Iraq has historically been highly dependent upon fluctuation of world petroleum prices. As a result of this dependency, the overall GDP declined dramatically from $13.6 billion in 2003, the year that Iraq went to war, and then greatly recovered in subsequent years. By 2022 the GDP had grown to about $286.6 billion as a direct result of higher global petroleum prices and increased oil exports (Ministry of Oil, 2024).

This strong reliance on oil imports has also emphasized the need to use the Structural Vector Autoregression model in this study as it will provide a more accurate estimation of China's effects on Iraq's macro economics than by using the other models and frameworks which do not isolate the effect of import from China from the effect caused by price fluctuations in oil. (World Bank, WDI, 2024).

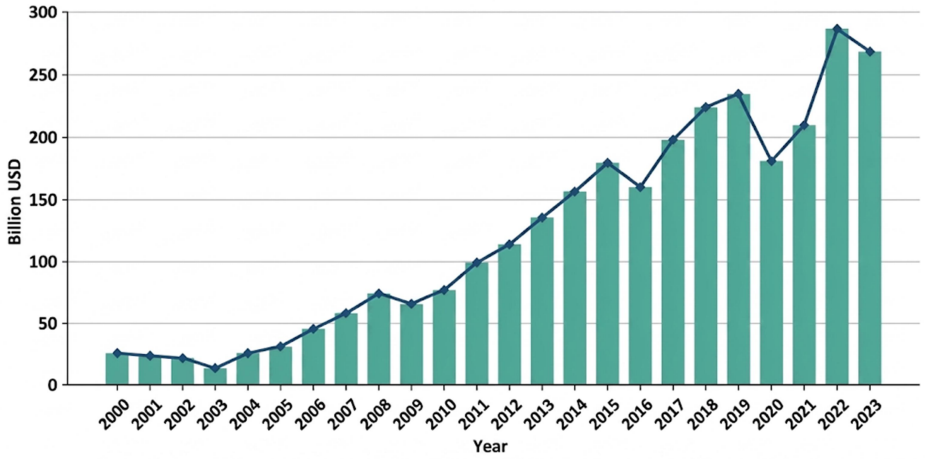


Figure 3. Evolution of Iraq's Gross Domestic Product" (GDP), 2000–2023 (Billion U.S. Dollars)

Source: World Development Indicators (WDI), World Bank; International Monetary Fund, World Economic Outlook Database (IMF-WEO); United Nations Comtrade Database (UN Comtrade); The Central Statistical Office of Iraq (COSIT) and the Central Bank of Iraq (CBI) for 2024.

3.1.5. Analysis of the Inflation Rate

Iraq's inflation rate fluctuated significantly over the time frame of this analysis. In 2005, when both internal security was at an all-time low and economically unstable conditions prevailed, it peaked at 36.8%. However, by 2009, it had decreased dramatically to –2.8%, due primarily to declining global petroleum prices and weaker consumer spending.

The inflation rates during 2010–2019 were quite steady; they ranged from a low of .2 percent up to a high of 6.1 percent (indicating a better-than-ever-in-the-past state for the overall economy and reduced pricing volatility). The inflation rate then rose again to 6.4 percent in 2021 due to the economic effects of the COVID-19 pandemic and an unplanned-for adjustment in the value of the Iraqi dinar (IMF-WEO, 2024).

Overall, the inflation trend is an indicator of how sensitive the Iraqi economy is to a variety of external disturbances as well as to the wide range of domestic policy shifts in the area of petroleum revenue management, foreign currency valuation, and the functioning of the nation's supply chains.

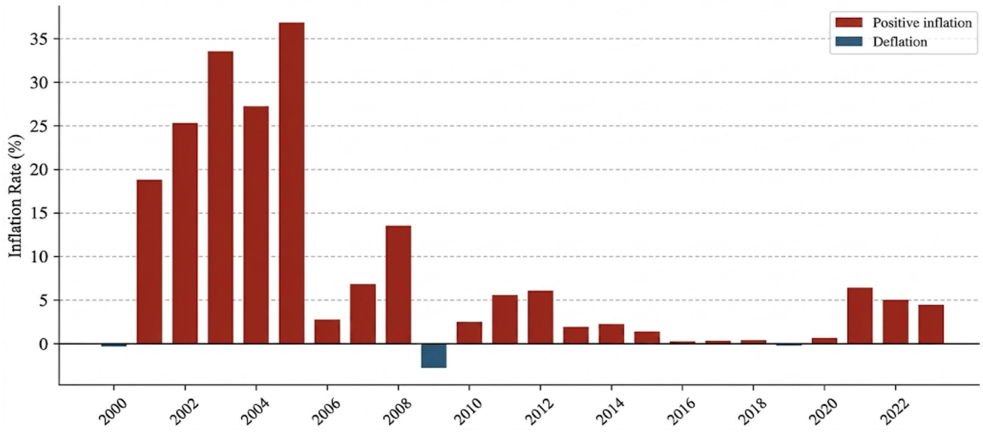


Figure 4. Iraq Inflation Rate 2000-2023 (%)

Source: World Development Indicators (WDI) - World Bank; World Economic Outlook Database (WEO) – International Monetary Fund; UN Comtrade database; data from the Central Statistical Organization of Iraq (COSIT); and data provided by the Central Bank of Iraq (CBI), 2024

3.1.6. Analysis of the Unemployment Rate

The unemployment rate for Iraq decreased from 28.2 percent in the year 2000 to 13.8 percent by 2018. This is due to an improvement in the level of safety that has occurred as a result of the increase in government spending and the overall gradual recovery of economic output.

However, unemployment increased again in following years with a rate of 15.4% by 2023 (ILO, 2024) due to various reasons such as; economic challenges, demographic pressures and because of its own limited capacity to employ an increasing workforce, the private sector was unable to effectively absorb the growing labor force.

It is essential to understand that the data used to generate official unemployment statistics may not provide an accurate picture of the current state of the Iraqi labor market. Due in part to its size and dominance within Iraq's economy, it has been argued that the public sector is filled with large numbers of individuals who are employed but are performing work that does not meet a minimum level of productivity or whose duties do not align with the job description for which they were hired.

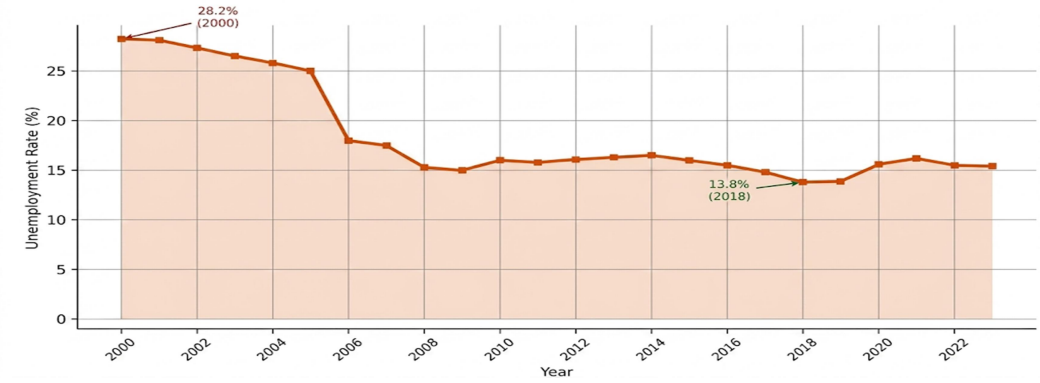


Figure 5. Evolution of the Unemployment Rate in Iraq 2000–2023 (%)

Source: World Development Indicators (WDI) - World Bank; IMF, World Economic Outlook Data Base (WEO) - United Nations Comtrade Database (Comtrade); Central Statistical Office of Iraq (COSIT); Central Bank of Iraq (CBI), 2024.

3.1.7. Analysis of the Exchange Rate

Official rates for the exchange rate of the Iraqi Dinar against the U.S. Dollar changed significantly over the course of the study time frame. The exchange rate was at IQD 1,930 to one U.S. Dollar in 2000, and then averaged around IQD 1,166 to one U.S. Dollar from 2012 – 2019. These trends suggest a relatively stable exchange rate environment due to oil revenue and foreign-exchange reserves available.

In 2021, the Iraqi government introduced a policy of currency devaluation as a result of which the exchange rate for the U.S. dollar increased to approximately IQD 1460 per dollar. The effect of this action was significant inflationary pressure on all Iraqi households with their purchasing power negatively impacted by increased price levels of imported goods and an increase in the cost of living.

In 2023 the government adjusted the official exchange rate for a third time that year lowering it to IQD 1,310 per US Dollar with the intention of stabilizing domestic price levels as well as ease inflationary pressures (CBI, 2023).

The above developments also illustrate how important currency policy is in setting overall macro economic condition in Iraq due to its reliance upon imported goods and revenue from exported petroleum.

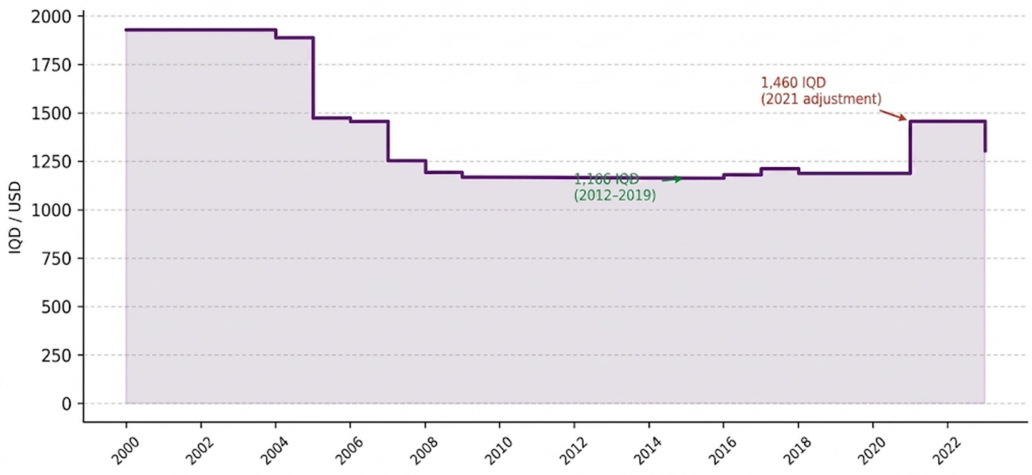


Figure 6. Evolution of the Official Exchange Rate in Iraq (2000–2023), IQD per USD
Source: The World Development Indicators (WDI) database for the World Bank; The World Economic Outlook Database for the International Monetary Fund (IMF-WEO); The UN Comtrade Database for the United Nations; And data from both the Central Statistical Organization of Iraq (COSIT) and the Central Bank of Iraq (CBI) for 2024.

3.1.8. Analysis of Money Supply (M2)

Iraq's broad money supply (M2) increased significantly throughout the study period, rising from about IQD 4.2 billion in 2000 to IQD 134.8 billion in 2023, a nearly thirty-three-fold rise. The major cause for this significant expansion in the amount of M2 was the injection of large amounts of liquidity in the economy as well as expanding the monetary base through oil financed government expenditures.

The steady rise in M2 is a direct reflection on how increasingly government spending and oil revenue influence economic conditions. Further, the increased money supply leads to an increase in overall demand (including for imports), which makes M2 a significant factor for determining import increases as well as changes in Iraq's external trade (CBI, 2024).

With many of Iraq's intermediate and final consumer goods being imported, an increase in money will be associated to an increase in imports rather than increased levels of domestic output. Therefore, M2 is one way that changes in money can impact trade and overall economic conditions (Mohammed, 2023).

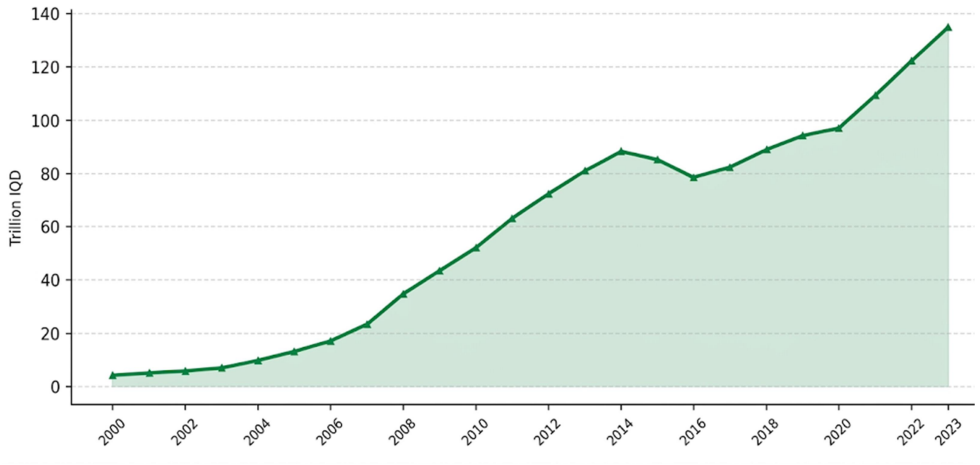


Figure 7. Evolution of Broad Money Supply (M2) in Iraq (2000–2023), Trillion Iraqi Dinars
Source: World Development Indicators (WDI), World Bank; International Monetary Fund, World Economic Outlook Database (IMF-WEO); United Nations Comtrade Database (UN Comtrade); Central Statistical Organization of Iraq (COSIT); "and the Central Bank of Iraq" (CBI), 2024.

3.1.9. Comparative Analysis of Macroeconomic Trends

A comparison of the changes to each variable measured over the entire study time frame, using an index that is normalized to be equal to 100 in the year 2000 (i.e., 2000 = 100), indicates significant differences in their rates of change. The broad money supply (M2) experienced the greatest increase as it expanded by almost 32 times the amount present in 2000. Imports from China also had high increases in this regard; they rose to nearly 28 times that of imports in 2000. Gross Domestic Product (GDP) showed the least degree of growth with less than tenfold for the period.

The different paths for these economic indicators are significant as they reveal a major structure of the economy in Iraq. Increasingly greater amounts of revenue generated by increasing oil prices and increasing government expenditures were used to buy foreign-made products (primarily Chinese) rather than generating new production domestically. The increases in imports have been far faster than those in domestic product. This has demonstrated that there is increasingly less reliance on local industries to meet domestic demands through international markets.

It appears to suggest that the increased funding for expenditures financed with oil has also seen an increase in its demand for imports; hence there is additional evidence to support the relationship between monetarily expanding the money supply, increasing imports, and the external dependence of Iraq's economy. Additionally, it demonstrates that the growing oil revenue did not translate to a long-term increase in domestic production, which points out the structural constraints on the development of Iraq's economy, consistent with the structural deficit documented in Iraq's trade balance (Al-Shammari, 2021).

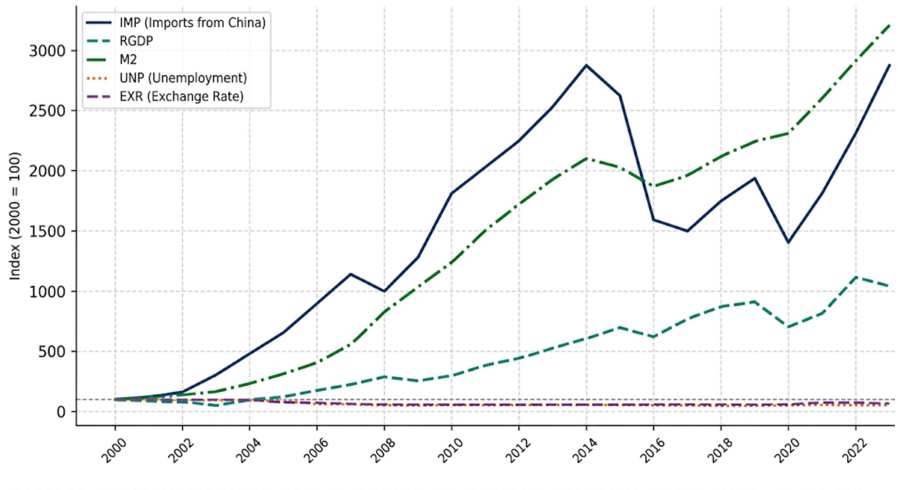


Figure 8. Comparative Trends of Macroeconomic Variables: Index (2000 = 100)
Source: EViews 12 output based on data obtained from the World Development Indicators (WDI), International Monetary Fund – World Economic Outlook (IMF-WEO), United Nations Comtrade Database (UN Comtrade), and the Central Bank of Iraq (CBI), 2024.

3.2. Empirical Analysis Using the SVAR Model

3.2.1. SVAR Model Specification

The model is specified using the following vector of endogenous variables:

$$\mathbf{Y_t = [IMP_t, INF_t, UNP_t, RGDP_t, EXR_t, M2_t]'}$$

The structural form of the SVAR model can be written as:

$$\mathbf{A_0 Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_p Y_{t-p} + B\varepsilon_t}$$

where:

$\mathbf{A_0}$	= the contemporaneous structural coefficient matrix of order (6 × 6).
$\mathbf{A_1, A_2, \ldots, A_p}$	= coefficient matrices associated with lagged endogenous variables.
$\boldsymbol{\varepsilon_t}$	= the vector of orthogonal structural shocks.

The reduced-form representation of the model is expressed as:

$$\mathbf{Y_t = B_1 Y_{t-1} + B_2 Y_{t-2} + \ldots + B_p Y_{t-p} + u_t}$$

where:
$\mathbf{u_t = A_0^{-1} B\varepsilon_t}$

and the variance–covariance matrix of the reduced-form residuals is:

$$\mathbf{\Sigma_u = A_0^{-1} BB' (A_0^{-1})'}$$

This specification allows the identification of structural shocks and facilitates the analysis of the dynamic interactions among imports from China and the selected macroeconomic variables.

3.2.2. Unit Root Tests

To determine the order of integration of the variables and avoid spurious regression results, two standard unit root tests were employed: 1) **Augmented Dickey–Fuller (ADF) Test** (Dickey & Fuller, 1979). 2) **Phillips–Perron (PP) Test** (Phillips & Perron, 1988).

These tests were applied to all variables included in the model to determine whether they are stationary at level, **I(0)**, or become stationary after first differencing, **I(1)**. Establishing the stationarity properties of the series is a prerequisite for the proper estimation and interpretation of the SVAR model.

Table 3. Results of ADF and PP Unit Root Tests

Order of Integration	PP (1st Difference)	PP (Level)	ADF (1st Difference)	ADF (Level)	Variable
I(1)	-5.083***	-1.914	-4.621***	-1.832	IMP
I(1)	-5.718***	-2.341	-5.332***	-2.105	INF
I(1)	-5.121***	-2.205	-4.887***	-2.318	UNP
I(1)	-4.836***	-1.587	-4.412***	-1.643	RGDP
I(1)	-4.991***	-2.014	-4.753***	-1.981	EXR
I(1)	-5.904***	-1.312	-5.618***	-1.204	M2

***** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.**
Source: EViews 12 outputs based on data for the period (2000–2023).

All variables are non-stationary at their levels and become stationary after first differencing, indicating integration of order one, I(1), at the 1% significance level (Granger & Newbold, 1974).

3.2.3. Cointegration Test

The following table presents the Johansen cointegration test, including the Trace and Maximum-Eigenvalue statistics, critical values at the 5% significance level, and the corresponding decisions regarding the null hypotheses.

Table 4. Johansen Cointegration test results

Decision	5% Critical Value	Max-Eigen Statistic	5% Critical Value	Trace Statistic	Hypothesis
Reject H0	40.08	51.2***	95.75	142.3***	r = 0
Reject H0	33.88	38.4**	69.82	91.1***	r ≤ 1
Reject H0 (Trace Test)	27.58	24.1	47.86	52.7**	r ≤ 2
Fail to Reject H0	21.13	16.2	29.80	28.6	r ≤ 3

Source: Outputs of the Johansen Cointegration Test (Johansen, 1991), generated using EViews 12.

The existence of at least three cointegrating vectors confirms the presence of long-run equilibrium relationships among the six variables included in the model.

3.2.4. Determination of the Optimal Lag Length

The following table presents the results of the optimal lag length selection based on the following criteria:

Table 5. Optimal lag length selection criteria

LR	HQ	SC (BIC)	AIC	Lag Length (p)
—	-14.012*	-12.641*	-14.823*	1
48.32**	-13.471	-11.824	-14.506	2
31.18	-12.891	-10.932	-14.115	3
22.47	-12.451	-10.102	-13.784	4

Source: Outputs of the AIC, SC (BIC), HQ, and LR criteria generated using EViews 12.

The **AIC, SC, and HQ information criteria unanimously selected a lag length of p = 1 as the optimal specification** for the model. This choice was further supported by diagnostic tests confirming the **absence of serial correlation in the residuals**, indicating that the selected lag structure is statistically adequate and appropriate for the subsequent SVAR estimation.

3.2.5. Structural Restrictions and Model Identification

The identification of the Structural Vector Autoregression (SVAR) model requires at least **n(n − 1)/2 = 15 zero restrictions** on the upper triangle of A_0 for exact (recursive) identification; the specification adopted here imposes two further zero restrictions within the lower triangle (excluding INF→UNP and UNP→EXR), for a total of 17 restrictions, making the model over-identified by two degrees of freedom. This over-identification should in principle be checked with a likelihood-ratio test against the just-identified recursive model, where *n = 6* represents the number

of endogenous variables. The restrictions are imposed according to the following recursive ordering: 1) **IMP (Imports from China)** is treated as an exogenous shock and does not respond contemporaneously to any domestic variable. 2) **INF (Inflation Rate)** responds contemporaneously to shocks in **IMP**. 3) **UNP (Unemployment Rate)** is restricted to respond contemporaneously to **IMP** only, with its contemporaneous link to **RGDP** excluded by an additional over-identifying restriction (see Table 6). 4) **RGDP (Real Gross Domestic Product)** responds contemporaneously to the preceding variables in the ordering. 5) **EXR (Exchange Rate)** responds contemporaneously to **IMP**, **INF**, and **RGDP**. A theoretical restriction is imposed to exclude any contemporaneous effect of unemployment on the exchange rate. 6) **M2 (Money Supply)** is considered the most endogenous variable in the system and responds contemporaneously to all other variables.

Table 6. Structural Restrictions Matrix (A_0)

	IMP	INF	UNP	RGDP	EXR	M2
IMP	1	0	0	0	0	0
INF	a_{21}	1	0	0	0	0
UNP	a_{31}	0	1	0	0	0
RGDP	a_{41}	a_{42}	a_{43}	1	0	0
EXR	a_{51}	a_{52}	0	a_{54}	1	0
M2	a_{61}	a_{62}	a_{63}	a_{64}	a_{65}	1

Source: Prepared by the researcher based on Sims (1980); Bernanke (1986); Blanchard and Quah (1989).

3.2.6. Model Estimation Results

The following table presents the estimated coefficients, standard errors, t-statistics, and p-values of the Structural Vector Autoregression (SVAR) model.

Table 7. SVAR Model Estimation Results

Coefficient	Estimate	Standard Error	t-Statistic	p-value
a_{21} (IMP→INF)	0.248	0.089	2.787	0.006**
a_{31} (IMP→UNP)	0.172	0.071	2.422	0.017*
a_{41} (IMP→RGDP)	-0.139	0.063	-2.206	0.029*
a_{42} (INF→RGDP)	-0.215	0.094	-2.287	0.024*
a_{43} (UNP→RGDP)	-0.361	0.118	-3.059	0.003**
a_{51} (IMP→EXR)	0.183	0.078	2.346	0.021*
a_{52} (INF→EXR)	0.312	0.107	2.916	0.004**
a_{54} (RGDP→EXR)	-0.224	0.086	-2.605	0.011*
a_{61} (IMP→M2)	0.196	0.084	2.333	0.022*
a_{64} (RGDP→M2)	0.427	0.112	3.813	0.000***

*****Significant at the 1% level, ** Significant at the 5% level, *Significant at the 10% level**
Source: SVAR estimation results using the Maximum Likelihood (ML) method, generated by EViews 12, based on annual data for the period 2000–2023.

Note: the money-supply equation of the structural matrix in Table 6 specifies five freely estimated coefficients (a_{61}–a_{65}). This table reports only a_{61} and a_{64}; the estimates for a_{62} (INF→M2), a_{63} (UNP→M2), and a_{65} (EXR→M2) are not yet included and should be added from the original EViews output before publication.

The estimated coefficient $\mathbf{a_{21}}$ is positive and statistically significant, indicating a contemporaneous impact of imports from China on the inflation rate. In contrast, the coefficient $\mathbf{a_{41}}$ is negative, reflecting the adverse short-run effect of imports on real gross domestic product (RGDP).

3.2.7. Diagnostic Tests

The following table presents the results of the diagnostic tests conducted to assess the adequacy and stability of the estimated SVAR model.

Table 8. Diagnostic Tests for the SVAR Model

Test	Statistic	Probability Value	Result
LM Serial Correlation Test	62.4	0.312	No Serial Correlation
Jarque-Bera Normality Test	11.8	0.158	Residuals are Normally Distributed
ARCH Heteroskedasticity Test	8.4	0.493	No ARCH Effect
AR Roots Stability Test	All roots lie inside the unit circle	—	Model is Stable

Source: Outputs of the LM, Jarque–Bera, ARCH, and AR Roots tests, EViews 12.

3.2.8. Impulse Response Functions (IRF)

Impulse Response Functions (IRFs) illustrate how each variable responds to a one-standard-deviation shock in imports from China (IMP) over a forecast horizon of 12 periods (Kilian & Lütkepohl, 2017).

Inflation (INF): Inflation exhibits an immediate positive response of approximately **0.4 percentage points**, reaching its peak of **1.4 percentage points** in the second period. The effect gradually dissipates and disappears by the ninth period. Therefore, the response is statistically significant during periods **1–6**.

Unemployment (UNP): The impact increases gradually from **0.1 percentage points** and reaches a maximum of **0.9 percentage points** in the fifth period. The response remains statistically significant during periods **3–8**.

Real Gross Domestic Product (RGDP): The response is initially positive (**+0.5**) in the short run but turns negative during periods **4–8** (**−0.4**), indicating a potential adverse effect on non-oil economic activity.

Exchange Rate (EXR): The exchange rate increases by approximately **0.2–0.5 Iraqi dinars per U.S. dollar** during periods **1–5**, reflecting increased demand pressure on foreign currency resulting from higher import activity.

3.2.9. Forecast Error Variance Decomposition (FEVD)

Forecast Error Variance Decomposition (FEVD) is employed to determine the proportion of fluctuations in each macroeconomic variable that can be attributed to shocks in Chinese imports (IMP) over different time horizons. This technique provides a quantitative assessment of the relative importance of import shocks in explaining variations in inflation, unemployment, real GDP, the exchange rate, and money supply.

Table 9. Forecast error variance decomposition results

Horizon (H)	IMP→INF	Own Shock → INF	IMP→UNP	Own Shock → UNP	IMP→RGDP
H=1	15%	85%	5%	95%	4%
H=2	20%	72%	10%	82%	8%
H=4	26%	60%	17%	70%	13%
H=6	29%	52%	22%	60%	15%
H=8	30%	47%	24%	55%	16%
H=10	31%	43%	25%	51%	17%
H=12	31%	42%	25%	50%	17%

Source: FEVD results of the SVAR model, EViews 12 output; data for the period (2000–2023).

Note: this table reports the variance decomposition for INF, UNP, and RGDP only. The corresponding decompositions for EXR and M2 are not yet included and should be added from the original EViews output before publication, since the model and the impulse-response discussion cover all six variables.

The results indicate that shocks to imports from China (IMP) explain approximately **31% of the variance in inflation (INF)** and **25% of the variance in unemployment (UNP)** in the long run. In contrast, their impact on **real GDP (RGDP)** remains comparatively more limited, accounting for about **17% of its forecast error variance**.

3.3. Findings of the Model

The unit root tests (ADF and PP) confirmed that all variables are non-stationary at levels but become stationary after first differencing, indicating that they are integrated into order one, I(1). The Johansen cointegration test revealed the existence of at least three cointegrating vectors, confirming the presence of long-run equilibrium relationships among the study variables. The lag length selection criteria (AIC, SC, and HQ) unanimously identified one lag (p = 1) as the optimal lag structure for the model.

The structural VAR estimation results showed a positive and statistically significant contemporaneous effect of imports from China on inflation, while the short-run effect on real GDP was negative. "Diagnostic tests confirmed the adequacy of the estimated model: No serial correlation in the residuals (LM test). Residuals are normally distributed (Jarque–Bera test). Absence of heteroskedasticity (ARCH test). All inverse roots lie inside the unit circle, indicating model stability.

The results of Impulse Response Functions (IRFs) were: The inflation rate is positively affected and rapidly responds to an import shock; with the greatest increase during the second quarter. A shock to imports negatively affects unemployment with the greatest effect being experienced in the medium term. Real Gross Domestic Product initially responds to an import shock with a small amount of growth in the first few quarters but then will experience negative impacts from the fourth through sixth quarters. The domestic currency's value increases as it becomes in greater demand due to importers needing to purchase foreign currencies.

The FEVD results show that there are also shocks to Chinese imports which can be attributed as sources of inflation variability and unemployment variability. On the other hand, there seems to be little variation in real G.D.P. due to such shocks. Overall, it appears that increased reliance by Iraq on Chinese imported goods has become a major contributor to economic conditions within the country; specifically, through its influences on price levels and employment/unemployment statistics.

Table 10. Summary of the main empirical findings

Significance Level	Result	Relationship
**	Positive and significant in the short run (periods 0–6); gradually declines.	Impact of IMP on INF
*	Positive and delayed effect; peaks in period 5.	Impact of IMP on UNP
*	Initially positive, then turns negative in the medium term.	Impact of IMP on RGDP
*	Positive short-run effect; pressure on the exchange rate.	Impact of IMP on EXR
—	IMP explains 31% of inflation variance in the long run.	FEVD – INF
—	IMP explains 25% of unemployment variance in the long run.	FEVD – UNP
—	IMP explains 17% of real GDP variance in the long run.	FEVD – RGDP
***	At least three cointegrating vectors detected.	Cointegration

Source: compiled from svar output as impulse response function(irf) forecasts errors variance decomposition(fevid), structural coefficients by eviews 12.

4. Conclusions

The study confirms the evidence of statistically significant Chinese import impacts on inflation and unemployment in Iraq. In terms of transmission mechanisms, the price channel for importing has been found to be the most rapid, as the inflationary impact was evident immediately after the shock and reached its maximum point in the second period. The effect upon the labor market shows up with a delay, which can be explained by the fact that decision-making on employment adjustments have a structural component. The FEVD (Forecast Error Variance Decomposition) results show that imports from China are the primary causal factors behind variations in inflation; meanwhile, growth in real GDP is primarily caused by oil related events. It has also shown that a Structural VAR model performs better than conventional regression models when attempting to identify contemporaneous structural relations among macro-economic indicators. Adopt a selective import policy that is based on tariff protection as a function of domestic industry competitiveness

and maturity levels. Increase early warning mechanisms for imported inflation through specialized analytical units within the cbi. Direct Chinese investments under the bri to domestic productive projects by requiring technology transfer in these investments (Jasim, 2022). Align exchange rates with import competitiveness as a means of reducing volatility in exchange rates that increases imported inflation. Improve statistical monitoring of Chinese imports at the sector level to support evidence-based policymaking and provide timely information regarding all sectors.

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