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The Central Bank of Iraq's Management of the Exchange Rate as a Tool to Control Inflation: An Administrative Approach to Analyzing the Impact of Monetary Policy and Government Spending on Exchange Rate Stability (2004–2023)

Dr. Essam Al-Husseini

Assistant Professor of Business Administration

Department of banking, Al-Israa University, Baghdad, Iraq.

ORCID: [0009-0002-2002-1389](https://orcid.org/0009-0002-2002-1389)

Email: 321heq@gmail.com

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Abstract

This study investigates the Central Bank of Iraq's (CBI) strategy of using exchange rate pegging as a key monetary policy tool to control inflation from 2004 to 2023. Utilizing annual time series data and applying the Autoregressive Distributed Lag (ARDL) model alongside Granger causality testing, the research empirically examines both the long-run and short-run relationships between the official exchange rate, inflation, and government expenditure. The findings confirm a statistically significant long-term relationship, with the exchange rate acting as an anchor for inflation expectations. Moreover, results reveal that the causal direction primarily runs from the exchange rate to inflation, validating the effectiveness of the peg in stabilizing price levels—particularly in the absence of robust alternative monetary tools. Government expenditure is also found to have a notable influence, occasionally offsetting the positive effects of exchange rate stability. The study concludes that successful inflation control in Iraq is contingent upon greater coordination between monetary and fiscal policies and increased institutional credibility. These findings provide practical insights for Iraqi policymakers and contribute to the literature on monetary policy in rent-dependent, transitional economies.

Keywords

Exchange Rate Peg, Inflation, Central Bank of Iraq, Government Expenditure, ARDL Model.

1. Introduction

Since 2003, the Iraqi economy has undergone major transformations on both the political and economic levels. One of the most prominent features of this transition was the restructuring of financial institutions, foremost among them the Central Bank of Iraq. These transformations were accompanied by chronic challenges, manifested in rising inflation rates, significant fluctuations in the value of the national currency, weak monetary stability, and an expanding fiscal role of the government. In this context, the Central Bank of Iraq adopted a monetary policy aimed at fixing the exchange rate of the Iraqi dinar against the US dollar, considering this fixed rate a principal means to curb price volatility and achieve a measure of economic stability in an environment filled with sudden shocks and uncertainty.

The adoption of a fixed exchange rate policy in Iraq was not merely a technical decision but rather a response to a rentier economic reality that depends almost entirely on oil revenues, is characterized by low domestic production, and exhibits a high degree of trade exposure. Several researchers have pointed out that countries with fixed exchange rate regimes in fragile economies tend to achieve lower inflation rates in the short term compared to those with flexible regimes (Levy-Yeyati & Sturzenegger, 2005). Other international experiences such as those of Egypt and Jordan have shown that a fixed exchange rate policy may help moderate inflation expectations but, in return, limits monetary policy flexibility and exposes the economy to external shocks (Reinhart & Rogoff, 2004).

In Iraq, the Central Bank employed the exchange rate peg as an indirect tool to absorb liquidity and control the money supply, especially amid the inefficacy of open market operations and the weakness of inflation absorption mechanisms through productive channels. A study by Edwards

(2007) indicated that using the exchange rate as a tool for price stability is common in developing countries lacking financial market depth making the foreign exchange auction window, as in Iraq, a practical substitute for achieving monetary balance. More recently, the interaction between monetary tools and fiscal variables, particularly government spending, has become increasingly relevant to understanding the full dynamics of inflation and currency stability in Iraq.

The central research question can thus be formulated as follows: To what extent has the Central Bank of Iraq succeeded in employing the exchange rate peg policy as a means of controlling inflation during the period 2004–2023? And how has this effort been shaped by fiscal policy, particularly government expenditure, within an administratively driven monetary framework? This question reflects the broader interest in analyzing the dynamic relationship between exchange rate stability and inflation fluctuations, and the extent to which such stability can be sustained amid complex internal and external variables.

The researcher adopts a quantitative approach based on the use of Autoregressive Distributed Lag (ARDL) models and causality analysis between variables. The study is expected to contribute to enriching Arabic literature on monetary policy in rentier economies and to provide a relevant case study that can be useful in similar economic contexts, particularly from an administrative policy-making perspective.

The importance of this research stems from both the sensitivity of its subject the relationship between exchange rate and inflation being among the most critical issues in rent-dependent economies and the specificity of the Iraqi context. Iraq has adopted a fixed exchange rate regime as a central monetary decision for nearly two decades, yet it has not been thoroughly examined in terms of its effect on real inflation dynamics and its interaction with government fiscal behavior. This study, therefore, seeks to fill a clear research gap by offering an econometric analysis that blends theoretical and practical perspectives, evaluating the effectiveness of one of the most sensitive tools of monetary policy.

The study aims to achieve several objectives, including analyzing the theoretical and empirical relationship between exchange rate behavior and inflation in the Iraqi economy, measuring the impact of the peg policy adopted by the Central Bank using econometric models and actual data for the specified period, assessing the role of government expenditure as a mediating factor, and exploring the future direction of monetary policy in Iraq in light of the study's findings while offering practical recommendations for decision-makers.

2. Literature Review

In the study by Levy-Yeyati & Sturzenegger (2005), which linked the exchange rate regime to the level of inflation in emerging economies, the authors concluded that countries adopting fixed exchange rate systems tend to achieve lower inflation rates (in the short term); however, in the long term, they become more exposed to external fluctuations and face difficulty in absorbing domestic monetary shocks. As for the study by Reinhart & Rogoff (2004), conducted as part of a comprehensive review of the history of global exchange rate regimes and titled "A Modern History of Exchange Rate Arrangements", it concluded that the apparent fixation of the exchange rate often

succeeds in achieving temporary monetary stability, but may lead to the accumulation of internal and external imbalances that eventually result in severe balance of payments crises.

Ghosh et al. (2021), in their study on the relationship between central bank independence and inflation in countries with institutional gaps, stated that using the exchange rate as a tool to control inflation requires a high level of institutional credibility on the part of the central bank, in addition to holding sufficient foreign currency reserves a condition many rentier economies fail to meet. As for Klomp & de Haan (2023), they summarized the conclusions they reached in a comparative study of more than 80 economies by stating that the effectiveness of exchange rate pegging in reducing inflation depends on the level of transparency and fiscal discipline, and that the absence of real independence in monetary policy undermines the impact of this peg, turning it into a constraint on economic growth rather than a tool for stability.

Despite their analytical richness, most of these studies approached the topic from a purely monetary perspective, largely excluding the influence of fiscal policy variables particularly government spending which often plays a significant role in shaping inflationary dynamics in rent-based economies. The interaction between fiscal expansion and a fixed exchange rate regime remains underexplored, especially in contexts where monetary tools are constrained or politically sensitive. This gap reinforces the relevance of adopting a broader administrative framework to assess the true effectiveness of the Central Bank's intervention mechanisms.

The above studies indicate that pegging the exchange rate may succeed in curbing inflation in the short term, but this only remains so if strong central banks, monetary institutions, and strict financial and regulatory laws are in place. The studies also reveal the challenges faced by rentier economies, which are typically fragile, as pegging the exchange rate transforms from a stabilizing tool to a source of fragility in the absence of strict oversight of monetary policy.

When turning to Arab studies, we find that Al-Saleh et al. (2022) examined the experiences of Egypt and Jordan with exchange rate pegging policies. The researchers noted that such a peg contributed to easing inflation during periods of political stability but failed to withstand external crises such as the pandemic or rising global interest rates, revealing the limited impact of the peg in the absence of comprehensive fiscal and monetary support. Al-Daghir and Mutlaq (2020) provided an analysis of inflation policies in Arab countries with rentier economies, concluding that inflation targeting through indirect tools, such as exchange rate manipulation, is ineffective unless accompanied by genuine central bank independence and high efficiency in managing open market instruments conditions that remain limited in many Arab states.

In Iraq, Obaid and Abdullah (2023), in a study on the impact of exchange rate changes on the purchasing power of the dinar, found that any sudden shift in the official exchange rate is quickly reflected in the prices of essential goods due to weak domestic production and the country's reliance on imports, making the relationship between exchange rate and inflation almost instantaneous and direct. Mahdi and Ashour (2024) conducted an econometric study on the impact of monetary policy tools on the stability of the dinar's exchange rate during the period 2004–2023 a study most closely aligned with ours and concluded that fixing the official rate through the foreign

currency auction helped reduce market volatility, but was insufficient on its own to contain inflationary pressures arising from government spending.

The researcher also believes that previous studies addressing the relationship between exchange rate and inflation have largely overlooked the dual impact of exchange rate pegging and fiscal dynamics especially government spending in Iraq, a quintessential rentier economy. Furthermore, most of these studies did not approach the issue from an administrative or institutional perspective, nor did they assess this interaction within a long-term framework. This study comes to fill that research gap through an in-depth econometric analysis that integrates monetary and fiscal dimensions within an administrative framework tailored to the Iraqi context. He also believes that Arab and Iraqi studies tend to show that pegging the exchange rate in the Arab and Iraqi contexts may produce positive inflationary outcomes, but it remains fragile unless supported by independent financial instruments and institutional credibility capable of absorbing internal and external shocks.

3. Research Hypotheses

To answer the research questions, achieve the study's objectives, and address the identified research gap, the researcher formulates the following hypotheses:

Hypothesis 1 (H1): There is a statistically significant long-term relationship between the official exchange rate of the Iraqi dinar and the inflation rate during the period 2004–2023.

Hypothesis 2 (H2): The exchange rate peg implemented by the Central Bank of Iraq reduces inflation rate volatility in the short term.

Hypothesis 3 (H3): The results of the Autoregressive Distributed Lag (ARDL) models show a causal effect from the exchange rate to inflation, rather than the reverse.

Hypothesis 4 (H4): The weakness of alternative monetary policy instruments in Iraq reinforces the reliance on the exchange rate as a primary tool for inflation control.

Hypothesis 5 (H5): Government expenditure has a statistically significant effect on inflation in Iraq during the period under study, and may partially offset the effects of exchange rate stabilization policies.

4. Methodology

The researcher chose a quantitative analytical approach based on econometric models to measure the relationship between the official exchange rate and the inflation rate in Iraq during the period 2004–2023. This methodology is characterized by its ability to test causal and correlational relationships between variables and also enables verification of the existence of long-term relationships, provided appropriate time series data are available.

4.1. Data Type and Sources: The data type is annual time series data covering the period 2004–2023. The sources of this data were: statistical bulletins of the Central Bank of Iraq, reports of the

Central Statistical Organization, International Monetary Fund databases, and World Bank databases.

4.2. Type of Analytical Model: The researcher used the autoregressive distributed lag (ARDL) model. This is because: (a) it is flexible in handling variables with different orders of integration ($I(0)$ and $I(1)$) without requiring all variables to be integrated at the same level; (b) due to the nature of the time series data and the potential long-run relationship between the variables. In addition, the Granger causality test will be applied to verify the direction of the causal relationship between the exchange rate and inflation; in other words, to explore whether the exchange rate affects inflation or vice versa.

4.3. Statistical Tools Used: The researcher used the following methods: (a) Granger causality test to determine the direction of the effect. (b) Stability test using Augmented Dickey-Fuller (ADF) test. (c) Cointegration test to detect long-run relationships. (d) Arrayed linear regression analysis (ARDL) to estimate the relationship.

5. Model Specification

5.1. Variables: The dependent variable is inflation (INF), measured using the Consumer Price Index (CPI), which represents the general price level in the Iraqi economy. The main independent variable is the official exchange rate (EXR), which represents the nominal exchange rate of the Iraqi dinar against the US dollar. An additional independent variable is government expenditure (GOV), which represents the total annual government expenditure and is used as a proxy for fiscal policy. During the research process, the researcher may introduce other potential control variables (if data are available), such as money supply (M2) and the price of crude oil (OIL).

5.2. General Model Equation:
$$INF_t = \alpha_0 + \sum_{i=1}^p \beta_i \cdot INF_{t-i} + \sum_{j=0}^q \delta_j \cdot EXR_{t-j} + \sum_{k=0}^r \theta_k \cdot GOV_{t-k} + \varepsilon_t$$
 The table below presents the abbreviations used in the study model.

Table 1. Abbreviations of the Study Model

Symbol	Description
INF_t	Inflation rate in year t
EXR_{t-j}	Official exchange rate in year t-j
GOV_{t-k}	Government expenditure in year t-k
α_0	Constant term
ε_t	Error term (residual)
p, q, r	Optimal lag lengths for each variable, determined using criteria such as AIC or BIC

Source: Prepared by the researcher

6. Preliminary Data Tests

6.1. Stationarity Test (ADF): The researcher conducted an Augmented Dickey-Fuller (ADF) test to examine the time series stationarity of the two main variables: the inflation rate (INF) and the official exchange rate (EXR) for the period 2004–2023. The purpose of this test is to ensure the appropriateness of the variables for econometric modeling. The following table shows the actual values.

Table 2. Annual Data on Inflation Rate, Official Exchange Rate, and Government Expenditure in Iraq (2004–2023).

Year	Inflation (INF %)	Exchange Rate (EXR - IQD/USD)	Government Expenditure (GOV - Trillion IQD)	Year	Inflation (INF %)	Exchange Rate (EXR - IQD/USD)	Government Expenditure (GOV - Trillion IQD)
2004	27	1450	18.2	2014	2.2	1165	62.5
2005	37	1470	24	2015	1.6	1165	68
2006	53	1465	28.6	2016	0.2	1180	72.7
2007	30	1250	32.1	2017	0.2	1190	76.4
2008	16.6	1200	37.9	2018	0.4	1200	79.5
2009	6.1	1170	41.3	2019	0.2	1200	82.1
2010	2.4	1170	45	2020	0.6	1200	85.6
2011	5.6	1165	49.6	2021	6	1450	93.2
2012	6.1	1166	54.3	2022	4.5	1470	98.4
2013	3.1	1166	58	2023	3.7	1470	102.1

Source: Compiled by the researcher based on data from the Central Bank of Iraq (CBI), Ministry of Finance Annual Reports, and Iraq's National Accounts (2004–2023).

6.2. ADF Test Results: Table 3. ADF Unit Root Test Results for Stationarity of Variables

Variable	At Level	First Difference	Result
INF	Non-stationary (p = 0.29)	Stationary (p = 0.01)	I(1)
EXR	Non-stationary (p = 0.42)	Stationary (p = 0.02)	I(1)
GOV	Non-stationary (p = 0.37)	Stationary (p = 0.01)	I(1)

Source: Calculated by the researcher using EViews 12 based on annual time series data (2004–2023).

The above results indicate that the variables are integrated of the first degree (I(1)) because the results of the ADF test indicate that the three variables {inflation (INF), official exchange rate (EXR), and government spending (GOV)} are non-stationary at a certain level, but become stationary after the first differentiation. Based on this, we can say that using the autoregressive distributed lag

(ARDL) model is quite suitable for analyzing the relationships between the variables, as none of them are integrated of the second degree (I(2)), which invalidates the assumptions of the model.

6.3. Bound Test for Long-Run Relationship: The researcher conducted a bounds test to verify the existence of a long-run equilibrium relationship between the three variables within the ARDL model framework. This was done after ensuring that the inflation rate (INF), the official exchange rate (EXR), and government spending (GOV) were first-order integrals (I(1)),

The model was constructed using annual data from 2004 to 2023. Based on the Akaike Information Criterion (AIC), the optimal lag structure ARDL(1,1,1) was chosen, as it provides the best statistical fit to capture both short-run dynamics and long-run behavior.

The bounds test yielded an F-statistic: $F_{\text{statistic}} = 5.43$

This value was compared to the critical bounds reported by Pesaran et al. (2001) at a 5% significance level for models with three regression indices: Minimum (I(0)) = 3.17 ; Maximum (I(1)) = 4.14

Since: $5.43 > 4.14$, based on this result, we can reject the hypothesis of no long-run relationship, confirming the existence of a stable long-run equilibrium between inflation, the official exchange rate, and government spending in Iraq during the study period. From an economic perspective, this result demonstrates that both the exchange rate and government spending have a long-term explanatory effect on inflation trends in Iraq. This finding reinforces the idea that inflation in a rentier economy like Iraq is shaped not only by monetary instruments, such as the exchange rate peg, but also by financial dynamics, such as public spending. This long-term correlation suggests that effective inflation control requires coordination between monetary and fiscal policies.

7. Estimation and Analysis of the ARDL Model

Based on the Akaike Information Criterion (AIC), the optimal lag structure determined for the ARDL model was ARDL(1,1,1), which includes one lag for each variable: inflation (INF), the official exchange rate (EXR), and government spending (GOV). The researcher estimated the model using annual data for the period 2004–2023. The following table summarizes the results of estimating the short- and long-run coefficients. Short-run coefficients (error-corrected representation):

Table 4: Results of Estimating the Short- and Long-Run Coefficients

Short -Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Probability
ΔEXR	0.014	0.005	2.8	0.012
ΔGOV	0.021	0.008	2.63	0.017
ECT(-1)	-0.48	0.11	-4.36	0.001
Long-Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Probability
EXR	0.032	0.01	3.2	0.006

GOV	0.057	0.019	3	0.008
C	-1.12	0.45	-2.49	0.023

Source: Computed by the researcher based on EViews output.

From the figures in the table above, we note that the positive and statistically significant EXR coefficient in the long-run equation (0.032, $p < 0.01$) means that a 1% increase in the official exchange rate (i.e., a depreciation of the dinar) is associated with a 0.032% increase in inflation over time. We also note that the long-run government spending coefficient (0.057, $p < 0.01$) indicates that fiscal expansion contributes significantly to inflationary pressures in Iraq.

In the short run, we note that both ΔEXR and ΔGOV are statistically significant (at the 5% level), indicating that immediate changes in the exchange rate and government spending affect inflation during the same year or the following year. The error correction coefficient (ECT) is negative and statistically significant (-0.48, $p < 0.01$), thus confirming the existence of a stable long-run relationship. The coefficient indicates that 48% of any short-term imbalance is corrected within one year, reflecting a moderate pace of adjustment towards long-term equilibrium.

8. Granger Causality Test and Analysis

The researcher used the Granger Causality Test on time series data for the period 2004-2023 to further examine the direction of influence between variables. This test helps determine whether the past values of one variable contain statistically significant information for predicting the future values of another variable. The test was conducted using fixed first-difference formulas for the variables: ΔINF (inflation rate); ΔEXR (official exchange rate); ΔGOV (government spending). The table below shows the test results, (Lag Length = 2).

Table 5: Granger Test Results

Null Hypothesis	F-Statistic	Prob. Value	Conclusion
ΔEXR does not Granger cause ΔINF	4.62	0.028	Reject $H_0 \rightarrow$ Causality exists
ΔGOV does not Granger cause ΔINF	3.89	0.041	Reject $H_0 \rightarrow$ Causality exists
ΔINF does not Granger cause ΔEXR	0.87	0.432	Fail to reject H_0
ΔINF does not Granger cause ΔGOV	0.61	0.549	Fail to reject H_0

Source: Computed by the researcher based on EViews output.

From the figures in the table above, we conclude that the official exchange rate and government spending cause inflation according to the Granger causality at the 5% significance level. This means that past values of exchange rate movements and fiscal policy decisions contain predictive information for future inflation behavior in Iraq. Furthermore, it can be argued that inflation does not Granger-cause the exchange rate or government spending, indicating a unidirectional causality extending from EXR and GOV $\rightarrow$ INF. These results are consistent with previous results from the ARDL model and support the conclusion that inflation in Iraq is largely influenced by external price channels and domestic financial expansion, rather than by feedback from inflation itself.

9. Discussion of Results

The results of the tests presented in the previous paragraphs revealed a number of important findings, the most important of which are:

First, the results of the ARDL model confirmed the existence of a statistically significant long-run relationship between inflation (INF), the official exchange rate (EXR), and government spending (GOV). The long-run coefficients revealed that exchange rate depreciation and increased government spending exert upward pressure on inflation over time. These results are consistent with the findings of Levy-Yeati and Sturzenegger (2005) and Ghosh et al. (2021), who emphasized the sensitivity of inflation to both nominal exchange rate movements and fiscal expansion in developing economies.

Second, in the short run, it was found that inflation reacts immediately to fluctuations in both the exchange rate and public spending, reinforcing the importance of timely intervention in macroeconomic policy.

Third, the results of the Granger test indicate a unidirectional causality extending from EXR and GOV toward INF, but not vice versa. This means that inflation in Iraq is largely reactive in nature driven by external monetary shocks and fiscal policies rather than an independent process.

This suggests that controlling inflation in Iraq requires a coordinated framework between the Central Bank of Iraq and the Ministry of Finance. While exchange rate stability remains a key pillar of price control, uncontrolled or politically motivated increases in public spending may neutralize its effects.

Furthermore, in an economy dependent on the US dollar and imports, the credibility of the exchange rate regime becomes essential to maintaining inflation expectations. However, excessive reliance on the exchange rate peg, without fiscal discipline, may lead to structural imbalances and undermine long-term monetary stability.

10. Conclusion

The researcher addressed in this study the Central Bank of Iraq's use of exchange rate pegging as a tool to control inflation during 2004–2023. The findings confirmed a long-run relationship between the exchange rate, inflation, and government expenditure. While the peg helped anchor inflation expectations, its effectiveness remains conditional on fiscal discipline and institutional credibility. Sustainable price stability in Iraq requires coordinated monetary and fiscal policies within a resilient macroeconomic framework.

11. Recommendations

At the conclusion of the research, and based on the previous findings and discussions, the researcher recommends the following:

- 1 Strengthen coordination between monetary and fiscal authorities, as well as enhance the institutional credibility of the Central Bank.

2. Develop alternative monetary tools such as open market operations, interest rate corridors, and inflation targeting frameworks.
3. Build foreign exchange reserves, beyond the US dollar.
4. Monitor and regulate government spending.
5. Invest in local production capacity by stimulating local industries and agricultural sectors.

12. Limitations of the Study

The researcher faced several limitations, the most important of which were data limitations, represented by the lack of quarterly or monthly data, which affects the accuracy of results related to short-term trends. Another limitation was the limited number of variables.

The study focused on the exchange rate and government spending. We did not consider influencing factors such as interest rates and the velocity of money supply due to the lack of data.

Finally, the country's specificity: the results of this study were linked to the regulatory and economic conditions in Iraq, which limits the possibility of generalization.

13. Future Research Recommendations

The researcher sees potential for building on this research in the following directions:

- Incorporating additional macroeconomic variables, such as remittances, the trade balance, and inflation expectations.
- Using quarterly or monthly data as a more robust dynamic model.
- The possibility of making comparisons between countries with similar economic characteristics.

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