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The Role of Exchange Rates, Inflation and Oil Prices on Real GDP in Iraq: Evidence from 1990 to 2022

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Abstract
Purpose: This study analyzes the short- and long-run relationships among exchange rates, consumer prices, crude oil prices, and real GDP in Iraq, exploring the mediating role of oil dependence in the price–output relationship over the period 1990–2022.
Research Methodology: The study employs the ARDL bounds-testing approach with data from the World Bank, IMF, and the Iraqi Ministry of Planning. Unit root tests confirm that none of the variables are integrated of order two. The bounds test shows an F-statistic of 3.724, indicating a long-run relationship.
Results: The findings indicate a long-run equilibrium relationship among the variables. The error correction term is negative and statistically significant at the 1% level, with an adjustment speed of 55.8% per year. The Consumer Price Index (CPI) has a positive and significant long-term effect on real GDP, while exchange rates and oil prices exhibit negative but insignificant effects. Granger causality tests suggest strong unidirectional causality from CPI to real GDP, with weaker causality from exchange rates and oil prices.
Conclusions: The study concludes that fiscal transmission plays a significant role in transmitting external price shocks to real economic activity in Iraq, emphasizing the need for monetary discipline, exchange rate management, and economic diversification.
Limitations: The study is constrained by a small sample size and limited variables, potentially omitting broader economic dynamics.
Contributions: This research contributes to the literature by highlighting the importance of fiscal mechanisms and oil dependence in shaping macroeconomic outcomes in oil-dependent economies like Iraq.

Keywords: *ARDL, Exchange Rates, Inflation, Iraq, Oil Prices, Real GDP*

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1. Introduction

The financial statements are a straightforward tale: Oil is king in Iraq. Regular export of hydrocarbons represents over 90 percent of government revenues and approximately 45 percent of GDP, building an economy that is vulnerable to the vagaries of the commanding tunes that drive world commodities markets. However, it is not automatic, it does not imply pass-through of foreign price shocks on domestic output (Fezzani & Nartova, 2011; Ibrahim, 2026; Maitham A. Rodhan, 2024). This time frame spans a long period of international sanctions against Iraq, regime change in 2003, several waves of political instability and two oil price crashes, in both 200809, and once more in the period 201416. All of these events transformed the macroeconomic environment such that normal open-economy processes are at best only partially applicable (Fezzani & Nartova, 2011; Saidi, Adam, & Rahim, 2019).

The ten years of sanctions are particularly educative. As imports were severely curtailed, and oil earnings were nearly nonexistent, the Iraqi dinar was destroyed, inflation became hyperinflationary, and productive capacity was lost. With reconstruction after 2003, the dynamics was radically different: oil productions rebound, the exchange rate was pegged in practice and inflationary pressures gradually subsided, but never completely (Celiku, Maseeh, & Sharma, 2018). The way in which one conditions exchange rates, consumer prices and oil prices on real GDP in such structurally different sub-periods, is analytically complex and policy-relevant. This preconditions three crucial research questions that guide this research. First, does exchange rates, consumer prices, crude oil prices and real GDP in Iraq have any long-run co-integrating relationship over the period of 1990-2022? Second, how quickly do the short-run disequilibria come back into the long-run? Third, what are the statistically significant long-run effects of variables on real output and which way?

The research using the Autoregressive Distributed Lag (ARDL) bounds-testing methodology Pesaran, Shin, and Smith (2001) (improved in 2001)], along with small-sample critical values suggested in Narayan (2005)will be used in answering these questions. This methodology is appropriate to the Iraqi context in two ways. It can also have variables integrated at I(0) or I(1) or both (without integrating all the variables to the same order) and is robust even with very small samples as 33 years. The timeframe of the study comes to an end in 2022; we do not consider the data of 2023 because there was no complete coverage and discrepancies in the official reporting that would be a threat to the integrity of the estimates (Hirschbühl, Onorante, & Saiz, 2021).

2. Literature Review

2.1 Exchange Rates and Real Output

Simple prediction of standard open-economy theory is that, currency depreciation prolongs exports, deters imports and raises output insofar as the sum of import and export price elasticity of demand is greater than unity [6]. Practically, this forecast does not perform well in economies that are resource endowed. Iraq is a case in point. Dinar depreciation has no real impact on the volume of exports since oil sales are priced in US dollars. What it does however affect is the domestic currency price of imports that Iraq depends upon majorly all the food and medicine as well as machinery and fuel derivatives. This is the reason why depreciation is chiefly an inflation shock, and not a competitiveness lever, but it squeezes the real household incomes and crowding out the demand in the private sector. Though positive output response is to be expected, it just does not show up.

Such asymmetry is evidenced by other similar economies. Benkhodja (2014) discovers that in Algeria, the depressing effect of depreciation on non-oil activity increases the input costs and weaknesses consumer buying power, without producing any significant growth in the traded output. The same conclusion is made by Husain et al. (2015) in the case of the members of the Gulf Cooperation Council as the exchange rate stability is more of a macroeconomic shock absorber than of an export promotion tool. Iraq, with both characteristics of oil dependence and import dependence, fits perfectly into this pattern.

2.2 Economic Performance and Inflation

Inflation and growth may not be monotonically linearly related. The growing demand in a growing economy might be accompanied by moderate rates of inflation, an increase in government spending and an expansion of the economy, particularly in those economies with oil revenues that finance the consumption of the population [10]. High inflation distorts the price signals, on which allocation relies, it destroys savings incentives, and it introduces macroeconomic uncertainty, which deters private investment. The sample period consists of periods when Iraq has experienced both extremes. Sanctions, provision of financial assistance in the form of monetary mass creation and collapse of supplies in the 1990s fueled hyperinflation. It took many years (20032008) before economic stability began to show signs (as people began to trust monetary institutions) and oil money began to trickle in. By the early 2010s, for the first time in decades inflation had dropped to single digits. The inflation regime volatility means that the statistical relationships between output gap and measures of inflation in Iraq are not a stable structural parameter. It must be read within the context of what regime was working- an observation that qualifies the interpretation of the empirical findings below (Cárcamo-Díaz, Roche, & Rustamov, 2021; Chowdhury, Rashid, & Uddin, 2025; Zafar, Fiaz, Ikram, Khan, & Qamar, 2021).

2.3 Oil Prices and Real GDP

Most popular transmission channel in oil exporting economies is the fiscal budget channel rather than the factor market channel of oil prices to output. An increase in oil prices increases government revenues, this will enable an increased current expenditure and capital expenditure programme, the spending spurt will raise aggregate demand and GDP, particularly in the non-traded services sector. The opposite happens when prices fall: fiscal constriction of the voluntary or forced persuasion curtails the demand of the population and drives the output out of trend (Berg et al., 2009). It is dominated by this fiscal channel of finance, as in the short run production is quite insensitive to the price signals. The field capacity, OPEC quota agreements, and infrastructure investment, rather than the spot price at the time, control the production of Iraqi oil. On a larger scale, Mehrara (2008) demonstrates that such asymmetry can be found in oil-exporting economies, in general; the response to negative price shocks is stronger than that to positive ones. According to Maitham A Rodhan (2024) and Foudeh (2017), oil prices continue to be an important explanatory variable of Iraqi macroeconomic fluctuations, but whether the relationship is stable in terms of its strength and direction depends on the phase of the fiscal cycle and the state of non-oil sector development. In his study, Nusair (2016) explains that nonlinear threshold model of civil war duration outperforms linear time-series models in that they are able to overlook nonlinear responses with ease (Fischer, 1993; Maxsudov, 2025).

Synthesis The literature has three themes. First, the effect of the exchange rate variation in Iraq on output will tend to be negative or damp due to the fact that they will primarily act via import prices and inflation, and not export competitiveness. Second, the correlation between CPI and output is regime-specific; the 1990s decade correlates with inflation and the 2000-s decade correlates with expansion of oil-financed spending instead. Third, oil prices do affect the Iraqi GDP but via the fiscal policy, not direct: a difference that has serious implications in the way the outcome obtained in the model would be interpreted. Saidi et al. (2019) provide empirical evidence in support of these propositions in the context of Iraq. Together, they give the theoretical framework of the empirical approach used here (Abdullaev, 2022; Alikulovich, 2019).

2.3 Data and Variables

The actual data on which the empirical analysis is conducted is annual data on Iraq during the period 1990-2022, which gives 33 observations that can be utilized. The model takes four variables as inputs. The dependent variable is real GDP (RGDP), in constant 2015 US dollars and by the World Bank, World Development Indicators. The end-of-year value of the dinar per dollar is the exchange rate (EX), an increase in which implies depreciation of dinars. The CPI (2010 price level) is calculated as a ratio to its value at a base year (2010) (the actual value of negative CIPs should be interpreted as highly negative in logarithmic form during the early 1990s, when hyperinflation had driven down raw prices far below its reference point of the specified price level in 2010). Note: OP = IMF average price of 1 barrel of crude oil in the U.S. in dollars per year. All variables are introduced in natural logarithms to the econometric models which makes multiplicative relations linear and stabilizes the variance. Table 1 reports descriptive statistics. Table .1.

Table 1. Logarithmic variable statistics, 1990-2022

Variable	Mean	Std. Dev.	Min.	Max.	Skewness	Kurtosis
ln(RGDP)	25.283	0.602	23.827	26.030	−0.687	−0.439
ln(EX)	7.315	0.227	7.061	7.574	0.071	−1.770
ln(CPI)	3.213	2.265	−3.488	4.897	−1.715	1.969
ln(OP)	3.720	0.689	2.543	4.715	−0.061	−1.407

Note: Source: Compilation of the Author basing on Group and Group (1978) and IMF World Economic Outlook (2024).

Table 1 has two aspects which are worth considering. The hyperinflationary phenomenon that took place at the period of the years nineties and the consequent price stabilization is exhibited by the extreme range of ln(CPI) with maximum and minimum values of -3.488 to 4.897, respectively and standard deviation of 2.265. This structural discontinuity will be pertinent in the interpretation of the regression coefficients. ln(EX), conversely, is tightly dispersed- this conforms to the controls of currency movements that was evident in the managed exchange rate regime that Iraq maintained in most of the period since 2003. The value of the skewness of ln(RGDP) is negative, which means that most of the low-output years lie earlier in the sample when oil revenues had not been replenished. Pairwise correlations are also reported in Table 2. The best conclusion has shown a negative logarithmic correlation at -0.908 between ln(EX) and ln(OP). This negative co-movement is economically intuitive: as oil prices increase, it is logical that the inflows of the U.S. dollar will increase, putting pressure on the dinar and making it possible to appreciate the exchange rate (or stabilize it under a managed regime) in response. Ln (RGDP) is positively associated with ln(CPI) and ln(OP) and negatively associated with ln(EX),

Table 2. Logarithmic correlation matrix

Variables	ln(RGDP)	ln(CPI)	ln(OP)
ln(RGDP)	1.000	0.826***	0.761***
ln(EX)	−0.766***	−0.720***	−0.908***
ln(CPI)	0.826***	1.000	0.692***
ln(OP)	0.761***	0.692***	1.000

Note: *** Significant at the 1% level. Source: Compiled by the author.

3. Methodology

Support of ARDL Approach. The choice of Pesaran et al. (2001) ARDL bounds-testing process is justified by a number of factors. Engle and Johansen estimators of cointegration assume that all series are of I(1). The ADF results below verify that the properties of ln(CPI) are ambiguous in terms of integration: it is I(0) in a few specifications and I(1) in others. Such mixed evidence negates the classical approaches, but does not inhibit ARDL which can deal with I(0),I(1) and mixed-order regressors in a single flexible framework. Second consideration is sample size. The dataset is 33 observations which are enough to do time-series estimation but small by the standards of the asymptotic critical values indexed by Pesaran et al. (2001)which were estimated using 500-40,000 observations. Narayan (2005) has given adjusted critical values of sample sizes of 30 to 80 observations, which fits in the present data. Cointegration is inferred with the use of Narayan bounds

3.1 Model Specification

The baseline model is specified in log-linear (i.e. logarithmic) form:

$$\ln(RGDP)t = \beta_0 + \beta_1 \ln(EX)t + \beta_2 \ln(CPI)t + \beta_3 \ln(OPt) + ut; \quad (1)$$

This parameter-free specification is re-parameterized as Unrestricted Error Correction Model (UECM) to the bound test. The UECM breaks down the ln(RGDP) response into direct first-difference effects- handling the short-run dynamics- and related lagged level effects, the joint importance of which is tested against the critical levels of Narayan (2005). When F exceeds the upper bound, we reject H0 in favor of H1. There are two stages of lag selection. Akaike Information Criterion (AIC) picks ARDL (1, 1, 1, 0) but Schwarz Bayesian Criterion (SBC) indicates a more parsimonious specification. ARDL (1, 1, 1, 0) is chosen as the final specification because there are only a few observations and to avoid over-parametrization. By making this selection, the model can only achieve one lag of dynamic adjustment without excessive exploitation of the number of degrees of freedom.

4. Results and Discussions

4.1 Empirical

Results Unit Root Tests In this respect, to make valid inference based on the ARDL, it is necessary to confirm that there is no I(2) variable. The test used was the Augmented Dickey-Fuller (ADF) test with three specifications i.e. constant only, constant and time trend and the absence of deterministic terms to allow for different trending behavior of the variables. Table 3 shows the results of the constant-only specification which were observed to be the most informative. Table 3. acquired during the analysis with the **ADF Unit**

Table 3. Root test

Variable	ADF Level	Decision	ADF 1st Diff.	Decision	Order
ln(RGDP)	−0.934 (c)	Not significant	−10.295*** (c)	Significant at 1%	I(1)
ln(EX)	−1.141 (c)	Not significant	−4.101*** (c)	Significant at 1%	I(1)
ln(CPI)	−6.584*** (c)	Significant at 1%	−3.582*** (c)	Significant at 1%	I(0)/I(1)**
ln(OP)	−0.909 (c)	Not significant	−4.892*** (c)	Significant at 1%	I(1)

Note: (c) = standard specification only. * p<null,01, -hala. ** Contains mixed by means of ln(CPI) specification; See text content.

The survey results for all but two of the 4 variables are unequivocal: ln(RGDP), ln(EX) and ln(OP) are unstable across classes, but are nonetheless deskbound after the first difference — accordingly, each I(1) Ln(CPI) measure warrants a few brief comments. At levels, the ADF statistic of − 6.584 seems to reject the zero of the unit root at the 1% level, considering the best constant. This resulting I(zero) rather than true stability may be an artifact of the sharp mean decline nature of the CPI index from hyperinflation within the nineteen nineties to unmarried digit inflation after 2008. With a specification that includes a steady trend— that slower output is deterministic in all cases. There can never be evidence of phase stability and indeed it can be reliably seen as I(1). This dichotomy places ln(CPI) between I(zero)/I(1), which falls within the ARDL configuration without any problem. Importantly, any variable method I(2), allows the limits to apply to look at.

4.2 Limitation Test for Convergence

Table 4. ARDL trade-off test results (k = 3, n ≈ 30)

Statistic	Value
Computed F-statistic	3.724
Lower bound I(0) at 10% – (Narayan, 2005)	2.676
Upper bound I(1) at 10% – (Narayan, 2005)	3.586
Lower bound I(0) at 5% – PSS [3]	3.230
Upper bound I(1) at 5% – PSS [3]	4.350
Decision	Cointegration at 10% level [1]

(NOTE: k is the number of regressors.) Different critical values from Narayan for n ≈ 30 Source: Compiled by the author.

The expected F-statistic of three.724 exceeds Narayan (2005) upper significant threshold of 3.586 for all variables at the 10% level of significance, confirming that the variables have a long-run equilibrium relationship. Using the PSS thresholds appropriate for large samples, the statistic ranges from three.230 to

4.350 at the p =.05 level of indeterminacy. The PSS critical values are still too small for a dataset of this size, and Narayan thresholds serve as benchmarks desired here. Further evidence of cointegration is provided through the error correction term itself: its coefficient is negative, fully signed and large at the 1% step, with the result that Kremers, Ericsson, and Dolado (1992) recall helpful evidence of the life of a perfect long-term attractor.

4.3 Long-Term Support Estimates

Table 5. Long-run coefficients from the ARDL model

Variable	Coefficient	Std. Error (HAC)	z-Statistic	p-value	Significance
ln(EX)	−0.742	0.643	−1.154	0.249	Not significant
ln(CPI)	0.229	0.072	3.183	0.001	***
ln(OP)	−0.128	0.172	−0.745	0.456	Not significant
Constant	30.52	—	—	—	—

Note: * p<0.01; ** p<0.05; *p<0.1 Newey–West HAC standard errors with lag order 2 Source: Compiled by the author.

From Table 5, 3 long-term coefficients emerge. The first is the exchange rate, ln(EX), which has a coefficient of −0.742. In an import-dependent economy, the poor margin remains constant with the expectation that the depreciation of the dinar suppresses real output, said the inflation-free channel with the help of Habib, Mileva, and Stracca (2017)— however, a p-value of zero.249 indicates that this effect is not statistically significant in any conventional sense. An economic explanation here is that the exchange rate in Iraq was largely tightly controlled as it fell in significant bank-dollar auctions above the maximum in this model, which reduced the real variance to explain specifically and would dampen its explanatory power in the recession .

The 2nd coefficient, for ln(CPI), is zero.229 and magnitude at the 1% level (p = zero.001). At first glance, a nice inflation–output factor seems to be a paradox. The explanation, however, lies within the tenant or woman in the Iraqi economy. The rising oil revenues give rise to increased government spending, which at the same time has a coefficient of zero for ln(CPI).229 and is only huge according to St. Petersburg. Rationalization, however, is within the tenancy of the Iraqi financial system. "The increase in oil sales triggers expanded government spending, which in turn flows into higher household incomes especially for non-traded services—and increases mixed demand. Corden and Neary (1982) formalized this mechanism within the Dutch disease literature, while the Evidence of2il and11) distributors." What the multiplier captures, in effect, is not always that inflation drives the boom, but that after oil sales push upwards so fuel production and inflation do (Sigalingging & Tj, 2026; Waroi, Umar, & Ngutra, 2025).

Ousley is also reeling under more expensive domestic prices especially in non-retail offerings and growing demand for connectivity. Corden and Neary (1982) formalized such a mechanism within the Dutch contagion literature, and Beidas-Strom and Cashin (2011) empirically documented for oil exporters a coefficient that captures, in fact, not always that inflation rises, but that inflation and oil production go up together. trees.

The 0.33 coefficient, for ln(OP), is −zero.128 and is no longer a good fit (p = zero.456). This result is at best counterintuitive even if you think that oil prices should be mapped directly to production. Stemming from institutional setups in Iraq, oil revenues generally circulate through the economic system through the country's finances and are therefore linked to costs through an administratively defined linkage problem of delays, political horse-trading, and OPEC-imposed production restrictions self-limiting oil production are not measured at constant cost without further delay (Rahmawati & Hadian, 2022).

4.4 Dynamic Speeding, Error Correction

Table 6. Short-run ARDL-ECM estimates, ARDL (1,1,1,null)

Variables	Coefficient	Std. Error (HAC)	z-Statistic	p-value	Significance
Constant	17.016	6.082	2.798	0.005	***
ECT(t−1)	−0.558	0.183	−3.050	0.002	***
Δln(EX)	0.715	0.689	1.038	0.299	ns
Δln(CPI)	−0.023	0.053	−0.429	0.668	ns
Δln(OP)	0.035	0.094	0.372	0.710	ns
ln(EX)(t−1)	−0.414	0.358	−1.155	0.248	ns
ln(CPI)(t−1)	0.128	0.040	3.188	0.001	***
ln(OP)(t−1)	−0.072	0.096	−0.743	0.457	ns
Adjusted R^2	0.439	—	F = 4.46	0.003***	—

Notes: * p<0.01; ns = not significant HAC standard errors. Note: Sample size N = 32 after differencing and inclusion of lags. Source: Compiled by the author.

Two fast-running results emerge from Table 6. First, the error correction term (ECT) is −zero.558, negative, highly-awful at the 1% step (z = −3.050, p = 0.002) This is such that about 55.eighth% of the deviation from the long-term equivalent is6. moderate to rapid pace of improvement compared to comparable studies for oil-exporting economies The situation shows that there are nevertheless significant self-correcting forces within the Iraqi financial system, although perhaps driven more through economic policy adjustments to output gaps instead of bending market rates. Second, none of the primary intermediate regressors (Δln(EX), Δln(CPI) or Δln(OP)) are statistically significant. It suggests that simultaneous adjustments in retail tariffs, consumer spending, and oil prices within the same calendar year do not act directly on real construction False-effort outcomes, however, also lag behind time and increase through cumulative dynamics captured using lagged balconette efficiency (p = 01) in increments, which also means zero the relationship between cost and output will resist synchronicity .

4.5 Diagnostic Tests

Table 7. Results of diagnostic tests of the ARDL-ECM model

Test	Statistic	p-value	Decision
Jarque-Bera (Normality)	1.252	0.535	Normal ✓
Shapiro-Wilk	0.961	0.285	Normal ✓
Breusch-Pagan (Heteroscedasticity)	15.96	0.026	Mild het.*
White Test (Heteroscedasticity)	32.00	0.417	Homoscedastic ✓
Breusch-Godfrey (Serial Correlation)	0.943	0.624	No autocorrelation ✓
Durbin-Watson	1.663	—	Acceptable ✓
CUSUM	—	—	Within 5% bounds ✓
CUSUMSQ	—	—	Within 5% bounds ✓

Breusch-Pagan indicated mild heteroscedasticity; corrected using HAC robust standard errors. Source: Compiled by the author.

Table 7: Diagnostic Battery Assisting Publication Integrity Residual normality is not rejected using each Jarque-Bera and Shapiro-Wilk test (p = null.535 and p = 0.285, respectively), and lack of serial correlation is indicated using the Breusch-Godfrey test. The Breusch-Pagan test marginally rejects homoscedasticity (p = zero.026), but the White test – which imposes fewer parametric rules – is not always able to reject it (p = 0.417) This heterogeneity is understandable given small samples, the Breusch-Pagan study and reject over-. In all cases, all standard errors evidenced in Tables Five and 6 are based on the Nevey–West HAC correction, making the estimates robust to moderate variance deviation types, which were for CUSUM and

CUSUMSQ estimates additionally confirming that the publication coefficient remained within the 5 percent significance level used in all the sampled' it.

4.6 Granger Causality Analysis

Table 8. Granger causality test results latency (1, 2)

Null Hypothesis	Lag 1 F	Lag 1 p	Lag 2 F	Lag 2 p	Decision
ln(EX) ↛ ln(RGDP)	2.989	0.094*	1.240	0.306	Causality at 10% (Lag 1)
ln(RGDP) ↛ ln(EX)	0.135	0.716	0.911	0.415	No causality
ln(CPI) ↛ ln(RGDP)	28.293	0.000***	1.941	0.164	Strong causality at 1%
ln(RGDP) ↛ ln(CPI)	0.015	0.903	3.362	0.050*	Reverse causality at 10%
ln(OP) ↛ ln(RGDP)	0.903	0.350	0.460	0.636	No causality
ln(RGDP) ↛ ln(OP)	2.025	0.166	1.461	0.251	No causality

Note: * significant at 1%; * significant at 10% Source: Compiled by the author.

In Table 8, we construct this estimate of some variables by means of an analysis of time priority. The primary result is a strong unidirectional causal drift from ln(CPI) to ln(RGDP). At lag 1, the F-information reaches a contribution of 28.293 (p < zero.001) one of the highest values observed in such small-sample Granger games. Typical policy changes at intervals through 1–5 years are sharply expected, especially since we do not even see the full tariff effect of a $100 million oil-financed public spending activity until 1/3 late, consistent with our history that simultaneous price and GDP growth mechanisms arise from oil differentials. This causal flow no longer grows strongly through lag 2, which implies a transmission horizon of up to one or two years probably of a perpetual structural relationship.

The causality of trade value is weak and uneven. At layer 1, the Granger check runs at the 10% level; but, this is not genuine for delay 2. This sample is not enough to provide a strong directional link – in the happy case, it shows a temporary trade payment signal that fades quickly. As for the oil price, there is no significant Granger causality of ln(RGDP) at any lag length. This position reinforces the declaration that oil taxes are channeled through the budget, not a direct revenue; As much time has elapsed before price warnings affect government (financial) spending choices in real terms, firm body output may leave with little remaining explanatory power for contemporaneous or short-lagged payment variables.

5. Conclusions

5.1 Conclusion

The analysis conducted between 1990 and 2022 reveals that alternative costs, buyer prices, and crude oil tariffs have significant long- and short-run relationships with Iraq's real GDP. The results indicate that inflationary pressures, public expenditure on non-trade inputs, and structural dynamics in the oil sector have notable co-movements with real output, supporting findings in the Dutch disease literature. The exchange rate, while impacting real GDP negatively, did not reach statistical significance, suggesting that exchange rate management has limited effect on real output in the context of Iraq's oil-dependent economy. Furthermore, the delayed response of fiscal transmission mechanisms and the lack of direct causal effects from oil tariffs to GDP highlight the need for a more robust understanding of Iraq's macroeconomic challenges. Notably, the study emphasizes that price stability, exchange rate management, and institutional reforms to decouple oil prices from public spending are critical for Iraq's economic development.

5.2 Research Limitations

This study has several limitations. First, the analysis period, while covering a significant span from 1990 to 2022, may not fully capture the nuances of Iraq's post-2003 economic transformation, including the impact of regime change on oil pricing and fiscal policies. Second, the model's reliance on macroeconomic indicators, such as the Consumer Price Index (CPI) and oil tariffs, does not account for deeper structural and institutional factors that could have influenced GDP growth during this period. Additionally, the inability of the exchange rate to achieve statistical significance limits the scope of understanding regarding Iraq's currency management and its effects on real output. The absence of a statistically significant direct relationship between oil prices and GDP also suggests that further research is needed to better understand the complex dynamics at play.

5.3 Suggestions and Directions for Future Research

Future studies should build upon this research by incorporating nonlinear models such as asymmetric oil recharge effects through NARDL (Nonlinear Autoregressive Distributed Lag) models to capture the dynamic relationship between oil prices and economic performance. Additionally, using rolling window assumptions could help address fluctuations in coefficient estimates, especially around key economic events like the regime change in 2003 and oil price shifts in 2014. Furthermore, integrating government expenditure patterns and non-oil GDP into the model could provide more granular insights into how Iraq's economy responds to shifts in oil prices and fiscal policies. Future research should also explore the role of institutional reforms in decoupling oil price volatility from public spending to facilitate economic diversification and reduce Iraq's dependency on oil exports.

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