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A comparative analysis of economic stimulus policies and their impact on economic growth in Iraq (2000-2024)

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Abstract
This study explores Iraq's economic trajectory from 2000 to 2024, focusing on the interplay between key macroeconomic variables: interest rates, exchange rates, foreign direct investment (FDI), and growth in the non-oil sector. Employing the Autoregressive Distributed Lag (ARDL) approach, the analysis captures both immediate and lagged effects among these variables. The ARDL bounds test provides evidence of long-run cointegration, pointing to stable equilibrium relationships over time. Empirical findings indicate that interest rates negatively influence GDP, while fluctuations in the exchange rate significantly affect both non-oil sector growth and inflation dynamics. The effects of FDI are mixed, shaped by conditions in both the interest and exchange rate environments, with lagged values suggesting persistent impacts. In the short run, the models reveal significant error correction terms, suggesting a rapid adjustment process toward long-run equilibrium. Diagnostic checks confirm the robustness of the model specifications, showing no evidence of serial correlation, heteroscedasticity, or non-normality of residuals. The results underscore the importance of both responsive short-term macroeconomic management and long-term structural reforms. Policy recommendations derived from these findings emphasize the necessity for balanced interest rate management, exchange rate stabilization, economic diversification beyond the oil sector, and the cultivation of a more attractive investment climate. Such measures are deemed essential for fostering sustainable economic growth, ensuring macroeconomic stability, and enhancing Iraq's economic resilience.

Keywords: Economic stimulus policies, economic growth, ARDL model, Iraq

1. Introduction
Economic stimulus policies play a pivotal role in shaping the growth trajectories of nations, but in Iraq, the issue is particularly complex. Since 2000, Iraq has faced a series of major disruptions international sanctions, the 2003 U.S.-led invasion, persistent internal conflict, unpredictable oil markets, and the ongoing difficulties of post-war reconstruction. These factors have profoundly affected both the formulation and the success of government-led stimulus efforts. As a result, policies designed to revitalize the economy, reduce unemployment, and stabilize living standards in Iraq must contend with a challenging and volatile environment, making the process significantly more complicated than in more stable contexts. Financial instability influences nearly every aspect of people's lives employment, access to education, healthcare, and even housing conditions, as George and Wilding noted back in 1984 (George & Wilding, 1984) [9] During the economic crisis, in response to these widespread impacts, the government implemented a stimulus plan that was, by all accounts, one of the most significant interventions since Roosevelt's New Deal (Meckler, 2009) [12]. This stimulus plan targeted several crucial policy domains: employment, education, and healthcare. Specifically, approximately $71 billion was allocated to employment initiatives (AP, 2009). Of this, $40 billion went toward extended unemployment benefits, $20 billion supported increased food stamp benefits, $4 billion funded job training programs, and $3 billion assisted with temporary welfare payments ("Highlights", 2009) [10]. This substantial investment reflected a comprehensive approach to mitigating the multifaceted effects of economic hardship.

Economic stimulus efforts in Iraq have taken a variety of forms—from direct government investment in reconstruction and infrastructure, to more technical monetary and fiscal maneuvers linked closely to oil revenue flows. In many cases, these policies were emergency fixes, meant to tackle immediate crises. But, as you'd expect, the ripple effects have lingered—affecting inflation, long-term economic growth, and, crucially, Iraq's struggle to diversify beyond oil. Looking at the period from 2000 to 2024, you've got a real case study in what works and what doesn't. The country went from pre-war sanctions and severe austerity, to a massive post-2003 rebuilding push. Then came the oil boom, which, while lucrative, came with its own set of headaches. The rise of ISIS brought chaos and economic breakdown, followed by the curveball of COVID-19 and all the fiscal headaches that came with it. At each of these junctures, Iraqi policymakers found themselves improvising sometimes with success, sometimes not so much. If you line up these stimulus policies and really examine them, patterns start to emerge. Some strategies made a clear impact, while others just papered over deeper problems. Ultimately, analyzing this whole saga offers valuable lessons—not only for Iraq, but for other post-conflict or oil-reliant economies looking to build something more resilient and stable.

2. Literature Review

The discourse surrounding economic stimulus policies is rooted in longstanding debates within macroeconomic theory, notably between the Keynesian emphasis on government spending and fiscal intervention as tools for stabilizing economies during downturns, and the neoclassical (and monetarist) skepticism toward such intervention, which prioritizes structural reforms, private investment, and market-driven efficiency (Blinder, 2004) [6]. In resource-dependent nations like Iraq, these theoretical divisions take on added complexity due to the volatility of oil revenues, persistent political instability, and the challenges posed by weak institutional frameworks.

2.1 Economic Stimulus Package

An economic stimulus package, in academic terms, refers to a collection of fiscal measures enacted by governmental authorities to invigorate economic activity during periods marked by recession or stagnation. Typically, these packages comprise increased public expenditure and tax incentives, both designed to enhance aggregate demand, stimulate job creation, and ultimately drive economic expansion. Stimulus interventions may be broad—such as investments in infrastructure or more narrowly focused, addressing specific circumstances like disaster recovery.

Historically, the concept of economic stimulus gained prominence during the 1930s, particularly under President Franklin D. Roosevelt's administration, as a response to the Great Depression. The primary objective then was to mitigate unemployment and restore economic stability. Since that era, stimulus packages have become a recurrent policy tool, deployed in response to various economic downturns. Notably, the Economic Stimulus Acts of 2008 and 2009 were implemented as countermeasures to the global financial crisis, exemplifying the continued reliance on such strategies in modern economic policy (EBSCO, 2018).

2.2 Economic Stimulus

In early 2008, Congress passed the Economic Stimulus Act, which was subsequently signed into law by President Bush on February 13. The legislation provided for the distribution of stimulus payments, which included a basic payment to eligible recipients. Additionally, individuals with children who qualified for the child tax credit received a supplementary payment of $300 per qualifying child. This initiative was designed to offer financial support to households and stimulate economic activity during a period of downturn.

2.3 Economic Growth

According to the World Bank, economic growth refers to the increase in a country's economic output over time, typically measured by the percentage change in gross domestic product (GDP) within a given year. This growth can manifest in two primary ways: extensive and intensive. Extensive economic growth occurs when a nation expands its output by utilizing additional physical, natural, or human resources. In such scenarios, increases in GDP often coincide with population growth, resulting in little to no improvement in per capita income. In contrast, intensive economic growth is achieved when a country becomes more efficient or productive with its existing resources. Here, GDP growth surpasses population growth, leading to a sustained rise in real income per capita and, consequently, higher living standards. The World Bank emphasizes that genuine progress in economic well-being is generally linked to intensive growth, which necessitates ongoing economic development and improved resource utilization (Snowdon, 2006) [14].

2.4 Economic Competitiveness

Here's the same info, but dressed up in its academic best: Economic growth isn't unique to the United States; countries worldwide are actively striving to boost their standing in the global economic arena. Historically, tools like the Growth Competitiveness Index and the Business Competitiveness Index have been used to assess and monitor national economic competitiveness. More recently, however, the Global Competitiveness Index has emerged as the primary standard, offering a comprehensive evaluation by considering both macroeconomic and microeconomic dimensions of a nation's performance. Competitiveness, in this context, encompasses the institutions, policies, and factors that collectively shape a country's productivity level. Higher productivity typically correlates with stronger economic growth (Snowdon, 2006) [14]. Yet, the trajectory of national economic growth is far from uniform; it fluctuates across regions and historical periods. Factors such as quality of leadership, political and economic stability, natural resource endowments, international relations, and infrastructure all influence whether nations experience economic advancement or stagnation. In today's era of economic globalization, these dynamics are particularly pronounced, generating robust albeit uneven patterns of growth and development worldwide (Jones, 2005) [11].

3. Study Methodology

This research adopts a quantitative econometric framework to investigate the evolving interplay between economic crises and macroeconomic performance in Iraq over the period 2000 to 2024. In particular, the study utilizes the

Autoregressive Distributed Lag (ARDL) Bounds Testing Approach to cointegration, as outlined by Pesaran, Shin, and Smith (2001) [13]. The ARDL method is particularly well-suited for assessing both short-run dynamics and long-run equilibrium relationships among variables, even in cases where the variables are integrated of mixed orders, specifically I(0) and I(1).

Model applied in the study is as follows:

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + \sum_{j=0}^{q1} \gamma_j \Delta X_{t_{t-j}} + \sum_{j=0}^{q2} \delta_j \Delta X_{t-j} + \lambda_1 \Delta Y_{t-1} + \lambda_2 X_{1,t-1} + \lambda_3 X_{2,t-1} + \mu t$$

Where:

Y_t = GDP growth

X = independent variables (FDI, NGDP, INF, GEXP, IR, EXR, OIL)

Δ = first difference operator

λ_i = long-run coefficients

$\beta_i, \gamma_j, \delta_k$= short-run coefficients

For this analysis, I utilized EViews 10, which streamlines tasks like conducting unit root tests, choosing optimal lag lengths, estimating ARDL models, and performing cointegration analysis through the bounds testing method. After confirming the presence of cointegration among the variables, I estimated the long-run coefficients and specified an error correction model (ECM) to capture short-term fluctuations and the speed at which the system returns to equilibrium. To ensure the results were solid, I conducted several diagnostic checks: tests for serial correlation, heteroscedasticity, and normality, along with model stability assessments using CUSUM statistics. This approach provides a thorough evaluation of how green economy factors have influenced Iraq's trajectory toward sustainable economic development throughout 2000-2024.

4. Results and Discussion

Table 1 provides a comprehensive overview of Iraq's economic indicators from 2000 to 2024, highlighting persistent volatility and structural imbalances. GDP growth averaged 13.26%, with a standard deviation of 7.07, indicating moderate fluctuations. The range extended from a low of 3.29% to a high of 23.46%, and the distribution remained nearly symmetric (skewness = -0.01). Foreign direct investment (FDI) inflows present a particularly concerning pattern, with a negative mean of -990.59 million USD. This reflects sustained capital outflows, especially pronounced during periods of crisis. The high standard deviation (4090.88) and negative skewness (-1.2) further illustrate the prevalence of extreme negative events within this variable. Non-oil GDP growth remains notably subdued, averaging just 1.56% and demonstrating substantial instability (SD = 13.42). The minimum observation of -36% underscores the pronounced vulnerability of Iraq's non-oil sectors. Inflation, averaging 29.25%, also demonstrates considerable variability (SD = 13.42), with a maximum of 47.95%. This indicates ongoing challenges related to price instability. Government spending growth averaged 9.67%, but with pronounced swings (SD = 21.21), ranging from a contraction of -16.52% to an expansion of 57.63%. These fluctuations reflect the fiscal instability tied to oil revenue cycles. Interest rates are exceptionally high, with a mean of 1300.03 and substantial dispersion (SD = 236). The positive skewness (2.07) and elevated kurtosis (6.62) indicate a clustering of extreme observations. Finally, the exchange rate exhibited relative stability, mirroring GDP growth with a mean of 13.26, low skewness (-0.01), and moderate variability.

Table 1: Descriptive statistics of Economic Research variables

Variable	Mean	SD	Max	Min	Skewness	Kurtosis
GPD	13.26	7.07	3.29	23.46	-0.01	1.7
FDI	-990.59	4090.88	-10200	3400	-1.2	3.1
Non-oil GDP Growth	1.56	13.42	-36	14.99	-1.67	5.46
Inflation	29.25	13.42	7.92	47.95	-0.07	1.7
Increase government spending	9.67	21.21	-16.52	57.63	0.99	3.12
interest rates	1300.03	236	1166	2002.37	2.07	6.62
Exchange rate	13.26	7.07	3.29	23.46	-0.01	1.7

Table 2 presents the results of the Dickey-Fuller unit root tests, which evaluate whether the variables in the study are stationary or not. For GDP, the test statistics at level (0.989, −0.668, and −2.427 across the three specifications: no intercept, intercept, and trend with intercept) all exceed the critical values (−1.956, −2.992, −3.612). This indicates that GDP is non-stationary at level. FDI displays mixed evidence: the statistics (−1.175, −1.492, −2.862*) suggest only weak stationarity under the trend with intercept, while the other scenarios remain above the relevant thresholds. Non-oil GDP growth, however, clearly demonstrates stationarity at level across all specifications, with values (−5.522*, −5.943*, and −5.563) that are well below the critical cutoffs. Inflation's stationarity at level is inconsistent, as the test statistics (−2.556*, −2.852, and −4.004*) only partially support stationarity depending on the specification. Government spending fails to meet the stationarity requirement at level, with all reported values (2.214, 0.120, and −2.009) above the corresponding critical values. Interest rates show evidence of stationarity only under the trend specification (−3.867*), while the other two values (−2.242*, −2.539) do not meet the criterion. The exchange rate is non-stationary in all three cases (−0.553, 0.824, −0.864). After first differencing, most variables that were previously non-stationary become stationary. GDP at first difference yields (−4.009*, −4.601*, and −4.467*) under the three specifications, confirming stationarity at order one. FDI also becomes stationary after differencing, with values (−3.618, −3.562, −3.471) below the 1% critical value. Government spending and the exchange rate similarly achieve stationarity after first differencing. Non-oil GDP growth, inflation, and interest rates were already stationary

at level, so further differencing is unnecessary. In summary, the results indicate that the variables in the study are a combination of I(0) and I(1), with no variable integrated at I(2). Therefore, the use of the ARDL bounds testing approach is appropriate for the subsequent analysis.

Table 2: Stationarity Test of Variables by Dickey-Fuller Test

Level	Dickey-Fuller	a	b	c
GPD	0.989, -0.668,-2.427	-1.956	-2.992	-3.612
FDI	-1.175, -1.492,-2.862*	-1.956	-2.862	-3.633
Non-oil GDP Growth	--5.522*, -5.943*, -5.563	-1.956	-2.998	-3.22
Inflation	-2.556*, -2.852, -4.004*	-1.956	-2.998	-3.622
Increase government spending	2.214, 0.120, -2.009	-1.956	-2.998	-3.612
interest rates	-2.242*, -2.539, -3.867*	-1.968	-3.099	-3.791
Exchange rate	-0.553, 0.824, -0.864	-1.957	-3.005	-3.658
First difference				
GPD	-4.009*, -4.601*, -4.467*	-1.956	-3.005	-3.632
FDI	-3.618, -3.562, -3.471	-1.957	-3.005	-3.633
Non-oil GDP Growth	-	-	-	-
Inflation	-	-	-	-
Increase government spending	-3.669*, -4.652*, -4.612*	-1.956	-2.998	-3.622
interest rates	-	-	-	-
Exchange rate	-3.498*, -3.419*, -3.111	-1.961	-3.040	-3.711

a,b,c at level, intercept, trend and intercept respectively.
*: Significant at 5%.

Figures 1 to 4 display the process of selecting optimal lag lengths for the ARDL models addressing GDP, FDI, non-oil GDP growth, and the inflation rate. For this selection, widely recognized information criteria were applied namely, the Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SBC), and Hannan-Quinn Criterion (HQC).

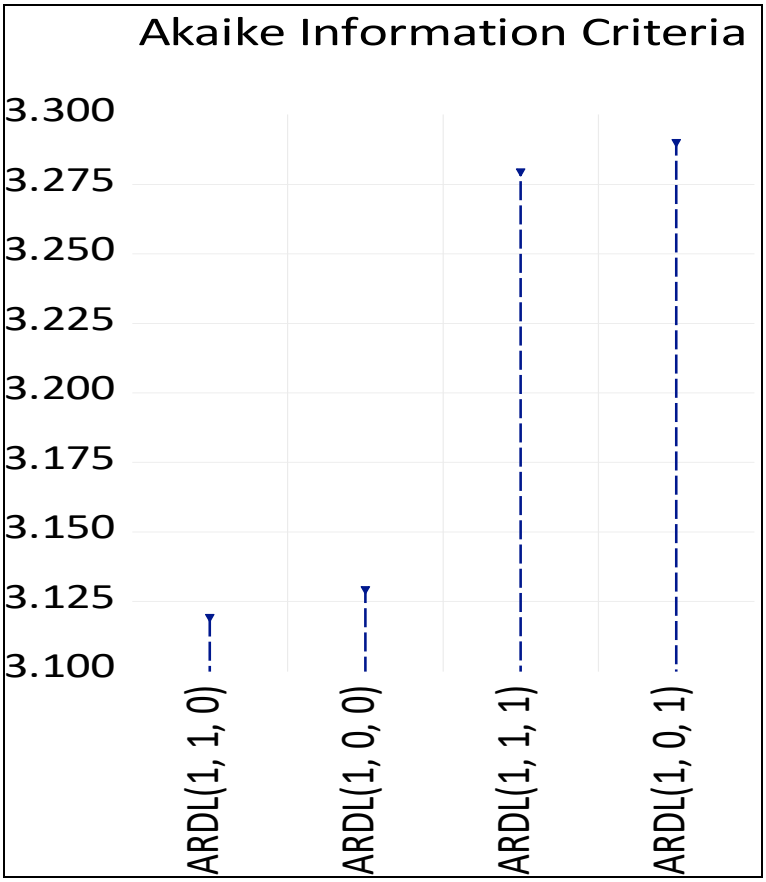

Fig 1: Optimal Lag to ARDL Model of GPD

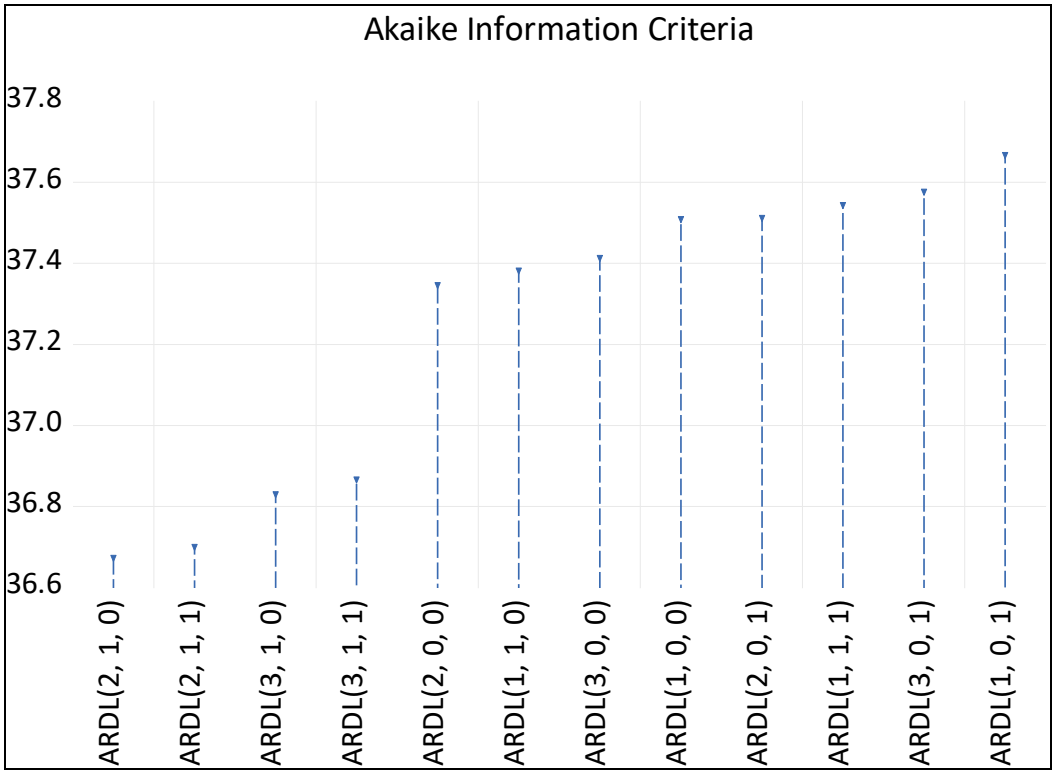

Fig 2: Optimal Lag to ARDL Model of FDI

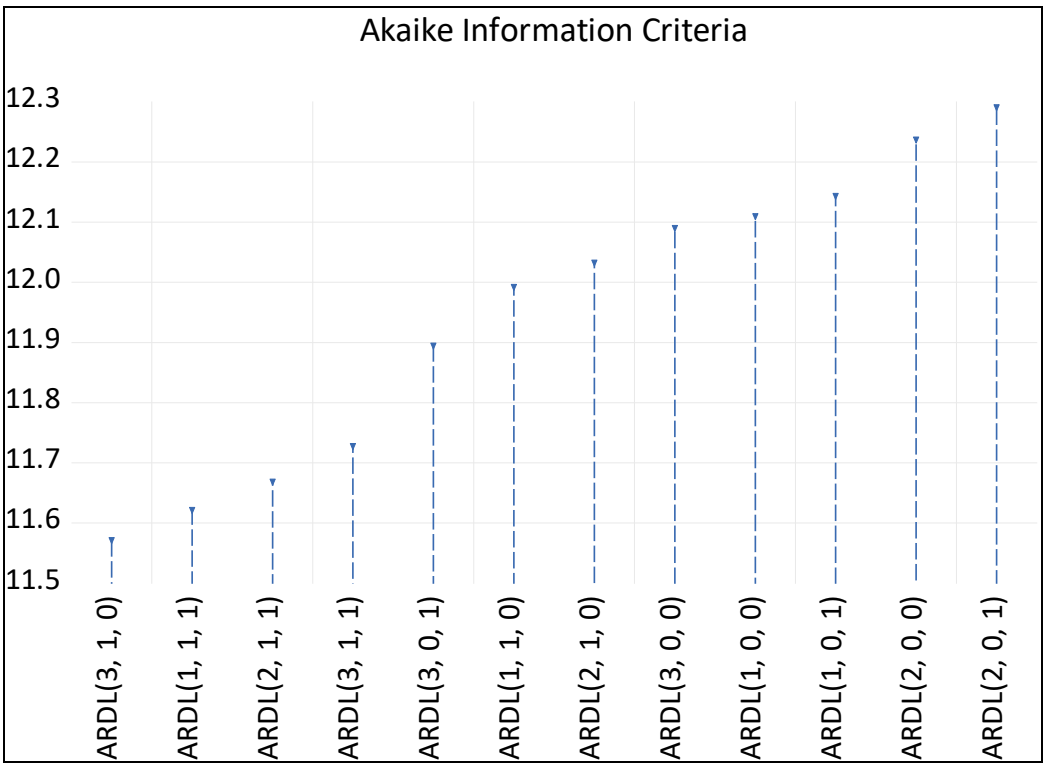

Fig 3: Optimal Lag to ARDL Model of NON_OIL_GDP_GROWTH

Table 3 clearly demonstrates robust evidence of long-term cointegration among the variables across all four models, as indicated by F-statistics and t-statistics that surpass the upper critical bounds at the 5% significance level. For instance, Model 1 presents an F-value of 13, which decisively exceeds the I(1) critical values, solidifying the presence of a long-run relationship. The pattern holds for Models 2, 3, and 4, with significant F-values (7.941, 145.896, and 12, respectively) and corresponding t-values that all surpass the required upper bounds. These findings collectively suggest that the explanatory variables in each model exert a stable and meaningful influence on the dependent variable over the long term. Short-term fluctuations are therefore likely to self-correct, gradually returning toward the established equilibrium. This outcome substantiates the appropriateness of employing the ARDL framework to analyze the effects of economic stimulus policies on economic growth in Iraq over the period 2000-2024.

Table 3: ARDL bounds test analysis of Models

Model	Cointegration	Significance	F-Value	F-Bounds Test		t- Value	T-Bounds Test	
				I(0)	**I(1)**		**I(0)**	**I(1)**
1	**Yes**	1275242*	10%	2.63	3.35	**13 ***		
			5%	3.1	3.87			
			1%	4.13	5			
2	**Yes**	7.941*		**I(0)**	**I(1)**	**13 ***	**I(0)**	**I(1)**
			10%	2.63	3.35		2.845	3.623
			5%	3.1	3.87		3.478	4.335
			1%	4.13	5		4.948	6.028
3	**Yes**	145.896*		**I(0)**	**I(1)**	**14 ***	**I(0)**	**I(1)**
			10%	2.63	3.35		2.845	3.623
			5%	3.1	3.87		3.478	4.335
			1%	4.13	5		4.948	6.028
4	**Yes**	106.9813*		**I(0)**	**I(1)**	**12 ***	**I(0)**	**I(1)**
			10%	2.63	3.35		2.845	3.623
			5%	3.1	3.87		3.478	4.335
			1%	4.13	5		4.948	6.028

*: Significant at 5%.

The results in Tables from (4-7) show that the ARDL analysis provides valuable insights into the economic dynamics of Iraq. For GDP (Table 4), the long-run estimates demonstrate that higher interest rates have a significant negative impact on growth, suggesting that increased borrowing costs constrain economic expansion. In contrast, exchange rates do not exhibit significant effects in the long term. The marginal significance of the constant term points to the potential influence of structural factors on growth. Short-run results confirm the presence of a significant error correction mechanism, with a coefficient indicating that deviations from equilibrium are corrected at a relatively rapid pace. The model's high R-squared value (0.973) and significant F-statistic underscore its strong fit and explanatory power. In terms of foreign direct investment (FDI, Table 5), the long-run analysis reveals that both interest rates and exchange rates significantly and positively affect FDI inflows. Additionally, lagged FDI demonstrates a negative effect, which may indicate persistence effects or adjustment dynamics. The constant term is both large and negative, reflecting possible structural challenges to maintaining robust FDI inflows. Short-run estimates reinforce the sensitivity of FDI to recent changes, with a strongly negative coefficient for lagged FDI and a positive effect from interest rates, suggesting that short-term policy shifts can influence investment behavior. The error correction term is significant and positive, highlighting robust adjustment toward equilibrium. The model accounts for 90% of the variation in FDI, confirming its reliability.

For non-oil GDP growth (Table 6), the long-run results show that exchange rate movements have a significant, positive effect, implying that currency depreciation may encourage non-oil exports and production. Interest rates, however, are not significant, indicating weaker monetary transmission to the non-oil sector. The strongly negative coefficient on lagged non-oil GDP growth suggests a moderating effect over time, possibly due to resource limitations. The error correction term is negative and highly significant, demonstrating a strong speed of adjustment to equilibrium. The explanatory power (R-squared = 0.723) is moderate, yet acceptable for macroeconomic analyses. Regarding inflation (Table 7), long-run dynamics are dominated by past inflation, which shows a strong negative and significant influence—indicative of persistence and adjustment effects. Interest rates and exchange rates do not appear significant in the long term. However, in the short run, changes in exchange rates are highly significant and positive, confirming that inflation in Iraq is substantially affected by currency fluctuations. The error correction mechanism remains negative and strongly significant, supporting rapid adjustment to equilibrium. The model's explanatory power is exceptionally high (R-squared = 0.99), indicating that the included variables effectively capture inflation behavior.

Table 4: ARDL Cointegration Long and Short Run Coefficients of GPD

Long Run Analysis				
Variable	**Coefficient**	**SE**	**t-Statistic**	**P.value**
GPD(-1)*	0.026861	0.082802	0.324405	0.7523
INTEREST_RATES	-0.13	0.023111	-5.62479	**0.0002**
EXCHANGE_RATE	-0.00382	0.002129	-1.79377	0.1031
C	6.904516	3.452917	1.999618	0.0734
Short Run Analysis				
CointEq (-1)*	0.026861	0.003148	8.533641	**0.001**
Sensitivity analysis				
R-squared	0.973			
Adjusted R-squared	0.965			
F-statistic	120.555			
Prob (F-statistic)	0.0000			

Table 5: ARDL Cointegration Long and Short Run Coefficients of FDI

Long Run Analysis				
Variable	**Coefficient**	**SE**	**t-Statistic**	**P.value**
l(FDI(-1)	2.752028	1.219762	2.256201	0.0587
INTEREST_RATES(-1)	2495037	513319.6	4.860592	0.0018
Exchange_Rate	144617.6	56909.48	2.541186	0.0386
lFDI(-1)	-3.292871	1.158151	-2.84321	0.0249
Linterest_Rates	1383693	299470.1	4.620473	0.0024
C	-1.90E+08	73601485	0	0
Short Run Analysis				
D(l(FDI(-1)	-3.292871	0.515471	-6.38809	0.0004
D(INTEREST_RATES)	1383693	215769.6	6.41283	0.0004
CointEq(-1)*	2.752028	0.408545	6.736161	0.0003
Sensitivity analysis				
R-squared	0.903			
Adjusted R-squared	0.834			
F-statistic	13.10			
Prob(F-statistic)	0.0019			

Table 6: ARDL Cointegration Long and Short Run Coefficients of NON_OIL_GDP_GROWTH

Long Run Analysis				
Variable	**Coefficient**	**SE**	**t-Statistic**	**P.value**
Lnon_Oil_Gdp_Growth	-1.03692	0.044485	-23.3095	**0.000**
Interest_Rates	3.290063	2.783542	1.18197	0.2646
Exchange_Rate	1.275123	0.250161	5.097208	**0.0005**
C	-1504.31	336.7684	-4.4669	**0.0012**
Short Run Analysis				
CointEq(-1)*	-1.03692	0.037646	-27.5438	**0.000**
Sensitivity analysis				
R-squared	0.723			
Adjusted R-squared	0.639			
F-statistic	8.701			
Prob(F-statistic)	0.0038			

Table 7: ARDL Cointegration Long and Short Run Coefficients of Inflation Rate

Long Run Analysis				
Variable	**Coefficient**	**SE**	**t-Statistic**	**P.value**
D (Inflation(-1))^3*	-1.36522	0.072793	-18.755	**0.000**
Interest_Rates(-1)^5	-2.34E-05	3.01E-05	-0.77916	0.4711
Exchange_Rate(-1)^3	-5.12E-06	6.01E-06	-0.8527	0.4328
D(D(Inflation(-1))^3)	0.090612	0.047725	1.89862	0.1161
D(Interest_Rates^5)	-3.51E-06	1.94E-05	-0.1805	0.8638
D(Exchange_Rate^3)	0.000205	1.11E-05	18.48786	0.000
C	9253.685	13260.27	0.697851	0.5164
Short Run Analysis				
lD(D(Inflation(-1))	0.090612	0.035631	2.543083	0.0517
D(Linterest_Rates)	-3.51E-06	9.84E-06	-0.35646	0.736
D(Lexchange_Rate)	0.000205	7.32E-06	28.01633	0.000
CointEq(-1)*	-1.36522	0.052175	-26.1664	0.000
Sensitivity analysis				
R-squared	0.99			
Adjusted R-squared	0.977			
F-statistic	79.351			
Prob(F-statistic)	0.000085			

Diagnostic Tests

Table 8's diagnostic test results offer strong support for the reliability of the ARDL models. The Breusch-Godfrey LM test indicates that, with the exception of Model 4—which sits just above the typical significance threshold (p=0.051)—there is no significant serial correlation in the residuals. This suggests that, for the most part, the models do not exhibit problematic autocorrelation. The ARCH test results similarly point to an absence of heteroscedasticity, implying that the variance of residuals is stable across all models. Additionally, the Jarque-Bera test confirms normality of residuals, with all p-values comfortably exceeding the 0.05 benchmark. The CUMSUM Square test for stability of models, the Figures from (5-8) show the applied models have stability. Taken together, these diagnostics indicate that the estimated ARDL models are robust and free from major econometric issues, lending credibility to both the long-term and short-term relationships identified in the analysis.

Table 8: ARDL Diagnostic Test Results of Models

Test	Model	F-stat	P.value	Results
Breusch-Godfrey serial correlation LM test	1	1.705	0.242	No of serial correlation issue
	2	0.0304	0.970	
	3	0.862	0.458	
	4	18.894	0.051	
ARCH heteroscedasticity test	1	0.968	0.348	No Heteroscedasticity issue
	2	0.044	0.838	
	3	0.165	0.693	
	4	0.405	0.682	
Jarque-Bera test	1	1.0458	0.593	Estimated Residual is normal
	2	0.988	0.610	
	3	0.531	0.767	
	4	3.316	0.191	

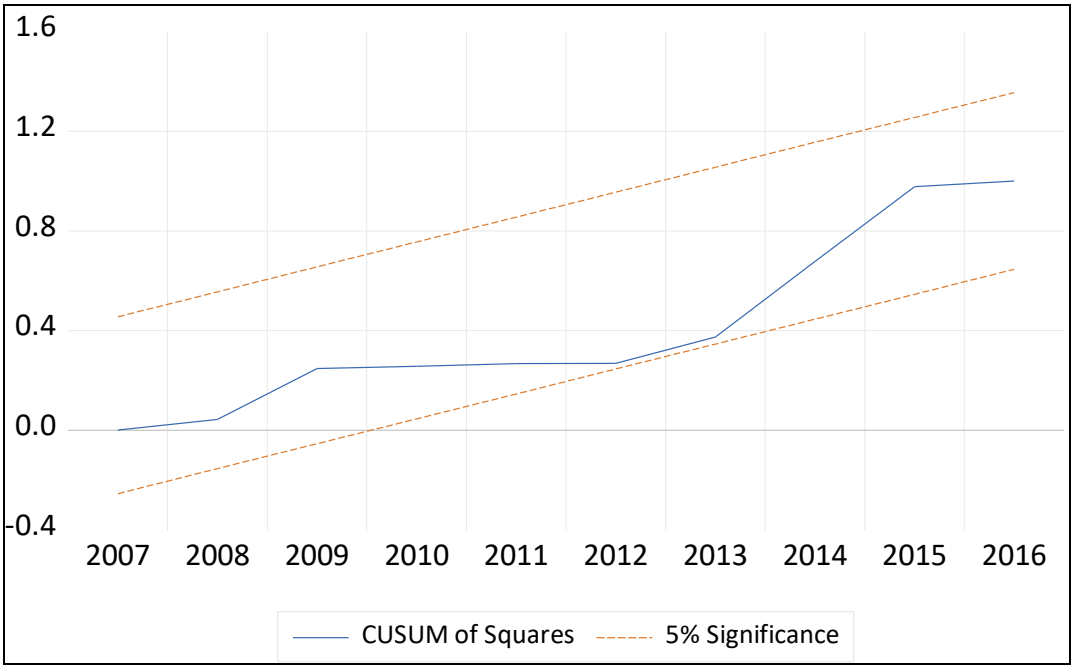

Fig 5: CUMSUM Square Model 1

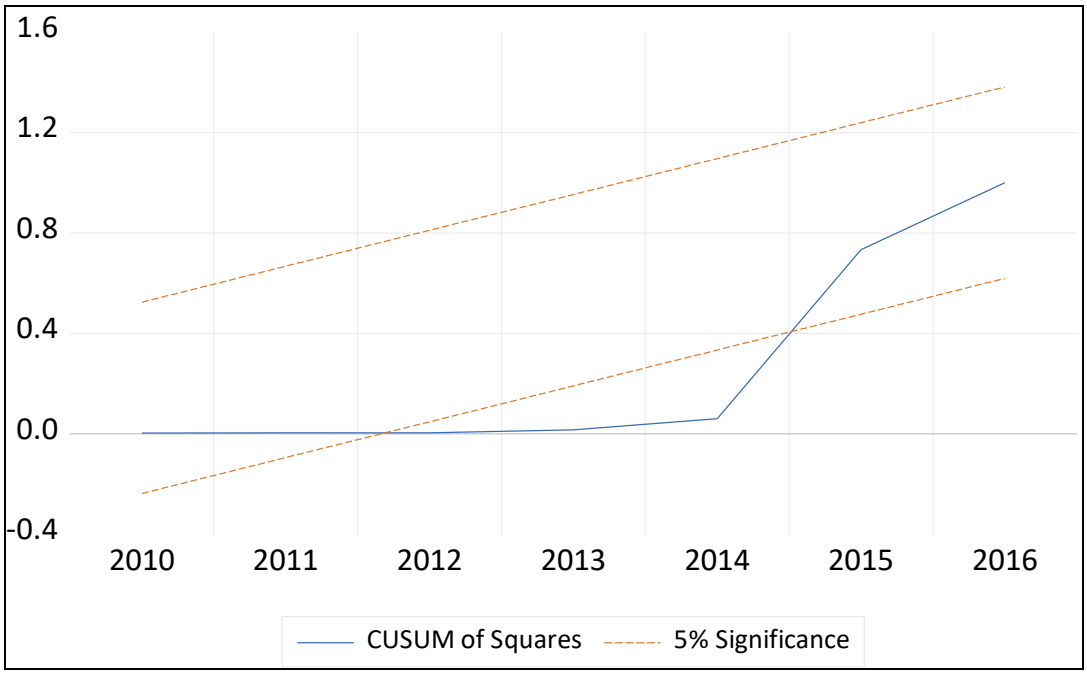

Fig 6: CUMSUM Square Model 2

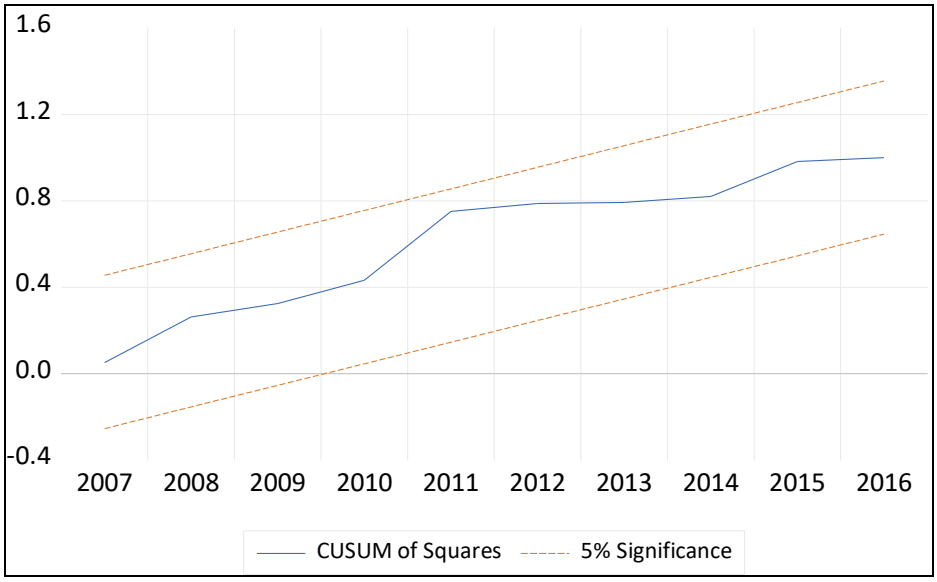

Fig 7: CUMSUM Square Model 3

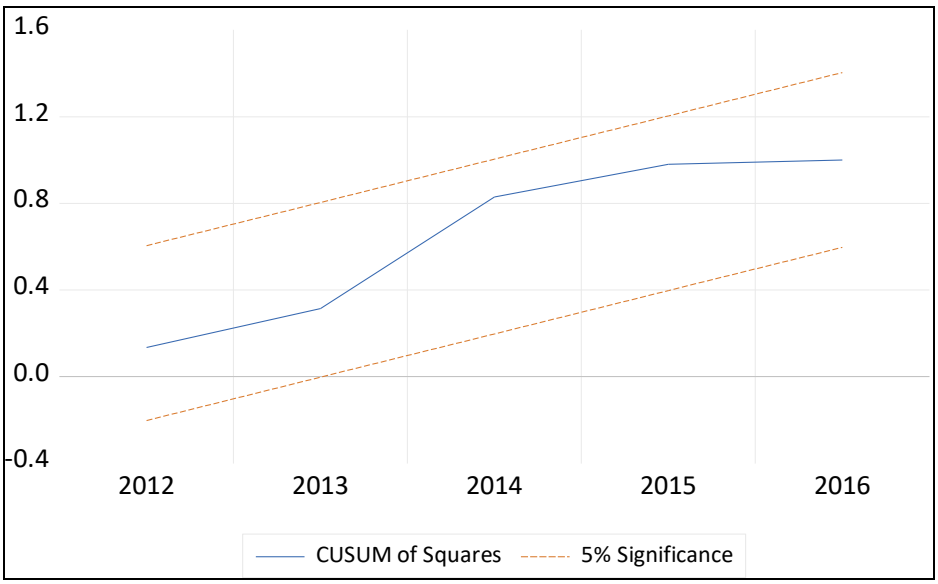

Fig 8: CUMSUM Square Model 4

5. Conclusion

This study investigates the effects of economic stimulus policies and major macroeconomic variables on Iraq's economic growth, foreign direct investment (FDI), non-oil GDP growth, and inflation over the period 2000-2024. Employing the ARDL bounds testing approach, the analysis demonstrates that long-run cointegration relationships persist across all models, suggesting that Iraq's economy maintains a degree of equilibrium even in the face of persistent shocks and structural difficulties. The long-run results indicate that higher interest rates consistently suppress GDP growth, highlighting the economy's sensitivity to monetary policy. Although exchange rates do not significantly affect overall GDP, they play a critical role in shaping non-oil GDP growth and inflation, underscoring Iraq's reliance on currency stability. FDI presents mixed effects, as interest and exchange rates influence investment inflows, yet there are signs of persistence challenges due to lagged effects. In the case of inflation, short-term fluctuations are predominantly driven by changes in the exchange rate, confirming Iraq's exposure to imported inflationary pressures.

Short-run dynamics across all models exhibit significant error correction terms, indicating that deviations from equilibrium are rapidly adjusted, with particularly robust correction observed in non-oil GDP growth and inflation. Diagnostic testing affirms the robustness of these models, with no significant econometric concerns detected. Overall, these findings emphasize the importance of both immediate policy responses and longer-term structural reform. While fiscal and monetary stimulus policies can provide short-term support, their effectiveness hinges on prudent interest rate management, exchange rate stabilization, and ongoing efforts to diversify Iraq's economy beyond oil. Consequently, this study offers empirical evidence to inform Iraqi policymakers in designing stimulus strategies that promote sustainable growth, attract investment, and enhance macroeconomic stability amid global and domestic challenges.

6. Recommendations

- Drawing from the revised analysis, several key recommendations emerge to enhance the effectiveness

of Iraq's economic stimulus policies and promote sustainable growth, all articulated in a more academic register:

- Interest rate policy should be calibrated with care. Elevated interest rates have demonstrably negative effects on GDP and deter private investment. Accordingly, the Central Bank of Iraq ought to pursue a balanced approach—promoting borrowing and private sector engagement, while maintaining vigilance over inflationary pressures.
- Exchange rate stability is paramount. Volatility in currency markets has a pronounced impact on non-oil GDP growth and inflation. Policymakers should prioritize the prudent management of foreign reserves, implement robust mechanisms to mitigate speculative activity, and reinforce the institutional capacity of monetary authorities to foster a stable exchange environment.
- Economic diversification is essential. Iraq's reliance on oil revenues leaves the nation acutely vulnerable to external shocks. Stimulus initiatives must be strategically directed toward the development of non-oil sectors—including agriculture, manufacturing, and services—to build a more resilient economic structure.
- Strengthening the investment climate is vital for attracting foreign direct investment (FDI). Addressing structural impediments—such as bureaucratic inefficiencies, lack of transparency, and weak enforcement of property rights—coupled with targeted incentives, can significantly enhance Iraq's appeal to international investors.
- Effective inflation control mechanisms are necessary. Given the influential role of exchange rate fluctuations on domestic prices, monetary and fiscal authorities must coordinate closely, employing targeted subsidies and prudent liquidity management to ensure price stability.
- Institutionalizing monitoring and evaluation is crucial. The integration of systematic policy assessment into Iraq's economic planning framework will enable timely adjustments, ensuring that stimulus measures remain responsive and effective amidst evolving economic conditions.

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