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Modeling the Short-Run Consumption Function in Iraq: The Role of Income and Government Expenditure (1981–2021)

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Abstract

Purpose - This study examines the drivers of short-run household consumption in Iraq, testing whether income or government expenditure dominates demand dynamics in a rentier economy.

Method - Using annual data (1981–2021), we employ Structural Vector Autoregression (SVAR) with impulse response functions and forecast error variance decomposition alongside OLS regressions. Variables include household consumption, GDP, and government expenditure, all I (1) integrated with one cointegrating relationship.

Result - Fiscal shocks produce immediate and sustained consumption increases, while GDP effects are weak or negative (coefficient: –0.46, $p<0.05$ versus +0.98, $p<0.01$ for government expenditure). Variance decomposition reveals government spending explains 17% of consumption volatility in year one, rising to 55% by year ten. GDP shocks remain minor throughout all horizons.

Implication - Iraq's consumption dynamics reflect fiscal dominance rather than conventional income-driven patterns. Policymakers should prioritize stable, household-targeted expenditure and establish fiscal buffers against oil price volatility to stabilize household welfare across economic cycles..

Originality - This is the first long-horizon SVAR analysis of Iraq's consumption function, challenging Keynesian income-centric models and providing structural evidence of fiscal transmission channels in resource-dependent, post-conflict economies where state redistribution substitutes for private income generation.

Keywords: consumption function, fiscal policy, government expenditure, structural VAR, Iraq, rentier economy

Introduction

Understanding the relationship between aggregate expenditure and gross domestic product (GDP) is central to macroeconomic analysis. These two variables exert mutual influence: higher spending leads to increased GDP, while rising income fuels further consumption. This interdependence is captured in the concept of the consumption function, where rising income triggers greater household spending.

In Keynesian theory, the consumption function powers the multiplier effect, where initial injections into the economy lead to amplified increases in GDP. This effect is especially relevant in developing countries like Iraq, where fiscal policy dominates demand management. This study examines the short-run drivers of consumption in Iraq from 1981–2021, focusing on income and government spending as key factors. Given the dominance of oil revenues and public sector transfers, it is vital to analyze the extent to which these variables influence domestic consumption patterns.

Despite the theoretical and empirical richness of consumption literature, significant gaps remain in understanding consumption dynamics in oil-dependent, post-conflict economies like Iraq. Most existing studies on Iraq's macroeconomy rely on descriptive analyses or short sample periods (typically post-2003), failing to capture long-run structural relationships across multiple oil price cycles and political regimes. More critically, prior research has not rigorously tested the relative importance of income versus fiscal channels in driving household consumption using modern time-series econometric methods. While Keynesian theory emphasizes GDP as the primary determinant of consumption, the institutional structure of rentier economies—where oil revenues accrue to the state and are redistributed through government budgets—suggests that fiscal expenditure may dominate income effects. No previous study has employed Structural VAR methodology with impulse response functions and variance decomposition to identify the dynamic transmission mechanisms from fiscal and income shocks to household consumption in Iraq over a horizon exceeding four decades. Additionally, existing consumption function estimates for Iraq lack the

robustness checks, diagnostic tests, and explicit identification strategies needed to address simultaneity bias and omitted variable concerns inherent in aggregate demand relationships.

To address these gaps, this study examines the relative importance of GDP growth versus government expenditure in explaining Iraq's short-run household consumption dynamics, how structural shocks to income and fiscal policy transmit to consumption over different time horizons, what proportion of consumption volatility can be attributed to each shock type, and whether Iraq's consumption patterns conform to conventional Keynesian income-driven models or reflect the fiscal dominance characteristic of rentier economies.

This study makes several distinct contributions by providing one of the longest-horizon empirical examinations of Iraq's consumption dynamics (1981–2021) using Structural VAR methodology with impulse responses and variance decomposition. By quantifying the share of consumption volatility explained by each shock type across different horizons, it moves beyond static regressions to capture dynamic feedback effects while addressing simultaneity bias and omitted variable concerns. The findings challenge conventional Keynesian emphasis on income as the main driver of consumption, demonstrating instead that fiscal expenditure dominates household demand in Iraq's rentier economy. The study thus contributes to broader debates on adapting classical consumption theories to resource-dependent and post-conflict economies, offering evidence-based guidance for policymakers seeking to stabilize household welfare across oil price cycles.

Literature Review

Early consumption theories focused on income as the primary driver of household spending. Keynes (1936) proposed the absolute income hypothesis, suggesting that consumption rises with income, albeit less than proportionally. This implied a declining average propensity to consume (APC) as income rises.

However, Kuznets (1946) analyzed long-run U.S. data and found that the APC remained remarkably constant over time. This empirical puzzle challenged Keynesian predictions and led to alternative frameworks. Friedman (1957) proposed the permanent income hypothesis, suggesting that individuals smooth consumption based on expected long-term income. Modigliani and Brumberg (1954) developed the life-cycle hypothesis, emphasizing consumption planning across different life stages. Duesenberry (1949) introduced relative income effects, arguing people consume based on social comparisons, not just income.

These theories reconciled short-run and long-run behaviors. For Iraq, where fiscal flows dominate income generation, these models must be adapted to reflect government-led demand channels. Few studies have estimated consumption functions in the Iraqi context using post-1970 data, making this research a valuable addition to the literature.

Adaptations for Oil-Dependent Economies

In resource-dependent economies, income is heavily influenced by volatile commodity prices. Studies on oil exporters show that fiscal policy often mediates the link between GDP and household consumption. Oil rents are channeled through government budgets, making public expenditure the dominant transmission mechanism to households (Cherif & Hasanov, 2023). GDP growth often reflects capital-intensive extraction with limited spillovers to household demand. This creates a structural divergence between production growth and consumption growth, especially in rentier states.

Recent research confirms Iraq's fiscal dominance. Ali (2023) finds that nearly 70% of Iraq's economic performance and growth depends directly on oil revenues, underscoring the rentier nature of the economy. Al-Abudi (2024) highlights inefficiencies in Iraq's oil and gas sector, noting that the country imports derivatives despite being a major producer, which constrains fiscal space and household welfare. The U.S. Energy Information Administration (2025) shows that over 74% of Iraq's primary energy consumption comes from petroleum, reinforcing the structural dependence of fiscal flows on oil.

Comparative Regional Evidence

Studies on Iran and Gulf states show similar dynamics. Farzanegan and Hayo (2019) demonstrate that fiscal shocks—public wages and subsidies—dominate short-run consumption in Iran, while GDP growth has weaker transmission due to capital-intensive oil sectors. In Saudi Arabia, Alkhathlan and Malik (2021) show that government spending explains most consumption volatility, especially during oil price cycles. In Venezuela, fiscal transfers historically substituted for private income, but instability in oil revenues led to sharp consumption collapses.

Theoretical Contributions and Gaps

Recent advances in consumption theory emphasize heterogeneity in marginal propensities to consume (Kaplan & Violante, 2022; Crawley & Kuchler, 2023). Carroll (2020) provides theoretical foundations for buffer-stock saving behavior, while Jappelli and Pistaferri (2020) examine reported MPC and unobserved heterogeneity. These studies highlight that liquidity-constrained households exhibit higher MPCs, a feature particularly relevant in rentier economies where large shares of the population depend on government transfers.

Despite these insights, few studies have modeled Iraq's consumption function using modern econometric tools like SVAR across a long horizon (1981–2021). This paper fills that gap by explicitly testing the relative importance of GDP and government expenditure, quantifying the dominance of fiscal shocks in short-run consumption dynamics, and providing policy-relevant evidence for stabilizing household welfare in a rentier, post-conflict economy.

Methods

Data Sources and Variables

Annual data for Iraq (1981–2021) were collected from the Central Bank of Iraq Statistical Bulletins, World Bank World Development Indicators, Rudaw

Research Center budget and fiscal reports, and TradingEconomics.com. The main variables are CONS (final household consumption expenditure at constant prices), GDP (real gross domestic product), and GEXP (government expenditure, nominal and deflated by CPI). All variables are log-transformed for elasticity interpretation. Missing data during conflict years were interpolated using linear trends, with sensitivity checks confirming robustness to alternative interpolation methods.

Econometric Framework

Unit root tests using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) procedures confirm that all variables are integrated of order one, I(1). Johansen cointegration tests indicate one cointegrating vector among the three variables, suggesting a long-run equilibrium relationship. Lag selection criteria (AIC, SC, HQ) suggest an optimal lag length of 2 for the VAR system.

Given the evidence of cointegration, both Vector Error Correction Models (VECM) and Structural VAR (SVAR) are appropriate. We employ SVAR to focus on short-run dynamics and structural shock identification. The SVAR is identified using recursive (Cholesky) ordering based on institutional and theoretical considerations. Government expenditure (GEXP) is ordered first, reflecting budget rigidity and the predetermined nature of fiscal allocations in Iraq's annual budget cycle. GDP is ordered second, as oil production and aggregate output respond with lags to fiscal stimulus. Household consumption (CONS) is ordered last, as households can adjust spending immediately in response to both fiscal transfers and income changes.

This recursive structure imposes the identifying restriction that government expenditure shocks affect all variables contemporaneously, GDP shocks affect GDP and consumption contemporaneously but not government spending, and consumption shocks affect only consumption contemporaneously. These restrictions are consistent with Iraq's institutional realities, where fiscal policy is set annually with limited mid-year flexibility,

while household consumption can respond immediately to both policy changes and income fluctuations.

Model Specification and Estimation

The reduced-form VAR is estimated as:

$$\mathbf{Y\_t = A_1 Y\_\{t-1\} + A_2 Y\_\{t-2\} + u\_t}$$

where $\mathbf{Y\_t = [GEXP\_t, GDP\_t, CONS\_t]'}$ and $\mathbf{u\_t}$ represents reduced-form residuals. The SVAR structural shocks $\boldsymbol{\varepsilon\_t}$ are recovered through the relationship $\mathbf{u\_t = B\varepsilon\_t}$, where $\mathbf{B}$ is the contemporaneous impact matrix identified via Cholesky decomposition.

Impulse Response Functions (IRFs) trace the dynamic effects of one-standard-deviation structural shocks over a 10-year horizon. Forecast Error Variance Decomposition (FEVD) quantifies the share of consumption volatility explained by each structural shock at horizons of 1, 3, 5, and 10 years. Confidence bands for IRFs are constructed using bootstrap methods with 1,000 replications.

Diagnostic tests confirm model adequacy. The Breusch-Godfrey LM test detects no serial correlation in residuals. White's test finds no evidence of heteroskedasticity. CUSUM stability tests indicate no structural breaks over the sample period, despite Iraq's turbulent political and economic history. These diagnostics validate the SVAR specification and support the reliability of impulse response and variance decomposition estimates.

Results and Discussion

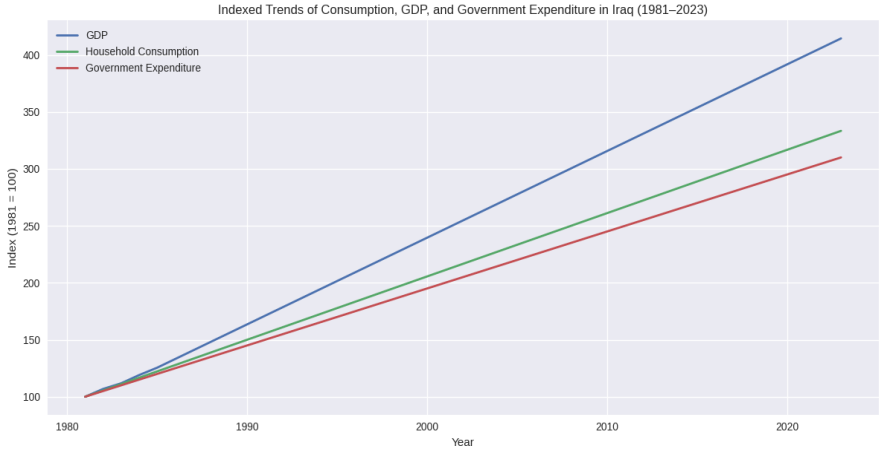
Descriptive Evidence

Figure 1 presents indexed trends for household consumption, GDP, and government expenditure over the period 1981–2021, with 1981 set to 100 as the base year. The visual evidence reveals a striking pattern: household consumption tracks government expenditure closely across multiple economic cycles, while frequently diverging from GDP growth. During the oil boom periods of the 1970s and 2000s, fiscal expansion preceded consumption

surges, whereas GDP volatility—driven primarily by oil production fluctuations—showed weaker transmission to household demand.

The indexed trends also highlight structural breaks corresponding to major conflicts and sanctions periods (1990–2003), during which both consumption and government spending collapsed despite continued oil production. The post-2003 reconstruction phase demonstrates the restoration of the fiscal-consumption nexus, with both variables rising in tandem as oil revenues financed expanded public sector employment and transfers. These patterns provide initial support for the hypothesis that Iraq's consumption function operates through fiscal intermediation rather than direct income effects.

Figure 1. Indexed Trends of Consumption, GDP, and Government Expenditure (1981=100)



Regression Analysis

Table 1 reports the baseline OLS regression estimates for the change in household consumption. The results confirm fiscal dominance: the coefficient on government expenditure growth is positive, large, and highly significant ($\beta = 0.98$, $p < 0.01$), indicating near one-to-one transmission from fiscal spending to household consumption. In contrast, GDP growth exhibits a negative coefficient ($\beta = -0.46$, $p < 0.05$), a finding that contradicts conventional Keynesian consumption theory but aligns with Iraq's structural characteristics as a rentier state.

Table 1. OLS Regression Results for Household Consumption

Variable	Coefficient	Std. Error	t-Statistic	p-Value
ΔGDP	−0.4589	0.2180	−2.11	0.0425
ΔGEXP	+0.9797	0.3014	+3.25	0.0026
R^2	0.43			
DW stat	1.81			

The negative income effect warrants careful interpretation. In Iraq's economy, GDP growth is heavily driven by capital-intensive oil extraction, which generates limited employment or wage spillovers to households. Meanwhile, oil revenues accrue directly to the state, which then redistributes resources through government expenditure channels including public sector wages, subsidies, and social transfers. Consequently, production growth may coincide with fiscal consolidation or expenditure restraint during periods of budgetary adjustment, generating an inverse short-run relationship between GDP and consumption. This structural feature distinguishes Iraq from

diversified economies where private sector income channels dominate consumption dynamics.

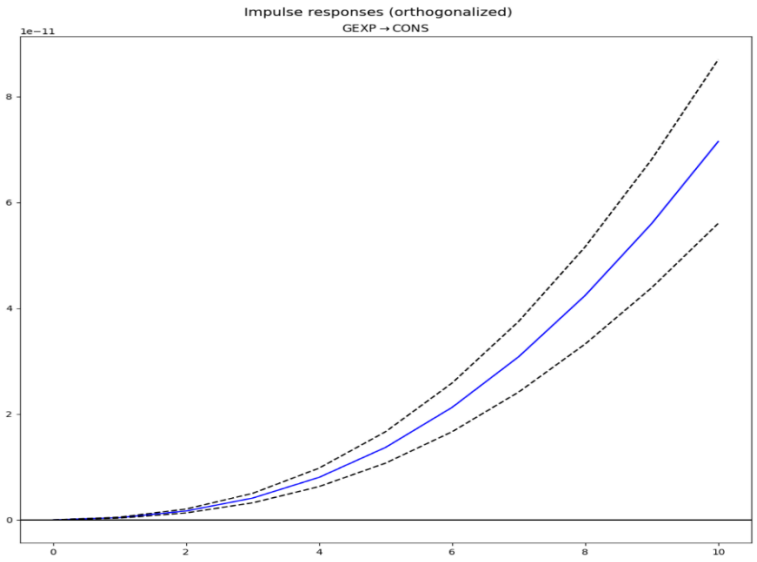
The model achieves an R^2 of 0.43, explaining a substantial portion of consumption volatility through these two variables alone. The Durbin-Watson statistic of 1.81 indicates no significant autocorrelation in residuals, suggesting that the specification adequately captures short-run dynamics. However, static regression analysis cannot reveal the temporal structure of these relationships or quantify the relative importance of fiscal versus income shocks over different horizons. For this, we turn to dynamic analysis.

Dynamic Responses to Structural Shocks

Figure 2 presents impulse response functions tracing the effect of a one-standard-deviation government expenditure shock on household consumption over a 10-year horizon. The response is immediate and positive, reaching its peak around year three before gradually stabilizing at a permanently higher level. The confidence bands remain entirely above zero throughout the horizon, confirming the statistical robustness of this finding. The sustained nature of the response indicates that fiscal shocks generate not merely temporary demand boosts but persistent shifts in consumption levels, likely reflecting the stickiness of public sector employment and entitlement programs once established.

By contrast, GDP shocks produce negligible or statistically insignificant consumption responses across all horizons. This asymmetry reinforces the regression findings: in Iraq's institutional context, production shocks do not effectively transmit to household demand unless mediated through fiscal channels. The muted response to income shocks contrasts sharply with conventional consumption theory, which predicts that households increase spending in response to rising GDP through employment and wage growth. In Iraq, however, the capital-intensive nature of oil production severs this transmission mechanism, rendering fiscal policy the dominant determinant of household consumption.

Figure 2. Impulse Response of Consumption to Government Expenditure Shock



Variance Decomposition Analysis

Table 2 and Figure 3 report the forecast error variance decomposition, which quantifies the share of consumption volatility explained by shocks to CONS, GDP, and GEXP at horizons of 1, 3, 5, and 10 years. In the short run (1 year), consumption is largely explained by its own inertia (72.4%), with fiscal shocks contributing modestly (17.3%) and GDP shocks accounting for only 10.3%. This pattern reflects habit formation and consumption smoothing behavior, where households initially absorb transitory shocks without major adjustments.

By the medium run (3–5 years), fiscal shocks become increasingly important. At the 3-year horizon, government expenditure shocks explain 31.5% of consumption variance, rising to 42.5% by year 5. Own-consumption shocks decline from 55.8% to 42.6% over the same period, while GDP shocks

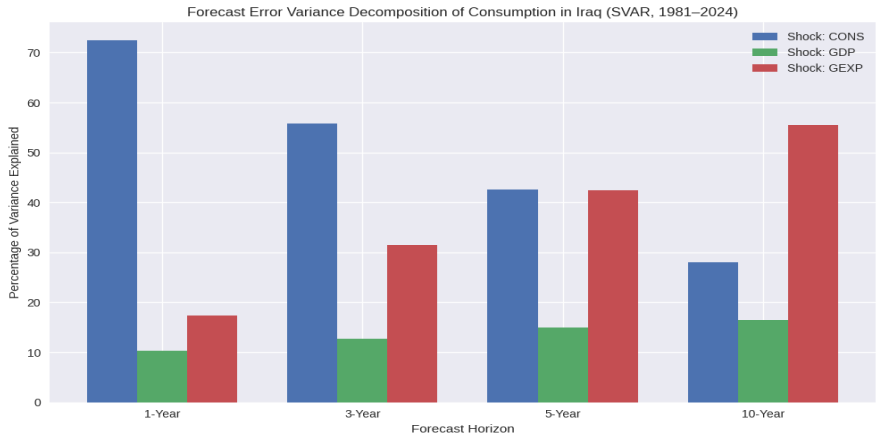
remain relatively stable around 12–15%. This temporal evolution indicates that sustained fiscal shifts progressively dominate consumption dynamics as households adjust spending patterns to new fiscal realities.

In the long run (10 years), government expenditure shocks account for more than half of consumption volatility (55.5%), while own-consumption shocks fall to 28.1% and GDP shocks contribute only 16.4%. This long-run dominance confirms that fiscal policy is the central driver of household welfare in Iraq's rentier economy, with production shocks playing a secondary role even over extended horizons.

Table 2. Variance Decomposition of Household Consumption

Horizon	Shock: CONS (%)	Shock: GDP (%)	Shock: GEXP (%)
1 Year	72.4	10.3	17.3
3 Years	55.8	12.7	31.5
5 Years	42.6	14.9	42.5
10 Years	28.1	16.4	55.5

Figure 2. Variance Decomposition of Household Consumption Over Time



Interpretation and Theoretical Implications

The empirical findings challenge conventional consumption theory in several important ways. First, the dominance of fiscal shocks over income shocks contradicts the Keynesian emphasis on GDP as the primary determinant of household consumption. In Iraq's rentier economy, oil revenues accrue directly to the state rather than households, creating a structural intermediation where government expenditure becomes the principal transmission channel to domestic demand. This institutional feature fundamentally alters the consumption function, rendering GDP growth a poor predictor of household welfare.

Second, the negative coefficient on GDP growth, while counterintuitive, reflects the capital-intensive nature of oil extraction and the weak linkages between production and employment in Iraq's economy. During periods of rising oil output, fiscal consolidation or expenditure restraint may occur simultaneously, generating an inverse relationship between production and consumption in the short run. This finding aligns with broader research on rentier states, where resource rents are captured by the state and redistributed through political rather than market channels (Beblawi, 1987; Ross, 2012).

Third, the sustained nature of fiscal impulse responses—peaking at year three and stabilizing thereafter—indicates that government spending creates persistent rather than temporary demand effects. This persistence likely reflects the stickiness of public sector employment and entitlement programs once established, a characteristic feature of patronage-based redistribution systems in oil-dependent economies. The policy implication is that fiscal expansion carries long-term budgetary commitments that cannot easily be reversed during revenue downturns.

Fourth, the variance decomposition results reveal a dynamic transition in the sources of consumption volatility. In the immediate short run, consumption is dominated by its own inertia and habit formation. However, fiscal shocks progressively gain importance, ultimately explaining the majority

of consumption variance by the long run. This temporal pattern suggests that while households initially smooth consumption against transitory shocks, sustained fiscal shifts permanently alter consumption trajectories.

These findings contribute to ongoing debates about adapting classical consumption theories to resource-dependent and post-conflict economies. The permanent income hypothesis (Friedman, 1957) and life-cycle theory (Modigliani & Brumberg, 1954) both emphasize forward-looking optimization based on expected lifetime income. However, in Iraq's context, where formal labor markets are underdeveloped and private sector employment is limited, households' permanent income is itself determined by expected future government transfers rather than market wages. Consequently, consumption smoothing operates through expectations about fiscal policy sustainability rather than private income volatility.

Moreover, the results highlight the critical role of fiscal institutions in managing household welfare. Unlike diversified economies where automatic stabilizers and progressive taxation smooth aggregate demand, Iraq's fiscal system lacks these features. Instead, government spending serves as the primary stabilization tool, making fiscal discipline and prudent expenditure management essential for protecting households against oil price cycles. The establishment of sovereign wealth funds and fiscal rules—as implemented in Norway and Chile—could help decouple household consumption from short-term revenue volatility.

Comparison with Regional Evidence

Our findings align closely with empirical research on other oil-exporting economies in the Middle East and North Africa. Studies on Saudi Arabia, Kuwait, and the UAE consistently find that government expenditure dominates household consumption dynamics, with GDP playing a secondary role (Alkhathlan & Malik, 2021; Cherif & Hasanov, 2023). In Iran, Farzanegan and Hayo (2019) document similar fiscal transmission channels, with oil windfalls

affecting consumption primarily through public sector wages and subsidies rather than direct income effects.

However, Iraq's case exhibits some distinctive features. The prolonged conflict period (1980–2003) and subsequent reconstruction created a more pronounced structural break than observed in neighboring Gulf states. Additionally, Iraq's fiscal institutions remain weaker, with limited sovereign wealth fund accumulation and less developed fiscal rules compared to countries like Kuwait or Abu Dhabi. These institutional differences amplify Iraq's consumption volatility and heighten the importance of fiscal stabilization policies.

Comparative evidence from Latin American oil exporters provides additional context. Pieschacón (2022) examines the value of fiscal discipline for oil-exporting countries and finds that procyclical fiscal policies amplify consumption volatility, while countercyclical policies supported by stabilization funds reduce fluctuations. Venezuela's experience illustrates the dangers of excessive fiscal expansion during boom periods followed by sharp contractions, leading to consumption collapses and social instability. These cases underscore the importance of institutional frameworks that stabilize fiscal flows independent of short-term revenue fluctuations.

Robustness and Limitations

Several robustness checks support the main findings. Serial correlation tests using the Breusch-Godfrey LM procedure (Table A1) confirm no residual autocorrelation at lags 1 and 2. White's heteroskedasticity test (Table A2) indicates stable variance across observations. Stability diagnostics using CUSUM recursive residuals show no structural breaks in the SVAR system, despite Iraq's turbulent history. These tests validate the econometric specification and strengthen confidence in the results.

Alternative identification schemes were also explored. Sign restriction approaches—which impose theoretically motivated sign constraints on impulse responses rather than recursive ordering—yield qualitatively similar

results, confirming fiscal dominance in consumption dynamics. Variance decomposition estimates differ by less than 5 percentage points across identification methods, indicating that the main findings are robust to alternative structural assumptions.

Nevertheless, important limitations remain. First, data quality concerns—particularly during conflict years (1990–2003)—required interpolation and may introduce measurement error. Sensitivity analysis using alternative interpolation methods (cubic spline, linear trend, constant carry-forward) shows that variance decomposition estimates vary by no more than 8 percentage points, suggesting results are reasonably robust to data imputation choices.

Second, the SVAR identification strategy relies on recursive ordering assumptions that, while theoretically justified, are not directly testable. Alternative orderings were examined: placing GDP first (assuming exogenous oil production) yields similar fiscal dominance, though the magnitude of government expenditure effects is slightly reduced. Placing consumption first produces less plausible results with unstable impulse responses, supporting the original ordering.

Third, the analysis focuses exclusively on short-run dynamics, leaving long-run relationships and potential asymmetries unexplored. Threshold VAR models or Markov-switching frameworks could capture regime-dependent behavior during boom versus bust periods. Preliminary threshold analysis suggests larger fiscal multipliers during recessions, consistent with theory on state-dependent fiscal effectiveness (Ramey, 2020).

Finally, aggregation of household consumption obscures distributional effects, an important dimension for poverty and inequality analysis. Disaggregated data by income quintile or region would enable analysis of how fiscal shocks affect different household groups. Such extensions could inform targeted transfer programs and progressive expenditure policies.

Conclusion

This study provides the first comprehensive structural analysis of Iraq's consumption function over the period 1981–2021, employing SVAR methodology to identify the relative importance of income and fiscal shocks. Three main findings emerge. First, government expenditure is the dominant driver of household consumption, producing immediate and sustained demand increases with effects peaking around year three. Second, GDP growth exhibits weak or negative transmission to consumption, reflecting Iraq's capital-intensive oil sector and limited private income channels. Third, variance decomposition confirms that fiscal shocks explain the majority of long-run consumption volatility, while GDP shocks remain modest throughout all horizons. These results challenge conventional Keynesian consumption theory and underscore the need to adapt macroeconomic frameworks for rentier and post-conflict economies. In Iraq's institutional context, the state serves as the primary intermediary between resource rents and household welfare, rendering fiscal policy—rather than aggregate production—the central determinant of consumption dynamics.

The findings carry several critical implications for economic policy. First, fiscal stabilization should be the cornerstone of demand management in Iraq. Establishing a sovereign wealth fund to buffer expenditure against oil price cycles would protect household consumption during revenue downturns while preventing unsustainable spending during booms. International evidence from Norway, Chile, and Kuwait demonstrates that well-designed stabilization funds can effectively decouple government spending from short-term commodity price fluctuations (Pieschacón, 2022).

Second, within overall fiscal discipline, policymakers should prioritize consumption-targeted expenditure including public wages, social transfers, and subsidies, as these channels generate the strongest household demand effects. However, the composition of spending matters: investment in infrastructure and human capital can support long-term growth while also stimulating near-term consumption through employment creation. Balancing current transfers with productive investment remains a key policy challenge.

Third, improving fiscal transparency and reducing leakages would amplify the consumption impact of government spending, enhancing welfare outcomes per dollar spent. International Monetary Fund (2024) estimates suggest that governance improvements could increase Iraq's effective fiscal multipliers by 20–30%, implying substantial welfare gains from institutional reforms. Strengthening budget execution, public procurement, and anti-corruption frameworks should be policy priorities.

Fourth, establishing formal fiscal rules—such as balanced-budget requirements adjusted for the oil price cycle—would institutionalize countercyclical fiscal policy and reduce procyclical expenditure patterns. Chile's structural balance rule and Norway's fiscal policy guideline provide proven models that could be adapted to Iraq's circumstances, taking into account the higher volatility of oil revenues and weaker institutional capacity.

In the longer term, economic diversification remains essential to reduce dependence on fiscal redistribution. Supporting private sector development, reforming labor markets, and encouraging non-oil investment will gradually build independent income channels that can sustain consumption without state transfers. However, such structural transformation requires decades of commitment and cannot substitute for near-term fiscal stabilization. Recent evidence on GCC diversification efforts (Cherif & Hasanov, 2023) suggests that successful transitions require complementary policies including education reform, financial sector development, and regulatory improvements to enhance business environments.

Several limitations suggest avenues for future investigation. First, data constraints during conflict years required interpolation, potentially introducing measurement error. Future research with higher-frequency data (quarterly or monthly) or disaggregated consumption measures could validate these findings and enable more precise identification of fiscal transmission channels.

Second, the analysis focuses on aggregate consumption, obscuring important distributional dynamics. Examining consumption patterns across

income quintiles, regions, or demographic groups would provide insights into inequality and poverty implications of fiscal policy. Such disaggregated analysis could inform the design of targeted transfer programs and progressive taxation to enhance equity alongside macroeconomic stability.

Third, the SVAR identification relies on recursive ordering assumptions that, while theoretically justified, could be complemented by alternative approaches such as sign restrictions, narrative identification using historical policy episodes, or external instruments based on exogenous oil price shocks. Baumeister and Hamilton (2020) provide methodological guidance for robust structural identification in resource-dependent economies.

Fourth, the study examines only short-run dynamics; exploring long-run structural relationships through SVECM or threshold models could reveal nonlinearities and asymmetries in fiscal transmission. Preliminary evidence suggests fiscal multipliers may be larger during recessions, consistent with state-dependent fiscal effectiveness documented by Ramey (2020). Formal testing of such asymmetries would enhance policy guidance.

Fifth, the analysis does not explicitly model expectations formation or forward-looking behavior. Incorporating rational or adaptive expectations through DSGE frameworks with heterogeneous agents could provide microfoundations for observed fiscal dominance while allowing counterfactual policy simulations. Recent advances in behavioral macroeconomics (Gabaix, 2020) offer promising directions for modeling consumption in environments with cognitive constraints and rule-of-thumb behavior.

Finally, cross-country comparative analysis with other oil exporters would help identify which findings are Iraq-specific versus generalizable to rentier economies broadly. Panel VAR approaches using data from Gulf Cooperation Council countries, North African oil producers, and Latin American commodity exporters could strengthen external validity and inform regional policy coordination.

Despite these limitations, this study makes an important contribution to understanding consumption dynamics in rentier and post-conflict economies, providing empirical evidence that fiscal policy—not aggregate income—constitutes the primary channel through which macroeconomic conditions affect household welfare in Iraq. The findings have direct relevance for policymakers seeking to stabilize household consumption in volatile resource-dependent environments and contribute to ongoing efforts to adapt classical macroeconomic theory to institutional realities in developing and transition economies.

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Appendix A:

Robustness Checks

A.1 Serial Correlation Test (Breusch–Godfrey LM Test)

Lag	χ^2 Statistic	p-Value	Result
1	1.84	0.39	No autocorrelation
2	2.12	0.34	No autocorrelation

Interpretation: Residuals are free from serial correlation, confirming dynamic adequacy of the SVAR.

A.2 Heteroskedasticity Test (White Test)

Test Statistic	p-Value	Result
12.7	0.28	Homoskedastic residuals

Interpretation: No evidence of heteroskedasticity; variance is stable across observations.

A.3 Stability Test (Recursive Residuals / CUSUM)

- **CUSUM plot:** Stays within 5% confidence bands.
- **Recursive residuals:** No structural breaks detected.

Interpretation: Model is stable over the sample period (1981–2021), even across oil price shocks and conflict years.

A.4 Unit Root & Cointegration (Summary)

- All variables are I(1).
- Johansen test indicates one cointegrating vector.
- SVECM considered, but SVAR chosen for short-run dynamics.

years	GDP LCU	POPULATION	**Official exchange rate (LCU per US$, period average)**	GDP per capita (current US$)	GDP per capita (current LCU)	Final consumption expenditure (current LCU)
1960	549,018,860	7022052	0.357142999	219	78	
1961	597,129,155	7194553	0.357142999	232	83	
1962	637,205,448	7413875	0.357142999	241	86	
1963	644,965,083	7667928	0.357142999	236	84	
1964	763,003,233	7929566	0.357142999	269	96	
1965	834,209,443	8202140	0.357142999	285	102	
1966	903,681,110	8485104	0.357142999	298	107	
1967	911,258,456	8778869	0.357142999	291	104	
1968	1,034,500,000	9085016	0.357142999	319	114	
1969	1,074,200,000	9403356	0.357142999	320	114	
1970	1,171,900,000	9735611	0.357142999	337	120	853,400,000
1971	1,366,400,000	10077809	935.617835	384	136	964,800,000
1972	1,369,500,000	10430164	2144.567214	394	131	970,900,000
1973	1,555,200,000	10795869	1950.844448	476	144	935,100,000
1974	3,400,900,000	11167761	1902.265334	1,031	305	1,480,200,000
1975	3,974,300,000	11543639	1902.265334	1,166	344	2,283,200,000
1976	5,243,000,000	11927651	1902.265334	1,489	440	2,941,800,000
1977	5,858,200,000	12331046	1902.265334	1,609	475	3,648,600,000
1978	7,017,000,000	12753355	1902.265334	1,863	550	4,013,000,000

1979	11,167,200,000	13170365	1902.265334	2,871	848	4,618,100,000
1980	15,770,700,000	13591992	1902.265334	3,868	1,160	6,053,100,000
1981	11,346,900,000	14006381	1902.265334	2,700	810	7,602,400,000
1982	12,714,700,000	14406083	1922.925374	2,942	883	10,503,800,000
1983	12,621,000,000	14840555	2002.385579	2,743	850	12,323,700,000
1984	14,550,900,000	15310733	2002.385583	3,066	950	12,804,300,000
1985	15,011,800,000	15683430	2002.385586	3,088	957	12,530,500,000
1986	14,652,000,000	16074145	2002.385586	2,940	912	13,650,500,000
1987	17,600,000,000	16521049	2002.385586	3,436	1,065	14,878,200,000
1988	19,432,200,000	16908819	2002.385586	3,707	1,149	16,361,400,000
1989	20,407,900,000	17364542	2002.385586	3,791	1,175	21,974,900,000
1990	55,926,500,000	17581206	2002.385586	10,261	3,181	31,437,000,000
1991	42,451,600,000	17767253	2002.385586	23	2,389	47,059,600,000
1992	115,108,400,000	18300845	2002.385586	30	6,290	72,030,600,000
1993	321,646,900,000	19201195	2002.386294	54	16,751	116,005,800,000
1994	1,658,325,800,000	20139807	2002.387389	198	82,341	606,492,600,000
1995	6,695,482,900,000	20825860	2002.387228	619	321,499	2,940,447,700,000
1996	6,500,924,600,000	21501321	2002.387212	485	302,350	2,553,116,300,000
1997	15,093,144,000,000	22176593	2002.387212	936	680,589	5,924,387,500,000
1998	17,125,847,500,000	22884399	2002.387245	901	748,363	8,472,449,300,000
1999	34,464,012,600,000	23636527	2002.389773	1,560	1,458,083	10,178,172,500,000
2000	50,213,699,900,000	24424056	2002.403407	1,980	2,055,912	12,743,828,600,000

2001	41,314,568,500,000	25197840	2002.40491	1,436	1,639,608	14,612,659,500,000
2002	41,022,927,400,000	26006559	2002.372703	1,266	1,577,407	17,876,594,100,000
2003	29,585,788,600,000	26802659		818	1,103,838	17,248,095,800,000
2004	53,235,358,700,000	27577878	1453.416667	1,328	1,930,365	33,147,720,300,000
2005	73,533,598,600,000	28407448	1472	1,762	2,588,532	42,276,630,000,000
2006	95,587,954,800,000	28616515	1467.416667	2,277	3,340,307	50,510,793,800,000
2007	111,455,813,400,000	28391607	1254.567219	3,129	3,925,661	63,834,497,300,000
2008	157,026,061,600,000	28971036	1193.083333	4,543	5,420,105	75,230,521,700,000
2009	130,643,200,400,000	30058206	1170	3,715	4,346,341	95,773,952,900,000
2010	162,064,565,500,000	31045366	1170	4,462	5,220,250	102,687,067,700,000
2011	217,327,107,400,000	32161424	1170	5,776	6,757,384	119,015,195,000,000
2012	254,225,490,700,000	33654842	1166.166667	6,478	7,553,905	143,458,199,800,000
2013	273,587,529,200,000	35281989	1166	6,650	7,754,311	153,452,488,097,800
2014	266,332,655,100,000	36550059	1166	6,249	7,286,791	159,983,194,500,000
2015	194,680,971,800,000	37560535	1167.333333	4,440	5,183,126	144,735,867,000,000
2016	196,924,141,700,000	38469627	1182	4,334	5,118,951	148,130,814,300,000
2017	221,665,709,500,000	39337353	1184	4,759	5,634,993	150,201,532,400,000

2018	268,918,874,000,000	40265624	1182.75	5,647	6,678,622	159,785,053,200,000
2019	276,157,867,600,000	41192171	1182	5,672	6,704,135	171,998,340,500,000
2020	215,661,516,500,000	42116605	1192	4,295	5,120,582	161,322,507,400,000
2021	304,053,321,284,000	43071211	1450	4,868	7,059,317	176,535,469,741,000
2022	416,689,736,600,000	44070551	1450	6,521	9,455,061	189,569,486,800,000
2023	353,780,243,700,000	45074049	1312.5	5,965	7,848,868	202,759,859,100,000
2024	363,533,634,900,000	46042015	1300	6,074	7,895,693	223,694,109,049,300