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-RESEARCH ARTICLE-

THE DYNAMIC OF MACROECONOMIC AGGREGATES IN THE UNITED ARAB EMIRATES (UAE): COMPREHENSIVE EMPIRICAL ANALYSIS

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─Abstract─

The present investigation provides an empirical assessment of the factors shaping the major macroeconomic aggregates in the United Arab Emirates (UAE) across the period 1972–2025. Employing Ordinary Least Squares (OLS) time-series estimations, the analysis examines the dynamics of private consumption, public consumption, private investment, public investment, and aggregate imports. The empirical specifications integrate core economic determinants, notably Non-Oil GDP, Oil and Gas Revenues, and overall GDP, in `conjunction with lagged dependent terms and a

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binary variable reflecting the structural disruption associated with the 2008 Global Financial Crisis. The empirical evidence indicates pronounced inertia within the macroeconomic aggregates, confirming their dependence on past values. Oil-derived revenues exhibit a statistically significant and positive effect on government expenditure, underscoring the fiscal sensitivity to hydrocarbon income. Furthermore, overall GDP emerges as a dominant explanatory factor for both investment behavior and the trajectory of imports. Collectively, these outcomes generate important policy implications for resource-reliant economies, highlighting the imperative for prudent fiscal management, economic diversification beyond hydrocarbons, and well-calibrated investment strategies to strengthen long-term economic stability.

Keywords: Private Consumption, Government Consumption, Private Investment, Government Investment, Total Imports, Non-Oil GDP, Oil and Gas Revenues, Overall GDP.

INTRODUCTION

The UAE ranks among the ten leading oil-producing nations globally. Within the federation, Abu Dhabi possesses nearly 96% of the country's estimated 100 billion barrels of proven crude reserves, positioning it sixth worldwide. On average, national output approximates 4 million barrels per day of crude oil and associated liquids. The hydrocarbon sector contributes roughly 30% to Gross Domestic Product (GDP) and accounts for approximately 13% of total export value (Emirates, 2023).

Historically, prior to the exploitation of hydrocarbons, the domestic economy was primarily sustained by oasis-based agriculture, marine fishing, and the commercial exchange of dates and pearls. The identification of oil reserves during the mid-twentieth century fundamentally reconfigured the economic structure. This transformation was reinforced by the country's advantageous geographical positioning, expansionary fiscal policies, and deliberate economic diversification strategies. Concurrently, policy orientation has increasingly emphasized a transition towards a knowledge-driven economic system through the promotion of innovation and the strengthening of institutional and regulatory frameworks. In terms of innovation performance, the UAE occupied the 31st position in the Global Innovation Index in 2023, before marginally declining to 32nd place in 2024. Additionally, the UAE emerged as the foremost global destination for high-net-worth individual inflows during 2023.

The discovery of oil across the Gulf region constituted a decisive historical inflection point. At the time of federation establishment on 2 December 1971, hydrocarbons represented nearly 90% of domestic output. This share moderated to approximately 51% during the late 1970s and early 1980s, followed by a further reduction to around 40% in subsequent years. Between 2000 and 2014, oil contributed roughly 32% to domestic production. During the 1980s, declining global oil prices generated substantial fiscal imbalances, compelling the government to intensify diversification efforts. This phase also marked a structural shift characterized by increased private sector participation in industrial activities, alongside the adoption of privatization initiatives, financial liberalization policies, and a gradual contraction in direct state intervention within economic management.

At present, the UAE is positioned as the third-largest economy in the Middle East. Hydrocarbon resources, particularly crude oil and natural gas, continue to represent critical components of national output, with the country ranking seventh globally in terms of combined proven reserves (Emirates, 2023). Over the period 2001–2020, GDP expanded from USD 103 billion to USD 359 billion, reflecting a cumulative increase of 348.5%, largely influenced by volatility in international oil markets (Al Humssi et al., 2023).

An examination of West Texas Intermediate crude oil (WTI) price trends over the preceding decade reveals a pronounced decline from USD 94.88 per barrel in 2011 to USD 39.68 in 2020, corresponding to an average compound contraction rate of approximately 10.17% per annum. As of 4 April 2025, the prevailing WTI benchmark price stood at USD 61.99 per barrel. Accordingly, pronounced volatility in international oil prices, and consequently in hydrocarbon revenues, generates significant instability within global energy markets, with particularly acute implications for oil-exporting economies such as the UAE. Notwithstanding this vulnerability, an extensive body of empirical and theoretical literature has investigated the transmission of oil price shocks to a wide range of macroeconomic indicators across both advanced and developing economic systems.

The significance of the present study is grounded in the premise that oil-derived revenues exert a favourable influence on economic development through multiple transmission channels, including employment generation, technological diffusion, and the intensification of domestic market competition, which collectively contribute to broader economic expansion within the UAE. As a hydrocarbon-producing economy, the UAE has historically attracted substantial foreign participation, particularly during the early phases of exploration, extraction, and refining activities. The primary objective of this study is to evaluate the effect of oil revenues on economic development in the UAE. Furthermore, the analysis extends to an empirical examination of the dynamics of private consumption, public consumption, private and public investment, and total imports, with particular emphasis on the roles of Oil and Gas Revenues and GDP indicators (Agboola et al., 2024; Srivastava et al., 2025).

The role of FDI in fostering economic growth in the UAE over the period 1986–2021, employing the Non-linear Autoregressive Distributed Lag (NARDL) methodology to capture asymmetric relationships among variables. The findings reveal that FDI,

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inflation, employment levels, exchange rate movements, and industrialisation exhibit a positive association with economic growth (Hassan, 2023; Imran & Rashid, 2023). Fisera et al. (2021) analyse the long-run implications of exchange rate depreciation on external debt across 41 emerging economies over 1999–2019, demonstrating that currency depreciation increases the external debt-to-GDP ratio over time, thereby posing risks to debt sustainability.

The existing literature predominantly concentrates on the linkage between oil price volatility and macroeconomic performance (Sadraoui & Mili, 2025). Alawadhi and Longe (2024) examine the effects of oil price shocks on selected macroeconomic variables in Kuwait over 2001–2022 using Granger causality, Vector Autoregressive (VAR), and NARDL approaches; the results indicate that positive oil price shocks exert a more pronounced and favourable impact on macroeconomic variables than negative shocks. Comparable evidence for resource-rich exporters confirms that the link between oil prices and government expenditure transmits directly into output fluctuations (Agboola et al., 2024).

LITERATURE REVIEW

This section provides a concise synthesis of empirical contributions documented in the existing literature. Given the strategic relevance of the Middle East and North Africa (MENA) region as a major repository of global hydrocarbon reserves, a substantial volume of research has assessed the macroeconomic implications of international oil price movements within these economies. Bouyacoub (2025) evaluates the long-run effects of oil revenue variability on Algeria's macroeconomic stability over 1980–2023 using the Autoregressive Distributed Lag (ARDL) framework, confirming a robust association among oil revenues, production levels, and fiscal policy instruments and recommending reallocation of investment towards non-hydrocarbon sectors.

Fefa et al. (2024) analyse the interaction between oil revenues, portfolio investment, and economic growth in Nigeria and the UAE over 1970–2019 using a Structural VAR model, revealing a statistically significant bidirectional relationship between oil revenues and economic growth and a positive effect of oil revenues on expansion in both economies. Ben Salem et al. (2024) investigate the influence of oil price movements on GDP across oil-importing and oil-exporting countries for 1995–2023 using a time-varying threshold regression kink model, demonstrating that the relationship between oil prices and macroeconomic indicators is both state-dependent and temporally dynamic.

Al Humssi et al. (2023) examine the impact of global oil price fluctuations on UAE GDP over 2001–2020 using the Augmented Dickey–Fuller (ADF) test, OLS, and the ARDL cointegration approach alongside Granger causality analysis, finding that oil price changes exert both short-run and long-run effects on GDP and that rising oil prices are associated with positive economic outcomes whereas price declines introduce risks to macroeconomic stability (Deyshappriya et al., 2023).

Al Jabri et al. (2022) study the impact of oil price shocks on fiscal policy and real GDP in Oman, reporting that an oil price shock explains around 22% and 46% of the variation in government revenue and GDP respectively, while government expenditure responds to revenue rather than to oil prices directly. Jaradat and Al-Tamimi (2022) explore the economic implications of renewable energy within the UAE using annual data spanning 2010–2020 and OLS estimation, confirming a statistically significant relationship between renewable energy utilisation and overall economic performance.

Coyne et al. (2022) analyze the so-called ratchet effect, the tendency for government activity to expand during crises and not fully revert to pre-crisis levels, suggesting that heightened uncertainty and public demand for intervention accelerate the expansion of government size beyond typical growth patterns. Elsayed et al. (2024) extend this strand by examining oil shocks and the financial stability of GCC economies, showing that oil returns act as a net transmitter of spillovers to GCC financial markets over medium- and long-run horizons.

Javed and Husain (2020) investigate the impact of oil revenues on economic growth in Oman over 1989–2018 using the ARDL framework and Granger causality testing, indicating a positive contribution of oil revenues to growth while exports exhibit a negative relationship. Charfeddine and Barkat (2020) analyze the asymmetric short-run and long-run effects of oil price shocks and hydrocarbon revenue changes on GDP and economic diversification in Qatar, concluding that the energy sector plays a pivotal role in shaping diversification outcomes.

Nasir et al. (2019) examine the macroeconomic consequences of oil price shocks across GCC economies for 1980–2016 using a structural autoregressive framework, revealing that GDP, inflation, and trade balances are significantly influenced by oil price dynamics. Mahmah and Kandil (2019) assess the influence of oil price shocks on fiscal consolidation in the UAE using a small-scale macroeconomic model estimated via OLS, indicating that oil price fluctuations significantly affect banking liquidity, domestic credit, and FDI while exerting limited influence on non-oil GDP growth. Koseoglu et al. (2019) investigate asymmetric causality between oil prices and GDP per capita in GCC countries over 1996–2018, demonstrating bidirectional and asymmetric causal relationships across different countries.

Akinsola and Odhiambo (2020) document an asymmetric effect of oil prices on growth in oil-importing economies, where price increases depress output more than equivalent decreases stimulate it. Complementary panel evidence shows that crude-oil price volatility transmits to growth primarily through exchange-rate, government-

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expenditure, and investment channels, with positive shocks operating mainly via interest rates Deyshappriya et al. (2023). Reinforcing the broader research context, studies on the MENA region consistently highlight the centrality of oil price dynamics in shaping macroeconomic outcomes (Zhang et al., 2024).

METHODOLOGY

Data and Data Sources

This section presents a comprehensive evaluation of selected macroeconomic indicators for the UAE, reported on an annual basis in millions of US dollars (USD MN). The dataset encompasses Private Consumption (PC), Government Consumption (CG), Private and Government Investment (IP and IG), Total Imports (M), Gross Domestic Product (GDP), Non-Oil GDP (NGDP), Government Revenue in actual and estimated forms (GR and GRF), and Oil and Gas Revenue (RO). A binary variable is also incorporated to reflect the effects associated with the 2008 Global Financial Crisis. Table 1 summarizes the definition, source, and coverage of each variable used in the analysis.

Table 1: Definitions, Sources, and Coverage of Study Variables

Variable	Definition	Source	Coverage
PC	Private (household) consumption expenditure	CEIC / IMF	1972–
CG	Government consumption expenditure	CEIC / IMF	1972–
IP	Private sector investment	IMF	1970–2019
IG	Government (public) investment	IMF	1970–2019
M	Total annual imports of goods	IMF	1981–
GDP	Gross domestic product at purchasers' prices	World Bank	1970–
NGDP	Non-oil GDP (excludes hydrocarbon sector)	World Bank / OECD	1970–
RO	Oil & gas (non-tax) public revenue	Ministry of Finance	1992–
GR / GRF	Actual / forecast government revenue	Ministry of Finance	GR 2012–; GRF 2000–2011
D2008	Crisis dummy = 1 (2008–2012), 0 otherwise	Author construction	1992–2012

Note: All monetary series are converted to USD using average market exchange rates published by the IMF. Post-2010 figures follow SNA 2008; earlier observations follow SNA 1993.

Sample Periods and Observations

The temporal coverage of the dataset is maintained consistently across all variables, with further clarification provided regarding the Government Revenue series and the

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duration applied to the D2008 dummy variable. Table 2 reports the dependent variable, sample period, key regressors, and data notes for each of the five estimated equations.

Table 2: Estimated Equations: Dependent Variables, Sample Periods, and Regressors

Eq.	Dependent Variable	Sample Period	Key Regressors	Data Notes
1	Private Consumption (PC)	1993–2020	Non-Oil GDP, PC_{t-1}	Non-oil GDP as main driver
2	Government Consumption (CG)	2000–2019	RO, CG_{t-1}	GRF 2000–11; GR from 2012
3	Private Investment (IP)	1972–2019 / 1972–2010	GDP, IP_{t-1}	Two models (pre-/post-crisis)
4	Government Investment (IG)	1992–2012	RO, IG_{t-1}, D2008	GRF 2000–11
5	Total Imports (M)	1982–2019	GDP, M_{t-1}	Full available import/GDP data

Government Revenue Data Estimation

Owing to the unavailability of consolidated GR data prior to 2012, a regression-based estimation procedure is implemented to generate values for 2000–2011. The forecasting specification is calibrated on observed GR data spanning 2012–2023 and takes the form:

$$LOG(GRF)_t = -6.6434 + 1.4157 \cdot LOG(GDP)_t$$

The estimation indicates a statistically significant positive relationship between log(GR) and log(GDP), with a t-statistic of 4.76 ($p < 0.001$).

Table 3: Forecast (GRF) versus Actual (GR) Government Revenue, 2000–2023 (USD MN)

Year	GRF / GR	Year	GRF / GR	Year	GRF / GR
2000	16,571.1	2008	79,364.7	2016	108,851.6
2001	16,341.0	2009	58,246.6	2017	107,995.5
2002	17,816.3	2010	73,976.1	2018	126,800.3
2003	21,243.1	2011	95,988.9	2019	127,252.1
2004	27,136.6	2012	105,064.6	2020	100,909.4
2005	36,036.3	2013	112,204.8	2021	130,538.4
2006	48,294.7	2014	103,650.2	2022	162,498.2
2007	59,672.5	2015	76,585.7	2023	143,260.8

Note: Values for 2000–2011 are forecast (GRF); values for 2012–2023 are actual (GR). Source: World Bank national accounts data and OECD National Accounts data files.

The model explains approximately 69% of the variation in log(GR) (Adjusted R^2 = 0.66), indicating a satisfactory fit for forecasting purposes. The predicted values

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(GRF) are then used for 2000–2011 wherever GR is required, treating missing observations as a structured imputation that preserves trend, cyclical, and structural patterns. From 2012 onwards, actual observed GR data is used directly. Table 3 reports the forecast (GRF) and observed (GR) government-revenue series.

Econometric Methodology and Model Specification

We estimate five separate equations using the OLS technique, each specified to reflect the evolving behaviour of the selected macroeconomic aggregates. The models incorporate core economic drivers, lagged dependent variables, and appropriate dummy variables to capture structural breaks and regime-specific effects. Subject to the Gauss–Markov assumptions, OLS generates the Best Linear Unbiased Estimator (BLUE), implying that among all linear and unbiased estimators it achieves the lowest possible variance, ensuring that coefficient estimates are both efficient and statistically dependable (Ravinthirakumaran et al., 2025).

Equation 1: Private Consumption (PC)

$$PC_t = \alpha + \beta_1 \cdot NONOIL\_GDP_t + \beta_2 \cdot PC_{t-1} + \varepsilon_t$$

This specification expresses private consumption as a function of Non-Oil GDP alongside its own lagged term, incorporating consumption inertia. The lagged dependent variable captures habitual spending and dynamic adjustment in household consumption. Non-Oil GDP is expected to exert a positive influence on PC, reflecting the role of non-hydrocarbon activity in supporting household income.

Equation 2: Government Consumption (CG)

$$CG_t = \alpha_1 + \beta_{11} \cdot RO_t + \beta_{12} \cdot CG_{t-1} + \varepsilon_{1t}$$

This specification models government consumption as a function of RO and its own lagged value, incorporating dynamic persistence in public spending. The lagged term captures inertia in fiscal expenditure paths. RO is hypothesized to have a positive effect, as higher hydrocarbon revenues expand fiscal space.

Equation 3: Private Investment (IP)

$$IP_t = \alpha_2 + \beta_{21} \cdot GDP_t + \beta_{22} \cdot IP_{t-1} + \varepsilon_{2t}$$

IP is expressed as a function of current GDP, capturing the accelerator mechanism, alongside its lagged term to account for persistence. GDP is expected to exert a positive effect on IP, consistent with the accelerator hypothesis whereby higher economic activity stimulates greater private investment.

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Equation 4: Government Investment (IG)

$$IG_t = \alpha_3 + \beta_{31} \cdot RO_t + \beta_{32} \cdot IG_{t-1} + \varepsilon_{3t}$$

This specification models IG as a function of RO and its lagged component, capturing both fiscal dependence on hydrocarbon income and persistence in public investment. RO is hypothesized to exert a positive influence on IG, as hydrocarbon revenues constitute a key financing channel for government-led capital expenditure.

Equation 5: Total Imports (M)

$$M_t = \alpha_4 + \beta_{41} \cdot GDP_t + \beta_{42} \cdot M_{t-1} + \varepsilon_{4t}$$

Total imports are specified as a function of GDP, reflecting the demand-side effect of economic activity on import requirements, together with the lagged term capturing persistence and adjustment dynamics. GDP is expected to exert a positive effect on imports, consistent with higher economic activity increasing demand for foreign goods and intermediate inputs.

RESULTS

This section presents the OLS estimation results for each specified equation, with interpretations reflecting the corrected variable definitions. Particular emphasis is placed on RO and the D2008 dummy variable, which captures the structural impact of the Global Financial Crisis. Table 4 reports the summary descriptive statistics and key diagnostics for the dependent and independent variables across all specifications.

Table 4: Descriptive Statistics and Model Diagnostics by Specification

Specification	Mean	Std. Dev.	R^2	Adj. R^2	Durbin–Watson
Eq. 1 – PC	99,443.5	57,371.0	0.944	0.937	1.46
Eq. 2 – CG	29,255.6	15,700.0	0.988	0.987	2.74
Eq. 3 – IP (Model 1: 1972–2019)	17,282.8	15,001.0	0.928	0.925	1.63
Eq. 3 – IP (Model 2: 1972–2010)	12,242.7	11,271.7	0.963	0.961	2.25
Eq. 4 – IG	14,518.8	9,590.7	0.962	0.955	2.04
Eq. 5 – M	77,945.0	81,918.5	0.979	0.978	1.93

Equation 1: Private Consumption (PC)

The study employs an Autoregressive Distributed Lag ARDL (1,1) specification to investigate the relationship between private consumption (PC) and Non-Oil GDP (NGDP) over 1993–2020. The estimated coefficients and diagnostics are reported in Table 5.

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Table 5: OLS Estimation Results for Private Consumption (Equation 1), 1993–2020

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4,847.99	5,599.44	0.866	0.395
PC_{t-1}	0.825	0.122	6.758	0.000
NGDP	0.383	0.151	2.531	0.018
$NGDP_{t-1}$	−0.313	0.147	−2.132	0.043

Note: Observations = 28. R^2 = 0.944; Adjusted R^2 = 0.937; F-statistic = 134.67 ($p < 0.001$); Durbin–Watson = 1.46.

Table 5 exhibits a strong overall model fit, with an R^2 of 0.944, implying that approximately 94.4% of the variation in private consumption is accounted for by the explanatory variables. The lagged consumption term carries a coefficient of 0.825 ($t = 6.76$, $p < 0.001$), indicating highly significant persistence: around 82.5% of past consumption is transmitted into the current period, reflecting strong habit formation and consumption smoothing among UAE households. The contemporaneous coefficient of NGDP is 0.38 ($t = 2.53$, $p = 0.018$), indicating a positive and statistically significant short-run response, while the lagged NGDP coefficient of −0.313 ($t = -2.13$, $p = 0.043$) suggests a partial adjustment mechanism with temporary overshooting.

The long-run marginal propensity to consume is derived as $(\beta_2 + \gamma) / (1 - \beta_1) = (0.38 - 0.313) / (1 - 0.825) \approx 0.40$, implying that approximately 40% of permanent income gains translate into consumption. The Durbin–Watson statistic of 1.46 indicates no evidence of severe autocorrelation, and the F-statistic of 134.67 ($p < 0.001$) confirms the joint statistical significance of the regressors. Overall, the high persistence parameter reflects strong consumption smoothing, while the negative lagged income effect indicates temporary overshooting followed by correction.

Equation 2: Government Consumption (CG)

This analysis investigates the relationship between government consumption (CG) and Oil & Gas Revenue (RO) over 2000–2019 using an ARDL(1,0) framework.

Table 6: OLS Estimation Results for Government Consumption (Equation 2), 2000–2019

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	8.05	984.02	0.008	0.994
RO	0.065	0.021	3.053	0.007
CG_{t-1}	0.977	0.032	30.950	0.000

Note: Observations = 20. R^2 = 0.988; Adjusted R^2 = 0.987; F-statistic = 695.18 ($p < 0.001$); Durbin–Watson = 2.74.

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The estimation results appear in Table 6.

The estimation indicates an exceptionally strong model fit ($R^2 = 0.988$). The lagged government consumption term has a coefficient of 0.977 ($t = 30.95$, $p < 0.001$), indicating extremely strong persistence: 97.7% of the previous period's CG is transmitted into the current period, reflecting structural rigidity, multi-year budget commitments, and the downward inflexibility of public-sector wages and social spending. The RO coefficient of 0.065 ($t = 3.05$, $p = 0.007$) is positive and statistically significant, implying that a one-million-USD increase in RO is associated with an immediate 0.065-million-USD rise in CG.

The long-run multiplier is $\beta_2 / (1 - \beta_1) = 0.065 / (1 - 0.977) \approx 2.83$, indicating that a permanent one-million-USD increase in RO eventually leads to a 2.83-million-USD increase in CG. This amplification arises from near-complete persistence of government spending and the compounding dynamics of the near-unit-root process. The dynamic is consistent with two structural interpretations: the ratchet effect (Coyne et al., 2022), whereby expenditure increases are rarely fully reversed, and structural inertia (Ibadoghlu, 2025), whereby institutional commitments generate persistent and often irreversible obligations. This structural persistence increases fiscal vulnerability to oil-price fluctuations, supporting expenditure ceilings decoupled from short-term oil revenue, mandatory savings rules, and medium-term expenditure frameworks.

Equation 3: Private Investment (IP)

Two distinct OLS models examine the determinants of private investment (IP), with GDP and lagged IP as explanatory variables. The specifications differ in sample period – 1972–2019 (Model 1) and 1972–2010 (Model 2) – enabling assessment of parameter stability and structural change. Both models are reported jointly in Table 7.

Table 7: OLS Estimation Results for Private Investment (Equation 3): Model Comparison

Variable	Model 1 (1972–2019) Coef.	Prob.	Model 2 (1972–2010) Coef.	Prob.
Constant	1,531.86	0.093	419.61	0.435
GDP	0.028	0.028	0.085	0.000
IP_{t-1}	0.706	0.000	0.409	0.001
R^2 / Adj. R^2	0.928 / 0.925	–	0.963 / 0.961	–
F-statistic	289.88	0.000	467.73	0.000
Durbin–Watson	1.63	–	2.25	–

Note: Model 1 N = 48; Model 2 N = 39. S.E. of regression: Model 1 = 4,114.5; Model 2 = 2,229.3.

Both models exhibit a strong overall fit and confirm a statistically significant relationship between GDP, lagged IP, and current IP. The GDP coefficient is larger in

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Model 2 (0.085 versus 0.028), indicating a stronger influence of economic activity on private investment during the earlier period, whereas the coefficient on lagged IP is higher in Model 1 (0.706 versus 0.409), suggesting increased persistence in the later sample. The differences can be attributed to structural transformation following the 2008 crisis, increasing diversification away from hydrocarbons, and potential structural breaks during 2011–2019. The higher R^2 and lower standard error in Model 2 indicate a superior statistical fit for 1972–2010, underscoring the importance of accounting for temporal heterogeneity when modelling investment behavior.

Equation 4: Government Investment (IG)

Equation 4 indicates that RO has a positive and statistically significant impact on IG, with lagged IG highly significant and positive, highlighting pronounced persistence in government investment. The estimation results are reported in Table 8.

Table 8: OLS Estimation Results for Government Investment (Equation 4), 1992–2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2,531.97	1,107.10	2.287	0.035
RO	0.079	0.038	2.076	0.053
IG_{t-1}	0.638	0.113	5.628	0.000
D2008	4,816.41	2,427.06	1.984	0.064

Note: Observations = 21. R^2 = 0.962; Adjusted R^2 = 0.955; F-statistic = 141.62 ($p < 0.001$); Durbin–Watson = 2.04.

The result establishes a robust and economically meaningful positive linkage between hydrocarbon revenues and public investment, implying that resource-generated fiscal inflows constitute a critical financing base for capital expenditure in infrastructure and development projects. The lagged IG term confirms pronounced persistence: once expenditure programs are initiated, they tend to persist across periods with limited reversal. Such sustained investment dynamics are consistent with counter-cyclical fiscal responses adopted following the 2008 crisis, aimed at supporting stabilization and medium-term recovery (Al Jabri et al., 2022). The Durbin–Watson statistic of 2.04 indicates no serious concern regarding serial correlation.

Equation 5: Total Imports (M)

Both GDP and lagged total imports retain their established roles within the specification. GDP, together with the lagged dependent term, emerges as a strong and statistically meaningful determinant of current imports, confirming both demand-led import dynamics and persistence in trade behavior. The estimation results are presented in Table 9.

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Table 9: OLS Estimation Results for Total Imports (Equation 5), 1982–2019

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	−9,473.19	3,649.33	−2.596	0.014
GDP	0.288	0.054	5.321	0.000
M_{t-1}	0.520	0.101	5.166	0.000

Note: Observations = 38. R^2 = 0.979; Adjusted R^2 = 0.978; F-statistic = 828.59 ($p < 0.001$); Durbin–Watson = 1.93.

The results reinforce the import structure as being primarily driven by overall economic activity while exhibiting notable inertia, as past import levels significantly influence current values. The constant is negative and statistically significant, suggesting a baseline downward adjustment component when controlling for GDP and lagged imports. Overall model fit and statistical significance remain strong (Malec et al., 2024).

STATIONARITY (UNIT ROOT) ANALYSIS

The stationarity properties of each series were assessed using the Augmented Dickey–Fuller (ADF) test with a constant and automatically selected lag length based on the Schwarz Information Criterion. Stationarity is a fundamental requirement in time-series econometrics, as non-stationary variables can produce spurious relationships and unreliable inference. Table 10 consolidates the ADF test statistics at level, first difference, and second difference, together with the MacKinnon (1996) one-sided p-values and the resulting order of integration for each variable.

Table 10: Augmented Dickey–Fuller (ADF) Unit Root Test Results

Variable	Level	1st Diff.	2nd Diff.	p-values (Level, 1st, 2nd)	Order
CG	3.007	−2.399	−7.656	1.000 / 0.149 / 0.000	I(2)
IP	−0.918	−5.627	–	0.772 / 0.000	I(1)
IG	0.619	−4.039	−6.806	0.989 / 0.003 / 0.000	I(2)
PC	−0.254	−5.447	–	0.923 / 0.000	I(1)
M	0.123	−6.086	–	0.964 / 0.000	I(1)
GDP	−0.240	−4.724	–	0.925 / 0.001	I(1)
RO	−1.694	−4.982	–	0.423 / 0.000	I(1)
NGDP	−0.789	−2.786	−6.442	0.807 / 0.074 / 0.000	I(2)
GRF	−1.356	−4.595	–	0.582 / 0.002	I(1)

Note: The null hypothesis of the ADF test is the presence of a unit root. p-values are MacKinnon (1996) one-sided values; rejection at the 5% level implies stationarity. CG, IG, and NGDP achieve stationarity only after second differencing and are therefore integrated of order two, I(2); the remaining series are I(1).

As summarised in Table 10, all series are non-stationary in levels. Private consumption, private investment, total imports, GDP, oil and gas revenue, and forecast

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government revenue become stationary after first differencing and are integrated of order one, I(1). Government consumption, government investment, and non-oil GDP require second differencing to achieve stationarity and are therefore integrated of order two, I(2). The consistent rejection of the unit-root null after differencing confirms that the differenced series are appropriate for subsequent econometric modelling.

DISCUSSION

The empirical findings, interpreting RO as Oil & Gas Revenue, provide important insights into the resource-dependent structure of key macroeconomic aggregates in the UAE. Three themes emerge.

Resource Revenue as a Key Driver of Government Spending

The positive and statistically significant impact of RO on both government consumption and government investment represents a core empirical outcome. This indicates that resource revenues function as a primary fiscal determinant, suggesting that public expenditure in the UAE is closely aligned with fluctuations in oil and gas income and remains structurally dependent on hydrocarbon revenue flows.

Persistence in Macroeconomic Aggregates

Strong dynamic persistence is evident across all estimated equations, implying that past values of consumption, investment, and imports significantly influence their current levels. Within the resource-revenue framework, the persistence observed in government spending also reflects the lagged and stabilised transmission of RO into expenditure decisions, consistent with gradual fiscal adjustment rather than immediate full absorption of revenue shocks.

GDP and Economic Activity

GDP remains a robust and significant determinant of private investment and total imports, reinforcing the role of aggregate economic activity in driving investment demand and import absorption. This confirms the continued importance of income-led mechanisms alongside resource-driven fiscal channels (Deyshappriya et al., 2023).

POLICY IMPLICATIONS

Based on the analysis of macroeconomic aggregates over 1972–2025, the OLS estimation results generate important policy-relevant insights regarding growth, diversification, and macroeconomic stability. Policymakers should prioritise strategic infrastructure expenditure, as public investment plays a meaningful role in stimulating private investment. Given the economy's sensitivity to oil-price and revenue

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fluctuations, countercyclical fiscal frameworks are essential to stabilise economic cycles. The very high persistence of government consumption and its strong dependence on RO raise concerns regarding fiscal sustainability, highlighting the necessity of structural reforms that weaken the direct linkage between volatile hydrocarbon revenues and government expenditure (Al Jabri et al., 2022).

The inclusion of NGDP as a key explanatory driver underscores the importance of continued policy support for non-hydrocarbon sectors such as tourism, manufacturing, logistics, and financial services. The 2025 projection indicating that non-oil sectors account for over 75% of GDP reinforces their role as the main pillar of macroeconomic stability (Kelmer Group, 2025). The findings also imply that careful monitoring of trade balances and capital flows is necessary as the UAE deepens its integration into global markets, and confirm that the UAE implemented a sustained fiscal response following the Global Financial Crisis extending into the medium-term recovery phase (2008–2012).

Post-Oil Economy in the UAE

Historically anchored by its hydrocarbon endowment, the UAE is progressively transitioning towards a post-oil growth model through coordinated government initiatives and strengthened private-sector participation, supported by structural reforms and infrastructure development aligned with emerging environmental standards (Koons, 2024). The expansion of NGDP by more than 5% reflects the strategic objective of building a diversified, innovation-driven economy. This trajectory is aligned with the “We the UAE 2031” vision, which targets GDP expansion to AED 3 trillion over the coming decade.

Resource Revenue Management and Fiscal Policy

The strong empirical linkage between RO and government spending highlights the importance of disciplined, forward-looking resource revenue management. Fiscal frameworks should prioritise expenditure sustainability given the volatility of hydrocarbon revenues. The observed persistence in government spending implies that fiscal policy design must explicitly account for revenue volatility through fiscal buffers, sovereign stabilisation mechanisms, and structured savings instruments to avoid pro-cyclical behaviour (Elsayed et al., 2024).

Diversification and Private Sector Stimulation

Economic diversification is not only a long-term growth objective but also a core requirement for fiscal sustainability; reducing reliance on RO enhances fiscal resilience and limits exposure to oil-price shocks. Although government spending is significantly driven by RO, sustained emphasis on private-sector development and NGDP expansion remains essential for balanced growth, requiring an enabling

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institutional and regulatory environment that encourages private investment and reduces long-term dependence on government-led demand (Ravinthirakumaran et al., 2025).

CONCLUSION

This study re-examines the dynamics of government consumption, private investment, government investment, and total imports in the UAE, incorporating the corrected interpretation of RO. The revised evidence highlights the dominant role of RO in shaping fiscal behaviour and broader macroeconomic outcomes. Oil and gas revenue emerges as a key positive determinant of both government consumption and government investment, confirming the strong resource-dependent structure of fiscal policy. All four aggregates exhibit strong persistence, indicating that past values exert a sustained influence on current levels and reflecting structural inertia in macroeconomic adjustment. GDP remains a significant and positive driver of private investment and imports. Government investment recorded a marked and sustained increase during 2008–2012, reflecting an extended fiscal response to the Global Financial Crisis and indicating the use of public investment as a multi-period stabilisation mechanism. Overall, while the UAE has made substantial progress in diversification and structural transformation, public consumption and investment remain fundamentally anchored to RO, underscoring the continued importance of prudent resource revenue management for fiscal stability and macroeconomic resilience.

LIMITATIONS

While the models show strong overall fit, several limitations should be noted. The sample periods may not fully capture recent structural changes linked to ongoing diversification. The relatively high Durbin–Watson statistic for the government-consumption equation (2.74) suggests possible negative autocorrelation and potential model misspecification. The near-unit-root behaviour observed in several variables implies that cointegration may be present, which could require error-correction modelling for more robust estimation. Future research should therefore test alternative specifications and incorporate updated data to improve the robustness and stability of the results.

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