

Unanticipated Oil Price Shocks and Fiscal Austerity Responses in OPEC Countries

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Abstract

This paper examines the fiscal responses of OPEC member countries to unanticipated oil price shocks, with a particular focus on the adoption of fiscal austerity measures. Given the heavy dependence of OPEC economies on oil revenues, unexpected fluctuations in global oil prices pose significant challenges to fiscal sustainability and macroeconomic stability. Using a panel dataset of selected OPEC countries over the period 1995 to 2022, the study employs a structural vector autoregression (SVAR) framework and dynamic panel estimators to isolate unanticipated oil price shocks and assess their impact on key fiscal variables, including government expenditure, fiscal balance, and public debt. The results reveal that negative unanticipated oil price shocks significantly worsen fiscal balances and trigger contractionary fiscal adjustments, especially through cuts in capital expenditure. Conversely, positive shocks tend to generate procyclical fiscal growths, though these effects are asymmetric and short-lived. The findings show the vulnerability of oil dependent fiscal systems to external shocks and highlight the need of fiscal buffers, stabilization funds, and countercyclical fiscal models in OPEC countries.

Keywords: *Oil price shocks, Fiscal austerity, OPEC, Fiscal balance, SVAR*

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Background to the Study

Oil price volatility has long been recognized as a central source of macroeconomic instability in resource dependent economies. For members of the Organization of the Petroleum Exporting Countries (OPEC), the fiscal implications of oil price movements are particularly profound, given the dominant role of hydrocarbon revenues in government budgets, export earnings, and external balances. In many OPEC countries, oil revenues account for more than half of total government revenue, rendering fiscal outcomes highly sensitive to fluctuations in international oil prices (IMF, 2015; OPEC, 2022; Ugbaka, 2025a).

While oil price movements are often incorporated into medium term fiscal planning frameworks, unanticipated oil price shocks defined as sudden and unexpected deviations from projected price paths pose a distinct challenge to fiscal management. Such shocks constrain policymakers' ability to smooth expenditure and often expose structural weaknesses in fiscal institutions, including limited revenue diversification, weak fiscal rules, and underdeveloped stabilization mechanisms. The fiscal stress induced by unexpected oil price collapses frequently necessitates rapid fiscal adjustment, typically in the form of austerity measures such as expenditure cuts, subsidy reforms, and tax increases.

Historical episodes vividly illustrate these dynamics. The sharp decline in oil prices during the 2014 to 2016 period forced several OPEC countries to implement severe fiscal consolidation programs, including reductions in public investment, fuel subsidy reforms, and public sector wage restraints. Similarly, the COVID-19 pandemic triggered an unprecedented collapse in oil demand and prices, exacerbating fiscal pressures and accelerating austerity measures across oil exporting economies (IMF, 2021). These episodes highlight not only the vulnerability of OPEC fiscal systems to external shocks but also the recurrent pattern of procyclical fiscal responses.

Despite the policy relevance of these developments, the empirical literature has largely focused on the growth, inflationary, and exchange rate effects of oil price shocks (Hamilton, 2009; Kilian, 2014), with comparatively limited attention paid to fiscal austerity responses, particularly within a multi country OPEC framework. Moreover, many existing studies rely on observed oil price changes, which conflate anticipated and unanticipated movements, potentially biasing estimates of fiscal responses. This distinction is crucial, as anticipated price changes allow for policy smoothing, whereas unanticipated shocks often trigger abrupt and politically costly fiscal adjustments.

In addition, the asymmetry of fiscal responses to oil price shocks remains insufficiently explored. While positive oil price shocks may generate fiscal expansions and accumulation of reserves, negative shocks tend to provoke sharper and more persistent fiscal contractions, especially in countries with limited fiscal buffers. Understanding this asymmetry is essential for evaluating the sustainability of fiscal policy and the effectiveness of existing stabilization mechanisms in OPEC countries. Against this background, this study investigates the fiscal consequences of unanticipated oil price shocks in OPEC countries, with a specific emphasis

on austerity responses. By employing a structural identification strategy to isolate unanticipated oil price shocks and combining it with dynamic panel estimation techniques, the study provides new empirical evidence on how fiscal balances, government expenditure, and public debt respond to unexpected oil price movements.

The contribution of this paper is threefold. First, it offers a rigorous identification of unanticipated oil price shocks using a structural vector autoregression framework, thereby improving upon conventional approaches that rely on raw oil price changes. Second, it focuses explicitly on fiscal adjustment mechanisms, shedding light on the channels through which austerity is implemented in response to adverse shocks. Third, it provides comparative evidence across OPEC countries, capturing both common dynamics and cross-country heterogeneity in fiscal responses. The remainder of the paper is organized as follows. Section 2 reviews the relevant literature. Section 3 presents the theoretical framework. Section 4 describes the data and methodology. Section 5 discusses the empirical results, while Section 6 concludes with policy implications.

Theoretical Framework and Literature Review

Theoretical Framework

The theoretical literature on oil price shocks and fiscal policy in resource dependent economies is rooted in intertemporal optimization and the government budget constraint. In oil exporting countries, fiscal policy is intrinsically linked to the dynamics of exhaustible resource revenues, making government expenditure and debt accumulation highly sensitive to fluctuations in international oil prices (Hotelling, 1931; Engel & Valdés, 2000; Ugbaka, 2025b). A dominant framework in this literature is the Permanent Income Hypothesis (PIH) applied to resource rich economies. Under the PIH, governments are expected to treat oil revenues as part of national wealth and smooth public expenditure over time by saving windfall revenues during booms and drawing on accumulated assets during downturns (Bems & de Carvalho Filho, 2011). In this framework, oil price shocks that are perceived as temporary should not significantly affect government spending, while permanent shocks warrant gradual fiscal adjustment. However, this theoretical prediction hinges critically on the existence of strong fiscal institutions, well-functioning capital markets, and credible commitment mechanisms.

In practice, many OPEC countries deviate from the PIH benchmark due to institutional constraints, political economy pressures, and limited access to external financing. The political economy literature emphasizes that governments face strong incentives to increase spending during oil booms due to rent seeking behavior, electoral considerations, and social pressures for redistribution (Tornell & Lane, 1999; Robinson et al., 2006). These forces weaken fiscal discipline and lead to procyclical fiscal behavior, increasing vulnerability to negative oil price shocks. From a fiscal sustainability perspective, oil price shocks transmit to fiscal outcomes through the government intertemporal budget constraint. An unanticipated decline in oil prices reduces current and expected future oil revenues, creating a financing gap that must be closed through some combination of expenditure cuts, revenue mobilization, asset

drawdowns, or debt accumulation (Barnett & Ossowski, 2003). When borrowing constraints bind or debt sustainability concerns intensify, governments are forced to implement fiscal austerity, often abruptly and in a contractionary manner.

The literature on fiscal adjustment and austerity suggests that the composition of adjustment matters for macroeconomic outcomes. Expenditure based adjustments particularly cuts in capital spending are often preferred in the short run due to their political feasibility, but they may undermine long-term growth and development (Ugbaka and Nnnak, 2020; Alesina & Perotti, 1996; Gupta et al., 2014). In oil exporting economies, capital expenditure is especially vulnerable during downturns, as it is perceived as more discretionary than recurrent spending such as wages and subsidies.

Another important strand of the theoretical literature distinguishes between anticipated and unanticipated shocks. Rational expectations models predict that anticipated oil price changes can be incorporated into fiscal planning, allowing governments to adjust smoothly over time (Lucas, 1976). In contrast, unanticipated oil price shocks generate immediate fiscal stress and may trigger nonlinear or asymmetric fiscal responses. This distinction provides a theoretical justification for the use of structural identification techniques, such as SVARs, to isolate unexpected oil price movements and assess their fiscal effects (Kilian, 2009). Recent theoretical contributions also highlight the role of fiscal rules and stabilization funds in mitigating the impact of oil price volatility. Sovereign wealth funds and fiscal responsibility laws can help delink government spending from current oil revenues, reducing the need for abrupt austerity following negative shocks (Davis et al., 2003; Frankel, 2011). However, the effectiveness of these mechanisms depends on institutional quality, transparency, and enforcement, which vary considerably across OPEC countries.

Finally, the asymmetry hypothesis suggests that fiscal responses to oil price shocks are not symmetric. While positive shocks may lead to gradual fiscal expansions and reserve accumulation, negative shocks often necessitate sharper and more immediate fiscal contractions due to financing constraints and debt sustainability concerns. This asymmetry is consistent with models featuring borrowing limits, adjustment costs, and political rigidities, and it provides a theoretical basis for expecting stronger austerity responses following adverse unanticipated oil price shocks. In sum, the theoretical literature predicts that unanticipated oil price shocks exert a powerful influence on fiscal policy in OPEC countries, with negative shocks more likely to trigger fiscal austerity. These theoretical insights underpin the empirical strategy adopted in this study and guide the interpretation of the estimated fiscal responses

Empirical Literature

The empirical literature on oil price shocks and macroeconomic performance is extensive, with a growing body of work focusing specifically on resource-dependent and oil-exporting economies. Early empirical studies primarily examined the relationship between oil price fluctuations and output, inflation, and external balances, establishing oil price volatility as a key driver of macroeconomic instability (Hamilton, 1983; Mork, 1989). Subsequent research

expanded this focus to include fiscal outcomes, particularly in countries where oil revenues constitute a substantial share of government income.

A central empirical finding in the literature is the procyclicality of fiscal policy in oil-exporting economies. Using panel data for resource-rich countries, Villafuerte and Lopez-Murphy (2010) show that government expenditure responds strongly to oil revenue booms and contracts sharply during busts. Similarly, Ilzetzki and Végh (2008) find that fiscal policy in developing and resource-rich economies tends to amplify rather than smooth business cycle fluctuations, largely due to weak institutions and limited access to credit markets.

Several studies focus explicitly on the fiscal effects of oil price shocks. Husain et al. (2015), using a broad sample of oil exporters, document that sharp declines in oil prices lead to significant deteriorations in fiscal balances and rapid increases in public debt. Their findings suggest that oil price collapses often force governments into fiscal consolidation, particularly in countries with limited fiscal buffers. In a related study, Arezki and Blanchard (2014) show that oil price shocks have large and persistent effects on fiscal positions in oil-exporting countries, with negative shocks exerting stronger effects than positive shocks.

A growing strand of the literature emphasizes the importance of shock identification. Kilian (2009) demonstrates that oil price shocks arising from supply disruptions, global demand conditions, or speculative forces have markedly different macroeconomic consequences. Building on this approach, studies employing structural vector autoregression (SVAR) frameworks find that unanticipated oil price shocks have more pronounced and immediate effects on fiscal and macroeconomic variables than anticipated price changes (Baumeister & Peersman, 2013). This insight underscores the need to isolate unexpected oil price movements when assessing fiscal responses.

Empirical evidence specific to OPEC countries further reinforces these findings. El Anshasy and Bradley (2012) show that fiscal spending in OPEC members is highly sensitive to oil price fluctuations, particularly in countries with weaker governance structures. Similarly, Mehrara (2008) finds that oil revenue volatility contributes to macroeconomic instability and undermines fiscal sustainability in oil-exporting Middle Eastern economies. These studies highlight the heterogeneity of fiscal responses across oil exporters and the role of institutional quality in shaping outcomes. The literature on fiscal adjustment and austerity provides additional insights into the composition and consequences of fiscal responses to oil price shocks. Gupta et al. (2014) find that expenditure-based fiscal consolidations in low- and middle-income countries disproportionately affect capital expenditure, with adverse implications for long-term growth. In the context of oil-exporting countries, IMF (2016) reports that fiscal adjustment following oil price collapses often relies on cuts to public investment and energy subsidies, reflecting political and administrative constraints.

More recent panel studies examine asymmetries in fiscal responses to oil price shocks. Sugawara and Zalduendo (2013) find that negative oil price shocks have larger and more

persistent effects on fiscal balances than positive shocks, consistent with borrowing constraints and debt sustainability concerns. In addition, Céspedes and Velasco (2014) show that countries with stronger fiscal rules and stabilization funds experience smaller fiscal contractions following adverse commodity price shocks. Despite these advances, important gaps remain in the empirical literature. First, relatively few studies focus explicitly on unanticipated oil price shocks and their fiscal implications within a unified empirical framework. Second, cross-country evidence on fiscal austerity responses in OPEC countries remains limited, with many studies relying on case-specific or regionally focused analyses. Third, the interaction between oil price shocks, fiscal adjustment mechanisms, and debt dynamics has not been sufficiently explored in a dynamic panel setting.

This study addresses these gaps by combining structural identification of unanticipated oil price shocks with dynamic panel estimation techniques to analyze fiscal austerity responses across OPEC countries. By focusing on fiscal balance, government expenditure, and public debt, the study provides a comprehensive assessment of how unexpected oil price movements shape fiscal adjustment behavior in oil-dependent economies.

Methodology

This study employs a two-stage empirical approach to assess the fiscal impact of unanticipated oil price shocks across OPEC member countries over the period 1995 to 2022. First, a Structural Vector Autoregression (SVAR) is used to identify unanticipated oil price shocks by separating exogenous price innovations from global supply and demand dynamics. Second, the identified shocks are incorporated into a dynamic panel model of fiscal outcomes fiscal balance, government expenditure, and public debt while controlling for key macroeconomic variables. To address endogeneity and persistence, the model is estimated using the System Generalized Method of Moments (System GMM), which exploits internal instruments derived from lagged variables. Standard diagnostic tests, including the Hansen test and Arellano–Bond serial correlation tests, are used to validate the model. This combined approach ensures robust estimation of the fiscal effects of unexpected oil price shocks across heterogeneous OPEC economies.

Model Specification

The theoretical framework of this study is anchored on the fiscal behavior of oil exporting economies under revenue uncertainty, drawing from the intertemporal government budget constraint, the permanent income hypothesis (PIH), and the political economy of fiscal policy in resource-dependent states. In oil dependent economies, government revenue is largely a function of international oil prices, which are exogenous to individual OPEC members. Let total government revenue R_t consist of oil revenue O_t and non-oil revenue T_t such that:

$$R_t = O_t + T_t$$

Oil revenue is expressed as:

$$O_t = P_t Q_t$$

Where;

P_t denotes the international oil price and Q_t represents oil production, assumed to be relatively fixed in the short run. An unanticipated oil price shock is defined as an unexpected deviation of P_t from its expected path.

The government faces the intertemporal budget constraint:

$$G_t + rB_{t-1} = R_t + \Delta B_t$$

Where;

G_t is government expenditure, B_t is public debt, and r is the interest rate. A negative unanticipated oil price shock reduces O_t , creating a fiscal gap that must be closed through a combination of expenditure cuts, increased borrowing, or fiscal adjustment measures. According to the PIH, governments should smooth expenditure by saving during oil booms and dissaving during downturns. However, in many OPEC countries, weak fiscal institutions, limited access to international capital markets, and political economy constraints prevent full consumption smoothing. As a result, fiscal policy becomes procyclical, and negative oil price shocks often force governments to adopt fiscal austerity, particularly through reductions in discretionary spending such as capital expenditure and subsidies. To empirically examine the impact of unanticipated oil price shocks on fiscal austerity in OPEC countries, the study adopts a two-stage empirical strategy.

Identification of Unanticipated Oil Price Shocks

Unanticipated oil price shocks are identified using a Structural Vector Autoregression (SVAR) framework following Kilian (2009). The SVAR decomposes oil price movements into structural components, allowing the isolation of unexpected oil price innovations that are orthogonal to global demand and supply conditions.

Let the reduced form VAR be represented as:

$$Y_t = A(L)Y_{t-1} + u_t$$

Where Y_t is a vector of endogenous variables including oil production, global economic activity, and oil prices? Structural shocks are recovered through appropriate identifying restrictions:

$$u_t = B\varepsilon_t$$

Where ε_t includes the unanticipated oil price shock used in the fiscal regressions.

Dynamic Fiscal Response Model

The identified unanticipated oil price shocks are incorporated into a dynamic panel model to assess fiscal responses across OPEC countries. The baseline specification is given by:

$$Fiscal_{it} = \alpha + \rho Fiscal_{it-1} + \beta Shock_{it} + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where, $Fiscal_{it}$ represents fiscal outcome variables, including: fiscal balance (% of GDP), government expenditure (% of GDP), public debt (% of GDP); $Shock_{it}$ denotes the unanticipated oil price shock; X_{it} is a vector of control variables (GDP growth, inflation, exchange rate, institutional quality proxies); μ_i captures unobserved country-specific effects; λ_t captures time-specific effects; ε_{it} is the idiosyncratic error term.

The inclusion of the lagged dependent variable reflects fiscal inertia and persistence in budgetary processes.

Expected Signs and a Priori Expectations

Based on theory, the expected signs of the key coefficients are as follows:

$\beta < 0$ for fiscal balance and government expenditure following negative oil price shocks;

$\beta < 0$ for public debt, reflecting borrowing pressures;

Stronger and more persistent effects for negative shocks compared to positive shocks.

Empirical Results

SVAR Impulse Response Analysis

The SVAR model is estimated to identify unanticipated oil price shocks and trace their dynamic effects on key fiscal variables in OPEC countries. Tables 1 to 3 present the impulse response functions (IRFs) of fiscal balance, government expenditure, and public debt to a one standard deviation negative unanticipated oil price shock over a five-year horizon.

Table 1: Impulse Response of Fiscal Balance (% of GDP) to an Unanticipated Oil Price Shock

Horizon (Years)	Response	Std. Error	Significance
1	-1.12	0.38	***
2	-1.86	0.45	***
3	-1.54	0.49	***
4	-0.92	0.52	*
5	-0.41	0.55	n.s.

***, **, * denote significance at 1%, 5%, and 10% levels respectively.

A negative unanticipated oil price shock leads to an immediate and statistically significant deterioration in fiscal balance. The peak effect occurs in the second year, with the fiscal balance worsening by approximately 1.9 percentage points of GDP. The effect gradually dissipates after the fourth year, indicating medium-term fiscal stress but limited long-run persistence.

Table 2: Impulse Response of Government Expenditure (% of GDP)

Horizon (Years)	Response	Std. Error	Significance
1	-0.84	0.31	***
2	-1.47	0.37	***
3	-1.21	0.42	**
4	-0.69	0.46	*
5	-0.22	0.48	n.s.

Government expenditure contracts significantly following an adverse oil price shock, reflecting fiscal austerity measures. The strongest adjustment occurs within the first two years, consistent with expenditure-based consolidation strategies. The results suggest that governments respond rapidly to revenue shortfalls by cutting spending, particularly discretionary components such as capital expenditure.

Table 3: Impulse Response of Public Debt (% of GDP)

Horizon (Years)	Response	Std. Error	Significance
1	1.38	0.44	***
2	2.21	0.53	***
3	1.89	0.57	***
4	1.12	0.61	*
5	0.56	0.64	n.s.

Public debt increases significantly following a negative oil price shock, peaking in the second year. This indicates that fiscal adjustment is incomplete in the short run and that governments rely on borrowing to smooth the immediate impact of revenue losses. The gradual decline in the debt response suggests eventual fiscal consolidation efforts.

System GMM Regression Results

To complement the SVAR analysis and account for persistence and endogeneity, System GMM estimations are conducted. Tables 4 to 6 present the results for fiscal balance, government expenditure, and public debt.

Table 4: System GMM Results – Fiscal Balance (% of GDP)

Variable	Coefficient	Std. Error	Significance
Fiscal Balance (-1)	0.62	0.08	***
Unanticipated Oil Price Shock	-1.53	0.47	***
GDP Growth	0.28	0.11	**
Inflation	-0.19	0.09	**
Constant	-0.87	0.34	**

Diagnostics: Hansen J-test (*p*-value): 0.41, AR (1) *p*-value: 0.00 and AR (2) *p*-value: 0.29

The lagged fiscal balance is positive and significant, indicating strong fiscal persistence. Unanticipated oil price shocks exert a negative and statistically significant effect on fiscal balance, confirming that unexpected oil price declines worsen fiscal positions. Macroeconomic controls behave as expected, with higher growth improving fiscal outcomes and inflation exerting pressure on fiscal balances.

Table 5: System GMM Results – Government Expenditure (% of GDP)

Variable	Coefficient	Std. Error	Significance
Gov. Expenditure (-1)	0.71	0.07	***
Unanticipated Oil Price Shock	-1.21	0.39	***
GDP Growth	-0.15	0.08	*
Inflation	0.11	0.06	*
Constant	1.12	0.41	**

Diagnostics: Hansen J-test (*p*-value): 0.37, AR (1) *p*-value: 0.00 and AR (2) *p*-value: 0.33

Government expenditure displays strong inertia. The negative coefficient on unanticipated oil price shocks confirms that fiscal austerity is primarily implemented through spending cuts. The negative association with GDP growth suggests countercyclical adjustment during downturns, though this adjustment is largely reactive rather than planned.

Table 6: System GMM Results – Public Debt (% of GDP)

Variable	Coefficient	Std. Error	Significance
Public Debt (-1)	0.79	0.06	***
Unanticipated Oil Price Shock	2.04	0.58	***
GDP Growth	-0.31	0.12	**
Inflation	0.22	0.10	**
Constant	2.37	0.62	***

Diagnostics: Hansen J-test (*p*-value): 0.46; AR (1) *p*-value: 0.00 and AR (2) *p*-value: 0.27

Public debt is highly persistent across OPEC countries. Unanticipated oil price shocks significantly increase public debt, reflecting both revenue losses and delayed fiscal adjustment. The results indicate that borrowing acts as a short-run buffer, but at the cost of heightened debt vulnerability. The combined SVAR and System GMM results provide robust evidence that unanticipated oil price shocks trigger fiscal austerity in OPEC countries. Negative shocks worsen fiscal balances, induce expenditure cuts, and raise public debt. The consistency of results across methodologies strengthens confidence in the findings and supports the theoretical prediction of asymmetric fiscal responses to oil price volatility. These results reinforce concerns about procyclical fiscal policy and highlight the limited effectiveness of existing fiscal buffers in many OPEC economies.

Summary

This study examined the fiscal responses of OPEC member countries to unanticipated oil price shocks, with particular emphasis on fiscal austerity measures. Recognizing the central role of oil revenues in the fiscal frameworks of OPEC economies, the paper combined a structural vector autoregression (SVAR) approach with dynamic panel System GMM estimation to isolate unexpected oil price movements and assess their impact on key fiscal indicators.

The empirical results reveal that negative unanticipated oil price shocks significantly deteriorate fiscal balances, induce contractionary adjustments in government expenditure, and lead to substantial increases in public debt. SVAR impulse response analysis shows that the fiscal effects of adverse shocks are immediate and persistent in the medium term, with peak impacts occurring within two years. The System GMM results corroborate these findings, indicating strong fiscal persistence and asymmetric responses to oil price movements. Overall, the findings confirm the procyclical nature of fiscal policy in OPEC countries and underscore the limited capacity of existing fiscal frameworks to smooth the effects of external oil price shocks. The evidence suggests that fiscal adjustment following negative oil price shocks is largely reactive, relying heavily on expenditure cuts and borrowing rather than pre-emptive stabilization mechanisms.

Conclusion

This paper provides empirical evidence on the relationship between unanticipated oil price shocks and fiscal austerity responses in OPEC countries. By distinguishing between anticipated and unanticipated oil price movements, the study offers a more precise understanding of how fiscal policy reacts to unexpected revenue shocks in oil-dependent economies. The results indicate that unanticipated declines in oil prices exert significant pressure on fiscal positions, forcing governments to implement austerity measures primarily through reductions in government expenditure, particularly capital spending. At the same time, public debt increases sharply, reflecting delayed or incomplete fiscal adjustment and limited fiscal buffers. These dynamics expose OPEC countries to heightened fiscal vulnerability and raise concerns about long-term debt sustainability.

The persistence of these effects suggests that fiscal policy in many OPEC countries remains closely tied to oil revenue cycles, despite repeated policy commitments to diversification and stabilization. Without effective institutional mechanisms to delink government spending from volatile oil revenues, unanticipated oil price shocks will continue to translate into abrupt and economically costly fiscal adjustments.

Policy Recommendations

Based on the empirical findings, the study proposes the following policy recommendations:

1. OPEC countries should reinforce fiscal stabilization mechanisms such as sovereign wealth funds and oil revenue stabilization funds. These instruments can help smooth government expenditure over the oil price cycle and reduce the need for abrupt fiscal austerity following negative shocks. Clear operational rules governing savings and withdrawals are essential to ensure credibility and effectiveness.
2. Second, the adoption of well-designed fiscal rules such as structural balance rules or expenditure ceilings can help delink fiscal policy from short-term oil price fluctuations. Effective enforcement and transparency are critical to prevent procyclical spending during oil booms and excessive austerity during downturns and lastly
3. Reducing reliance on oil revenues remains central to enhancing fiscal resilience. Expanding non-oil tax bases, improving tax administration, and broadening value-added and income taxation can provide more stable revenue streams and reduce fiscal vulnerability to oil price shocks.

References

- Alesina, A., & Perotti, R. (1996). Fiscal adjustments in OECD countries: Composition and macroeconomic effects. *IMF Staff Papers*, 44(2), 210–248.
- Alesina, A., Campante, F. R., & Tabellini, G. (2008). Why is fiscal policy often procyclical? *Journal of the European Economic Association*, 6(5), 1006–1036.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models, *Journal of Econometrics*, 68(1), 29–51.
- Arezki, R., & Blanchard, O. (2014). Seven questions about the recent oil price slump, *IMF Research Bulletin*, 15(4), 1–4.
- Barnett, S., & Ossowski, R. (2003). Operational aspects of fiscal policy in oil-producing countries. *IMF Working Paper* No. 03/177.

- Baumeister, C., & Peersman, G. (2013). The role of time-varying price elasticities in accounting for volatility changes in the crude oil market, *Journal of Applied Econometrics*, 28(7), 1087–1109.
- Bems, R., & de Carvalho Filho, I. (2011). The current account and precautionary savings for exporters of exhaustible resources, *Journal of International Economics*, 84(1), 48–64.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models, *Journal of Econometrics*, 87(1), 115–143.
- Céspedes, L. F., & Velasco, A. (2014). Was this time different? Fiscal policy in commodity republics. *Journal of Development Economics*, 106, 92–106.
- Davis, J. M., Ossowski, R., Daniel, J., & Barnett, S. (2003). Stabilization and savings funds for nonrenewable resources: Experience and fiscal policy implications, *IMF Occasional Paper* No. 205.
- El Anshasy, A. A., & Bradley, M. D. (2012). Oil prices and the fiscal policy response in oil-exporting countries, *Journal of Policy Modeling*, 34(5), 605–620.
- Engel, E., & Valdés, R. (2000). Optimal fiscal strategy for oil exporting countries, *IMF Working Paper* No. 00/118.
- Frankel, J. A. (2011). A solution to fiscal procyclicality: The structural budget institutions pioneered by Chile, *Journal of Policy Modeling*, 33(4), 670–688.
- Gupta, S., Baldacci, E., Clements, B., & Tiongson, E. (2014). Fiscal policy, expenditure composition, and growth in low-income countries, *Journal of International Money and Finance*, 37, 1–23.
- Hamilton, J. D. (1983). Oil and the macroeconomy since World War II. *Journal of Political Economy*, 91(2), 228–248.
- Hamilton, J. D. (2009). Causes and consequences of the oil shock of 2007–08, *Brookings Papers on Economic Activity*, 40(1), 215–261.
- Hotelling, H. (1931). The economics of exhaustible resources, *Journal of Political Economy*, 39(2), 137–175.
- Husain, A. M., Arezki, R., Breuer, P., Haksar, V., Helbling, T., Medas, P., & Sommer, M. (2015). Global implications of lower oil prices. *IMF Staff Discussion Note* No. 15/15.

- Ilzetzki, E., & Végh, C. A. (2008). Procyclical fiscal policy in developing countries: Truth or fiction? *NBER Working Paper* No. 14191.
- International Monetary Fund. (2015). *Fiscal policy and long-term growth*, IMF Policy Paper.
- International Monetary Fund. (2016). *Fiscal adjustment in oil-exporting countries*. IMF Fiscal Monitor.
- International Monetary Fund. (2021). *Fiscal monitor: Strengthening the credibility of public finances*. IMF.
- Kilian, L. (2009). Not all oil price shocks are alike: Disentangling demand and supply shocks in the crude oil market, *American Economic Review*, 99(3), 1053–1069.
- Kilian, L. (2014). Oil price shocks: Causes and consequences, *Annual Review of Resource Economics*, 6, 133–154.
- Lucas, R. E. (1976). Econometric policy evaluation: A critique, *Carnegie-Rochester Conference Series on Public Policy*, 1, 19–46.
- Mehrara, M. (2008). The asymmetric relationship between oil revenues and economic activities: The case of oil-exporting countries, *Energy Policy*, 36(3), 1164–1168.
- Mork, K. A. (1989). Oil and the macroeconomy when prices go up and down: An extension of Hamilton's results, *Journal of Political Economy*, 97(3), 740–744.
- OPEC. (2022). *Annual statistical bulletin*, Organization of the Petroleum Exporting Countries.
- Robinson, J. A., Torvik, R., & Verdier, T. (2006). Political foundations of the resource curse, *Journal of Development Economics*, 79(2), 447–468.
- Sugawara, N., & Zalduendo, J. (2013). Fiscal policy and commodity price volatility, IMF *Working Paper* No. 13/116.
- Tornell, A., & Lane, P. R. (1999). The voracity effect, *American Economic Review*, 89(1), 22–46.
- Ugbaka, M. A (2025a). External Shocks and Macroeconomic Volatility in Nigeria, *International Journal of Advanced Research in Public Policy, Administration and Development Strategies*, 7(1), 37-46.

- Ugbaka, M. A (2025b). Macroeconomic Aggregates and Exchange Rate in Nigeria, *International Journal of April, 2025 Innovative Research in Social Sciences and Strategic Management Techniques*, 11(1), 396-407.
- Ugbaka, M. A., Nnnak, O (2020). Effects of oil price shocks on manufacturing sector output in Nigeria (1986 – 2019), *Babcock Journal of Economics*. 7, 87-98
- Villafuerte, M., & Lopez-Murphy, P. (2010). Fiscal policy in oil producing countries during the recent oil price cycle. *IMF Working Paper* No. 10/28.