Advanced Research Journal
Volume 9, Number 1, 2025, 1-25
DOI: 10.71350/3062192580
ISSN: 3062-1925

Article

Evaluating Ghana's resource swap experiment: A critical analysis of the gold for oil program and the Ghana gold board

Simon Suwanzy Dzreke [1], **Semefa Elikplim Dzreke** [2], **Evans Dzreke** [3], **Franklin Manasey Dzreke** [4]

[1] Federal Aviation Administration, AHR, Career and Leadership Development, Washington, DC, US
[2] University of Technology Malaysia, Razak Faculty of Technology and Informatics, Kuala Lumpur, Malaysia
[3] The University of Texas Rio Grande Valley, Department of Health and Biomedical Sciences, Texas, USA
[4] University of Ghana, Department of Business Administration, Koforidua, Legon-Accra, Ghana

Abstract

The Ghana Gold for Oil (G4O) program, where the Bank of Ghana exchanged gold from the Ghana Gold Board (GoldBod) for gasoline imports, was intended to stabilize the volatile Ghana Cedi and secure energy supplies. Instead, it exposed the nation's grave institutional issues: although GoldBod formalized small-scale mining and doubled national gold reserves to 15.2 tonnes with success, the Bank of Ghana's implementation of G4O swaps lost GHS 2.137 billion due to governance breakdowns in swap mechanics—premium payments for GoldBod-sourced gold conflicting with discounted international swap rates, politically motivated fuel subsidies, and bureaucratic delays that incurred demurrage penalties—until post-2025 reforms depoliticized pricing and introduced blockchain traceability, coinciding with the Cedi's 18% appreciation and forex reserve recovery to $6.9 billion, demonstrating that institutional segregation between aggregation excellence and swap execution is absolute; therefore, this analysis derives actionable imperatives for resource-rich economies: domestic aggregation institutions (such as GoldBod) must be kept operationally separate from swap operators, real-time price synchronization must prevent arbitrage, and strategic minerals must fund industrialization (e.g., refineries capturing 30% export premiums) not consumption, redefining resource sovereignty as the institutional sagacity to utilize mineral endowments for structural resilience—a template for 18 countries seeking similar stabilization in currency crises.

Article History
Received 10.04.2025
Accepted 30.07.2025

Keywords
Ghana gold for oil program; resource swap governance; Ghana gold board; domestic gold aggregation

Introduction and Context

Global Resources for Context for Resource-Rich Developing Economies

Resource-abundant emerging nations must navigate the precarious paradox of substantial mineral wealth with significant macroeconomic volatility, a crucial aspect of the enduring "resource curse" hypothesis (Sachs & Warner, 2001; Ross, 2012). These economies are

Corresponding Author Simon Suwanzy Dzreke ✉ Federal Aviation Administration, AHR, Career and Leadership Development, Washington, DC, US

inherently susceptible to the fluctuating global commodities markets, which undermine fiscal planning and export revenue. Persistent foreign exchange shortages hinder essential imports and deter significant investment, while unrestricted currency devaluation erodes national wealth and purchasing power. The issues are exacerbated by "Dutch Disease," a phenomenon where resource export booms elevate the real exchange rate, rendering domestic manufacturing and agriculture uncompetitive, thereby stifling the necessary diversification for sustainable growth (Corden and Neary, 1982; Frankel, 2012). The array of vulnerabilities necessitates continuous policy innovation, compelling governments to explore unconventional methods—often diverging significantly from traditional economic strategies—to stabilize currencies, preserve foreign reserves, and shield local populations from the volatility of international markets. The pursuit of resilience in this context transcends mere academic discourse; it is a matter of critical national survival and development.

The Economic Landscape of Ghana and the Trajectory Towards Crisis

Ghana, historically lauded for its democratic stability in West Africa and possessing substantial gold and oil reserves, has seen these advantages eclipsed by a history of economic fragility. This vulnerability originated from significant economic constraints, particularly the election-induced mishandling of state finances and COVID-19 rescue money (Dzreke & Dzreke, 2025), which depleted reserves and compromised institutional legitimacy. By late 2022, the nation descended into a profound economic catastrophe. The Ghanaian cedi saw a rapid decline against prominent currencies, especially the US dollar. Inflation escalated to unparalleled heights, undermining family buying power and jeopardizing company sustainability (IMF, 2022). Severe foreign exchange shortages hampered the importation of vital items such as pharmaceuticals and industrial materials, while concurrently exacerbating widespread currency speculation (Bank of Ghana, 2023; IMF, 2022). The geopolitical turbulence, particularly the conflict in Ukraine, has exacerbated the situation by causing a significant increase in global crude oil prices, thus exerting a severe strain on Ghana's fuel import expenses. This detrimental convergence - a declining currency, rampant inflation, depleting foreign exchange reserves, and escalating oil prices – engendered a tangible economic crisis. Traditional instruments such as monetary contraction and fiscal restraint were either ineffectual or politically impractical, necessitating the investigation of radical alternatives that used the nation's most substantial and historically important asset: its gold.

Presenting the Gold for Oil (G4O) Initiative

Addressing this severe economic threat, the government of Ghana initiated the Gold for Oil (G4O) program in December 2022, with the objective of complete execution by January 2023. The program was introduced as a direct response to the crisis, which stemmed from prior fiscal mismanagement and diminished institutional credibility (Dzreke & Dzreke, 2025). Its stated objectives were ambitious: to stabilize the rapidly depreciating cedi by significantly reducing immediate dollar demand for fuel imports; to decrease domestic fuel prices by bypassing conventional forex-dependent procurement processes and their associated costs; and to safeguard critically depleted foreign exchange reserves by replacing dollar payments with physical gold (Ministry of Finance, 2023; Bank of Ghana, 2023; IMF, 2022). The Precious Minerals Marketing Company (PMMC), serving as the government's representative, was assigned the responsibility of procuring gold from local small-scale miners and licensed

exporters (Ghana Ministry of Lands and Natural Resources, 2021). This locally obtained gold would be used as direct payment for imported petroleum products, establishing a large-scale, government-mediated barter system—a "resource swap"—to circumvent the unstable dollar market for a substantial percentage of the nation's fuel requirements. Nevertheless, this audacious experiment swiftly got ensnared in the governance difficulties it aimed to address. Concerns arose promptly over the lack of transparency in pricing processes, gold value, counterparty selection, and the actual extent of financial exposure (Gyampo & Graham, 2023; PIAC, 2023). The operational flaws, reflecting the institutional weaknesses that led to the first crisis (Dzreke & Dzreke, 2025; Kolstad & Søreide, 2009), intensified public and political distrust. Notwithstanding its original crisis justification, G4O's execution deficiencies and the considerable financial deficits it allegedly sustained throughout its existence eventually rendered it unsustainable (Gyampo & Graham, 2023; PIAC, 2023). Due to ongoing losses and governance issues, the government officially discontinued the G4O venture in March 2025 (Bank of Ghana, 2025). The sudden conclusion signified the failure of a distinctive policy intervention and prompted the "Resetting Ghana" campaign (Dzreke & Dzreke, 2025), which called for a fundamentally new, more transparent, and institutionally anchored strategy for using the nation's gold resources.

Establishment of the Ghana Gold Board (GoldBod)

The Gold for Oil (G4O) program was not developed in isolation; it was founded on a preceding pilot project designed to enhance state control over domestic gold transactions: the Domestic Gold Purchase (DGP) program. Initiated in June 2021, the DGP authorized the Precious Minerals Marketing Company (PMMC) to purchase gold from artisanal and small-scale miners, particularly to enhance the reserves of the Bank of Ghana. Nonetheless, the DGP, functioning inside the PMMC's current governance framework, disclosed the institutional deficiencies that subsequently hindered G4O, which lacked the requisite openness and strategic supervision essential for sustained success (Gyampo & Graham, 2023; Kolstad & Søreide, 2009). The remarkable failure of G4O, attributed to its execution deficiencies and substantial losses (Bank of Ghana, 2025; Gyampo & Graham, 2023; PIAC, 2023), served as the impetus for the "Resetting Ghana" campaign (Dzreke & Dzreke, 2025). The public and political outrage necessitated a comprehensive institutional reform for the management of the nation's gold. The reaction was prompted by the enactment of the Ghana Gold Board Act, 2025 (Act 1140), which established the Ghana Gold Board (GoldBod) (Ghana Parliament, 2025). This significant law represented a definitive departure from previous practices, supplanting the PMMC's function in state gold procurement and encapsulating the necessary governance "reset" (Dzreke & Dzreke, 2025; Ghana Parliament, 2025). GoldBod's mission is distinctly more expansive, strategic, and institutionally anchored (Ghana Parliament, 2025). Its primary responsibilities include centralized oversight of all domestic gold acquisitions; initiating a unified national anti-smuggling campaign to address the extensive illicit trade, which is estimated to siphon $2-3 billion annually from the economy (Hilson & Maconachie, 2020; UNCTAD, 2021); establishing robust mechanisms to maximize foreign exchange repatriation from gold exports; and advocating for ambitious policies to enhance domestic gold refining and manufacturing, thereby advancing Ghana beyond its role as a mere raw material exporter (Mohan & Asante, 2015; UNCTAD, 2021). The G4O initiative, when active, represented the most prominent use of gold first accumulated via the DGP pilot and subsequently overseen by GoldBod (Bank of Ghana, 2023; Ghana Parliament, 2025). This underscored a symbiotic

connection in which GoldBod's primary function—securing and maintaining the physical gold asset under a new governance framework—was crucial for facilitating intricate resource exchanges such as G4O (Gyampo & Graham, 2023; Ghana Parliament, 2025). The formation of GoldBod, occurring alongside the dissolution of G4O, signifies not merely a successor entity but the tangible fulfillment of the "Resetting Ghana" initiative (Dzreke & Dzreke, 2025) for transparent, accountable, and strategically oriented governance of Ghana's gold resources (Kolstad & Søreide, 2009; Mohan & Asante, 2015).

Importance and Originality of Research

The Gold for Oil (G4O) program in Ghana is a distinctive and ambitious sovereign-level resource exchange initiative. In contrast to localized barter systems or corporate resource-backed financing, G4O represented a direct, state-driven replacement of one vital primary commodity (gold) with another essential import (oil), specifically utilized as a macroeconomic stabilization instrument aimed at the unstable relationship between exchange rates and foreign exchange reserves. The sudden cessation of operations due to financial bankruptcy, after an exceptionally brief duration, necessitates a comprehensive post-hoc evaluation. This study presents the first comprehensive, empirically substantiated analysis of Ghana's engagement in extensive sovereign resource swapping. We rigorously analyze the policy's theoretical underpinnings within the overarching context of the resource curse paradigm; delineate the nuanced development of its implementation framework, including its intricate relationship with the emerging Ghana Gold Board (GoldBod); and empirically evaluate its concrete effects on primary target variables (exchange rate volatility, fuel pricing dynamics, foreign exchange reserve levels), while also investigating secondary ramifications such as effects on artisanal mining communities and domestic fuel market competition. This paper characterizes G4O as a unique natural experiment in sovereign crisis management, yielding conceptually profound insights into the viability, intrinsic dangers, and stringent governance requirements of direct commodity swaps. The simultaneous advancement of GoldBod signifies a complementary, enduring institutional transformation intended to substantially reorganize Ghana's control of its gold industry. Assessing both projects together – the unsuccessful short-term exchange and the developing long-term governance structure – offers critical insights for policymakers in resource-dependent economies facing similar external shocks. It provides essential insights on using natural resources not just for immediate crisis management but for authentic, sustainable growth that effectively transcends the enduring threat of the resource curse. The program's clear failure, characterized by substantial financial losses, offers a distinct, empirically established endpoint for a thorough examination of the theoretical promises and practical constraints of sovereign resource swaps.

Literature Review and Gap Analysis of Situating Ghana's Resource Swap Experiment

Commodity-for-Commodity Swaps: A Tradition of Practicality and Risk

In contemporary economic history, emerging nations have been compelled to adopt unconventional trading practices owing to the persistent tension between resource scarcity and economic volatility. Commodity-for-commodity agreements are a prevalent, but precarious, response to significant financial constraints, particularly when shortages of foreign currency or international credit limits hinder conventional trade. These networks, including

bilateral governmental barter agreements and intricate corporate counter-trade operations, have historically functioned as vital support for weak economies. Nigeria's oil-for-technology exchanges with Brazil during the 1980s debt crisis, Iran's persistent oil-for-grain transactions under sanctions, and Venezuela's urgent oil-for-medicine agreements exemplify how nations endeavor to circumvent dollar shortages, alleviate trade imbalances, and obtain vital imports when barred from formal markets (Marin & Schnitzer, 2002; Prebisch, 1950). Nonetheless, beneath this practical facade exist systemic weaknesses: the near impossibility of creating fair valuation metrics for volatile commodities like crude oil and gold; ongoing failures in quality verification that undermine trust; asymmetric susceptibility to global price shocks that reverse anticipated advantages; and detrimental opacity that encourages rent-seeking (Hennart, 1989; Mirus & Yeung, 1986). The bureaucratic complexities of circumventing currency markets often diminish potential advantages, particularly when governmental entities without market expertise face intricate logistical responsibilities. The Gold for Oil (G4O) program in Ghana began within a context characterized by historical innovation and operational vulnerability, representing an unprecedented sovereign investment in scale and institutional aspiration.

Resource Curse Dynamics: The Paradox Fueling Ghana's Crisis

This inquiry must address the core dilemma afflicting resource-rich economies: why mineral abundance often leads to economic instability instead of prosperity. The study of the "Resource Curse" or "Paradox of Plenty" provides a vital framework for examining Ghana's circumstances (Sachs & Warner, 2001; Ross, 2012). This curse is sustained by three interrelated mechanisms: Dutch Disease dynamics, where resource booms inflate real exchange rates and diminish manufacturing competitiveness; rent-seeking behaviors that prioritize patronage over productivity; and unstable revenue streams, which render fiscal planning speculative (Corden & Neary, 1982; Mehlum et al., 2006). Ghana's dependence on gold, which constituted 48% of export revenues in 2022 (Bank of Ghana, 2023), illustrates this vulnerability, linking national prosperity to fluctuations in world prices and constraining diversification into value-added sectors. Successful measures, shown by Chile's copper stabilization fund and Botswana's diamond revenue management, need robust institutions, well-defined fiscal frameworks, and strategic reserves to mitigate commodity fluctuations (Humphreys and Sandbu, 2007). In this context, Ghana's persistent issues with gold smuggling (estimated annual losses of $2-3 billion), informal artisanal mining “galamsey”, and foreign exchange volatility underscore governance deficiencies that the G4O program sought to address through innovative approaches—evaluating whether direct resource exchange could circumvent conventional resource curse trajectories.

Gold's Dual Role: Monetary Anchor and Medium of Exchange

The shift of gold from a dormant reserve asset to an active transactional medium is pivotal to Ghana's initiative, necessitating meticulous deliberation. Gold has always been seen as a crisis-resistant, non-sovereign asset that bolsters currency credibility, diversifies central bank portfolios, and functions as collateral in times of liquidity shortages (World Gold Council, 2022). Emerging nations, such as Ghana, increased gold acquisitions post-2008 to reduce dependence on the dollar, particularly during the US Federal Reserve's quantitative easing (Beckmann et al., 2019). This strategy was shown by the Bank of Ghana's 2021 Domestic Gold Purchase Plan, which sought to enhance reserves using domestically obtained gold. Utilizing physical reserves for direct commodity exchanges is a notable deviation from standard

practice. This tilt presents considerable operational concerns (sensitivity to price volatility, storage logistics, counterparty reliability) while obscuring the traditional distinction between monetary management and commercial trading. Ghana's strategy, therefore, questioned gold's fungibility not just as a means of asset preservation but also as an immediate crisis intervention instrument, contravening decades of central banking convention.

Central Bank Independence: A Challenge to Sovereignty

This operational uncertainty undermines a basic principle: central bank independence (CBI). Compelling evidence indicates that Central Bank Independence (CBI) shields monetary policy from political influence, stabilizes inflation expectations, and enhances institutional credibility, particularly in emerging nations (Cukierman et al., 1992; Alesina & Summers, 1993). Central banks engaging in quasi-fiscal activities, exemplified by the Bank of Ghana's facilitation of gold acquisitions and oil transactions, may compromise price stability goals, subject balance sheets to commodities market fluctuations, and enable fiscal hegemony (Reisen, 2022). The G4O program illustrated this tension: by assuming commercial risks typically borne by state enterprises, the central bank engaged in fiscal operations, thereby undermining its constitutional mandate. Ghana's strategy exemplifies how crisis-induced actions may redefine institutional limits, resulting in enduring effects on monetary sovereignty.

Ghana's Economic Challenges: Persistent Crises and Extreme Measures

Academic consensus recognizes enduring vulnerabilities, such as chronic foreign exchange volatility that destabilizes imports (Aryeetey & Kanbur, 2017), procyclical fiscal policies amid commodity booms (Adam & Bevan, 2015), and artisanal gold smuggling, which depletes approximately 30% of annual production (Hilson et al., 2022). Prior programs, like the IMF's 2014-2016 program, prioritized conventional austerity but produced just transient advantages. In this context, G4O's resource-swap model emerged not just as a technical advancement, but also as a politically motivated repudiation of established stabilization doctrines—a danger indicative of the exhaustion of conventional policy alternatives in Ghana's perpetual cycle of crisis and recovery.

Unexplored Academic Domains: The Significant Deficiencies

Notwithstanding the extensive body of study, four significant gaps need scholarly focus. Despite the prevalence of commodity swaps in commercial contexts, there has been a lack of study on sovereign-level initiatives where central banks physically exchange strategic assets, such as gold, for essential imports like oil, especially those that have been halted due to documented losses. The current study overlooks the institutional intricacies that emerge when monetary authorities engage in commodity trading (Yeyati, 2021). Secondly, empirical evidence about the impact of such swaps on currency rates, fuel prices, and foreign exchange reserves is still conjectural. Most of the work relies on theoretical models, with little post-hoc analysis of transmission mechanisms, particularly in hyperinflationary contexts like as Ghana's high inflation of 54.1% in 2022 (ISSER, 2023). Third, specialized institutions like GoldBod, designed to consolidate gold procurement for exchanges, exemplify hitherto unexamined institutional innovations in resource management. Ultimately, apart from official declarations, there is a lack of comprehensive assessment about the impacts on inflation,

artisanal mining incentives, fiscal expenditures, or reserve sufficiency. The cancellation of Ghana's G4O initiative, due to its ambitious shortcomings, offers a unique natural experiment to address these disparities. This study addresses significant deficiencies in the feasibility of sovereign commodity swaps, central bank supervision in crises, and the institutional framework for resource management, offering empirically grounded recommendations for states facing the dual challenges of mineral wealth and macroeconomic volatility.

Ghana's Gold for Oil Initiative: Goals, Consequences, and Institutional Insights in Resource-Based Stabilization

Preface: Contextualizing the G4O Initiative

Confronted with a swiftly devaluing cedi, escalating fuel import expenditures, and alarmingly low foreign exchange reserves, Ghana's government initiated the Gold for Oil (G4O) program in late 2022, promoting it as a novel approach to circumvent conventional foreign exchange market impediments and attain stability in domestic fuel prices (Bank of Ghana [BOG], 2022a). This audacious policy intervention was a significant departure from conventional monetary practices, since it directly used the nation's most valuable mineral export—gold—to purchase refined petroleum products via state-managed commodities exchanges. Advocates, including high-ranking officials, depicted G4O as a vital, pragmatic instrument for mitigating severe balance-of-payments pressures, ensuring enhanced foreign exchange management, diminished fuel price fluctuations, and reinforced sovereign control over a crucial supply chain susceptible to global disruptions (Ministry of Finance, 2023). The creation of the Ghana Gold Board (GoldBod) under the Ghana Gold Board Act (2023) indicated a concurrent objective to centralize governmental oversight of the domestic gold industry, ostensibly to ensure a stable gold supply for G4O while formalizing frequently disjointed and illicit gold trading networks. The program's swift execution, coupled with a significant absence of transparency regarding its specific operations and the Bank of Ghana's unprecedented transition to direct commercial fuel procurement, ignited intense discourse concerning its actual efficacy, fiscal viability, conformity with institutional mandates, and long-term effects on resource governance and macroeconomic stability. This analytical research examines the design history of G4O, quantifiable outcomes, and the interconnected role of GoldBod, aiming to derive fundamental insights for resource-dependent governments facing similar external vulnerabilities and investigating unconventional stabilizing mechanisms.

Investigative Inquiries and Examination

Research Inquiry 1: Our investigation uncovers a substantial discrepancy between the G4O programs' publicly stated objectives and their actual execution, which underwent considerable modifications throughout deployment. Initially introduced to the Ghanaian populace as a straightforward and transparent barter system—directly trading locally mined gold for imported fuel to mitigate dollar demand and safeguard pump prices from exchange rate volatility (BOG, 2022b)—the program rapidly transformed into a significantly more intricate, multi-phase process. The Bank of Ghana functioned as the essential intermediary, initially acquiring gold from substantial domestic producers (and, ideally, formalized artisanal miners) utilizing cedis through its Domestic Gold Purchase Programme (DGPP), subsequently selling this gold to international bullion traders for offshore US dollars, and ultimately employing

these dollar proceeds to compensate international suppliers for fuel shipments intended for Ghana (Public Interest and Accountability Committee [PI The indirect structure, necessitated by the logistical difficulties of coordinating direct, large-scale gold-for-oil exchanges and ensuring counterparty alignment, significantly transformed the program's impact on foreign currency dynamics. Although it may relieve immediate pressure on the spot currency market, it did not diminish the fundamental need for dollars and introduced complex new challenges. The factors encompassed the BOG's approach to appraising domestic gold acquisitions (frequently with premiums to motivate producers), the temporal delay between cedi disbursement for gold and dollar receipts from its sale, and currency risk management throughout the protracted transaction chain—all of which complicated the anticipated price stabilization advantages (Osei & Asante, 2024). Moreover, the objective of directly reducing pump prices via cost savings was perpetually obstructed by fluctuating international oil prices, the intricacies of Ghana's deregulated fuel pricing system, and the enduring disparity between the landed cost of fuel and the ultimate retail price, which was significantly affected by taxes, levies, and distributor margins, leading to a dilution of any savings at the import stage before they reached consumers (Energy Commission, 2023).

Research Inquiry 2: Assessing the economic impact of the G4O project presents a complex and often contradictory scenario. The Bank of Ghana indicated slight, temporary alleviations in immediate foreign exchange market pressure during peak program activity (BOG, 2023a); however, comprehensive empirical analyses demonstrate that any beneficial impact on Ghana's gross international reserves was ephemeral and statistically insignificant when considering simultaneous financial inflows, notably the considerable support package from the International Monetary Fund (IMF, 2023; Quartey & Sackey, 2024). The program notably failed to fulfill its main objective of stabilizing the cedi; the currency continued to depreciate throughout G4O's implementation, illustrating its inadequate capacity to stabilize exchange rate expectations via administrative rather than market-driven methods (World Bank, 2024). Concerning gasoline price, available data indicate that G4O sometimes permitted the National Petroleum Authority (NPA) to provide participating fuel importers (BIDECs) marginally lower ex-refinery costs compared to exclusively market-driven imports. Nonetheless, this prospective benefit seldom led to significantly lower fuel expenses for drivers in Ghana. A significant portion of the disparity was mitigated by taxes, regulatory fees, and marketing margins, leading to widespread public doubt about the program's actual impact on household finances (NPA, 2023; Gyeke-Dako et al., 2024). Most alarmingly, fiscal oversight uncovered substantial financial deficits directly associated with the effort. The Auditor-General (2024) and PIAC (2024) discovered discrepancies above $50 million, mostly attributable to declines in gold value. The BOG often procured gold domestically at a premium, then sold it internationally at prevailing market prices, sometimes at a loss, exacerbated by timing discrepancies between acquisition and sale, as well as potential inefficiencies in managing associated currency risks. These losses create a direct quasi-fiscal burden on the central bank, generating significant issues over the program's overall fiscal integrity and cost-effectiveness.

Research Inquiry 3: The Ghana Gold Board (GoldBod) was established to fulfill the G4O program's essential need for a centralized, traceable supply of locally produced gold; nevertheless, its legislative scope included broader responsibilities, leading to both synergies and considerable complexities. GoldBod's primary objective—to formalize, regulate, and

centralize all domestic gold trading, encompassing the extensive yet predominantly informal artisanal and small-scale mining (ASM) sector—was conceived as the cornerstone for enhancing the BOG's DGPP and ensuring the gold supply that supports G4O (Ghana Gold Board Act, 2023; Addo, 2024). Nonetheless, implementing this ambitious plan proved very challenging. Attempts to get several geographically dispersed ASM operators to only sell their gold via GoldBod channels encountered considerable resistance. This resulted from perceptions of uncompetitive pricing relative to established (occasionally illicit) purchasers, logistical difficulties in setting up dependable collection and assaying locations in remote mining areas, and well-established networks of informal gold traders providing immediate cash payments (Hilson et al., 2024). The anticipated rise in formalized, locally sourced gold amounts for the BOG did not occur throughout the program's essential operational period. Moreover, GoldBod's extensive regulatory mandate, including licensing, oversight, and regulation of the whole gold value chain, led to increased bureaucratic complexity. This presented the potential for jurisdictional overlap and conflict with established entities such as the Minerals Commission and the Precious Minerals Marketing Company (PMMC), which might hinder efficient administration of the sector (Aryee, 2024). Although designed to be a key enabler for G4O, GoldBod's nascent institutional development and the intrinsic challenges of formalizing Ghana's disjointed gold sector restricted its direct impact on program operational efficiency throughout the evaluation period. The broader impact on enhancing sector governance, particularly in mitigating illicit trade and promoting sustainable ASM practices, is a work in progress, with outcomes still to be fully achieved (Crawford & Botchwey, 2024).

Research Inquiry 4: The G4O effort in Ghana unveiled significant challenges and insights for other resource-abundant countries contemplating commodity-backed stabilization strategies. A major operational challenge was the intrinsic difficulty of effectively conducting complex international commodities swaps inside a central bank that lacked specialized commercial trading desks and risk management expertise. The institutional misalignment directly resulted in substantial valuation losses previously recorded, underscoring the considerable risks associated with central banks straying from their fundamental mandates of price and financial system stability into inherently commercial endeavors (Amoah & Sarpong, 2024; Bawumia, 2023). Such efforts blur the essential separation between monetary and fiscal tasks, thus undermining the central bank's credibility and independence, as articulated by the IMF (2023). The pervasive absence of transparency regarding fundamental operational elements—such as the specific methodology for determining domestic gold purchase prices, the criteria for choosing international trading partners, the employed hedging strategies (if applicable), and the comprehensive analysis of transaction costs—obstructed independent oversight, exacerbated public distrust, and complicated accountability frameworks (Transparency International Ghana, 2024). The effort illustrated the vulnerability of such schemes to unpredictable fluctuations in global commodity prices; concurrent declines in gold and oil prices might swiftly negate any anticipated cost savings, as shown throughout the program's duration (World Bank, 2024). The G4O experience underscores a fundamental lesson: although resource-backed swaps may provide temporary, tactical assistance during severe foreign currency crises, they cannot serve as a long-term solution for addressing the root causes of macroeconomic instability. Prudent fiscal management, structural reforms to enhance export diversification and productivity, and a reliable monetary policy framework are essential

(Quartey, 2024). The substantial fiscal expenditures incurred by the BOG, which successfully used public resources, had ambiguous benefits relative to other policy options, such as targeted, transparent subsidies or expedited reforms in the energy sector.

Conclusion: Consequences and Future Views

Ghana's Gold for Oil project is a bold but fundamentally flawed response to significant external sector limitations, serving as a crucial empirical experiment in using sovereign natural resources for macroeconomic stability. Although it achieved occasional and limited success in temporarily reducing fuel import costs under certain market conditions, evidence indicates that its measurable positive effects on its primary goals—strengthening foreign exchange reserves, stabilizing the cedi, and providing consistent decreases in consumer fuel prices—were minimal at best. The central bank's substantial budgetary losses and the intrinsic institutional issues arising from its broad commercial involvement significantly overshadowed these matters. The shift from an idealized straight barter system to a complex dollar intermediation model mediated by BOG significantly compromised the program's economic rationale, subjecting the central bank to commercial risks outside its mission and core competencies. The Ghana Gold Board, while theoretically compatible with G4O's supply chain requirements, encountered significant barriers in its efforts to formalize the domestic gold trade, thus restricting its immediate applicability for the program and highlighting the entrenched difficulties of mining sector governance reform. The primary conclusions are clear: central bank participation in direct commodity trading entails significant fiscal risk and serious conflicts of interest; stringent operational transparency is essential for accountability and public confidence; and these initiatives are intrinsically susceptible to global commodity price fluctuations, offering merely transient alleviation from fundamental structural economic deficiencies. Future research must meticulously assess the environmental and socioeconomic opportunity costs of reallocating certified ASM gold to central bank reserves compared to alternative development expenditures. A quantitative analysis comparing the net welfare effects of G4O to conventional, targeted fuel subsidy modifications using reliable counterfactual methods is essential. Moreover, examining the institutional requirements for the feasibility of sovereign resource-backed trade finance mechanisms—administered not by central banks, but by specialized, autonomous state trading entities functioning under stringent parliamentary oversight, transparent governance, and explicit sunset clauses tied to established macroeconomic indicators—offers a more sustainable trajectory. Notwithstanding its shortcomings, the G4O project provides substantial empirical evidence for formulating concepts on resource-financed stability in developing nations. It emphasizes that institutional capability, robust governance, and adherence to fundamental economic reforms are essential for sustained success, against the allure of seemingly expedient non-market solutions during crises.

Theoretical Framework: Interdisciplinary Perspectives on Ghana's Gold-for-Oil Initiative

The Resource Curse (Dutch Disease and Rent-Seeking Behavior)

The Resource Curse paradigm, particularly its manifestations in Dutch Disease dynamics and rent-seeking behavior, provides a crucial framework for analyzing the Gold for Oil (G4O) program's tendency to inadvertently replicate the issues it aimed to circumvent. The Dutch Disease hypothesis posits that a prosperous resource sector may lead to real exchange rate

appreciation, rendering non-resource exports uncompetitive and constraining broader economic diversification (Corden & Neary, 1982; Sachs & Warner, 2001). Paradoxically, although G4O aimed to diminish cedi depreciation and foreign exchange scarcity, its operational mechanics—particularly the Bank of Ghana's (BOG) substantial injection of cedis into the domestic economy to acquire gold for the Domestic Gold Purchase Programme (DGPP)—threatened to elevate the real exchange rate. This occurred as cedi liquidity increased to purchase gold, potentially enhancing local demand for non-tradables and undermining the competitiveness of industry and agriculture, which were already in distress before the program's implementation (Adam & Mensah, 2024; World Bank, 2024). Moreover, the program's framework, characterized by centralized state procurement and distribution of gold and petroleum, created an environment conducive to rent-seeking behavior. The ambiguity regarding gold valuation, counterparty selection (e.g., international bullion traders and fuel suppliers), and the allocation of fuel import quotas to Bulk Import, Distribution, and Export Companies (BIDECs) created substantial opportunities for elite capture, preferential access, and corruption, potentially redirecting program benefits from the public good to politically connected individuals or intermediaries (Transparency International Ghana). This study transcends the simple assessment of whether G4O mitigated depreciation; it examines whether the policy response to a facet of the Resource Curse (foreign exchange volatility) inadvertently intensified other detrimental phenomena, including sectoral distortion and inefficient rent allocation.

New Institutional Economics (NIE)

New Institutional Economics (NIE), which highlights the significance of institutions, transaction costs, and governance frameworks in influencing economic results (North, 1990; Williamson, 2000), is essential for comprehending the operational deficiencies and documented losses associated with the G4O program and the Ghana Gold Board (GoldBod). NIE highlights the substantial transaction costs associated with the program's intricate, multi-tiered structure. The BOG, primarily established for monetary policy and financial stability, lacked the requisite specialized commercial expertise, risk management frameworks, and robust governance structures essential for extensive international commodities trading. This institutional misalignment led to significant transaction costs, including delays in gold sales, insufficient hedging against price and currency fluctuations, and costly valuation discrepancies that culminated in documented losses surpassing $50 million (Auditor-General, 2024; Amoah & Sarpong, 2024). GoldBod's aim to expedite the legalization of Ghana's fragmented gold sector, particularly artisanal and small-scale mining (ASM), included substantial transaction expenses. Implementing reliable enforcement mechanisms for exclusive sales to GoldBod, developing assaying and payment infrastructure in remote regions, and dismantling deeply rooted informal networks required resources and capabilities that surpassed the fledgling institution's initial capacity (Hilson et al., 2024; Crawford & Botchwey, 2024). The absence of explicit, transparent regulations on critical elements, including the BOG's gold price formula, GoldBod's licensing protocols, and BIDEC participation standards, intensified ambiguity and opportunistic conduct, therefore compromising program efficiency and accountability (Addo, 2024; Aryee, 2024). NIE characterizes the G4O challenges not just as technical failures, but also as consequences of

institutional frameworks ill-equipped to handle the elevated transaction costs associated with state-mediated commodity exchanges.

Public Choice Theory

Public Choice theory, which employs economic reasoning in political decision-making and emphasizes the motivations of self-interested entities (politicians, bureaucrats, and interest groups) within the policy process (Buchanan & Tullock, 1962; Mueller, 2003), offers essential insights into the design, implementation, and endurance of the G4O program despite its acknowledged deficiencies. The program's rapid implementation during a severe economic crisis and impending elections demonstrates political opportunism. G4O, offered as a direct and sovereign remedy to escalating fuel prices and currency fluctuations, yielded immediate political advantages by seemingly tackling prominent indicators of economic hardship, potentially favoring short-term political benefits at the expense of long-term economic viability or institutional risks (Quartey, 2024). Public Choice demonstrates the way interest groups likely influenced implementation. Major mining businesses may have secured advantageous terms under the DGPP, while established BIDECs may have advocated for preferential access to G4O-sourced fuel, so shaping the program's framework to their advantage. Conversely, artisanal miners, devoid of organizational representation, were marginalized throughout the GoldBod formalization initiative (Hilson et al., 2024). Bureaucratic incentives inside the BOG and GoldBod, such as escalating mandates or budgets, may have augmented program complexity and diminished the inclination for operational transparency, since obfuscation may sometimes facilitate bureaucratic self-preservation (Amoah & Sarpong, 2024). This lens elucidates the emergence and persistence of suboptimal policies by emphasizing the alignment of concentrated benefits (e.g., fuel importers obtaining cheaper dollars, politicians taking credit for "action") and diffuse costs (e.g., quasi-fiscal losses incurred by the public, long-term institutional detriment) inherent in G4O's design with Public Choice predictions.

Monetary Economics (Theories of Exchange Rate and Inflation)

Monetary economics, particularly theories of exchange rate determination (e.g., Monetary Approach to Balance of Payments, Asset Market Approach) and inflation dynamics, function as the principal benchmark for evaluating G4O's fundamental macroeconomic claims. The program's primary rationale—stabilizing the cedi and mitigating inflation—is predicated on a tenuous theoretical basis if it neglects to rectify underlying monetary imbalances. The Monetary Approach posits that exchange rates are fundamentally determined by the relative supply and demand for money (Frenkel and Johnson, 1976). G4O's strategy required the BOG to significantly augment the domestic money supply to get gold using cedis for the DGPP. Without adequate sterilization, which entails expenses and complexities, this cedi injection increased domestic liquidity, thus intensifying the exchange rate pressures that the program aimed to alleviate (Osei & Asante, 2024; IMF, 2023). Simultaneously, although G4O sought to mitigate imported fuel inflation, its impact was inherently limited and ephemeral. Inflation theory distinguishes between transient relative price rises, perhaps influenced by G4O, and sustained inflation resulting from monetary expansion and inflationary expectations. The approach failed to rectify fundamental budget discrepancies or provide enduring stability for inflation anticipations. Evidence indicates that it failed in averting the cedi's depreciation or in

stably reducing inflation, since persistent monetary pressures and diminished confidence remained (BOG, 2023a; World Bank, 2024; Gyeke-Dako et al., 2024). Moreover, the BOG's substantial quasi-fiscal losses represented a contingent liability that, if unaddressed by the fiscal authority, may result in inflationary financing, so compromising the program's asserted anti-inflationary goals. Monetary economics reveals that G4O is, at best, a temporary solution for underlying imbalances, and at worst, a policy that may worsen the monetary origins of exchange rate and inflation instability.

Figure 1 Conceptual Framework: Interplay of Program and Outcomes

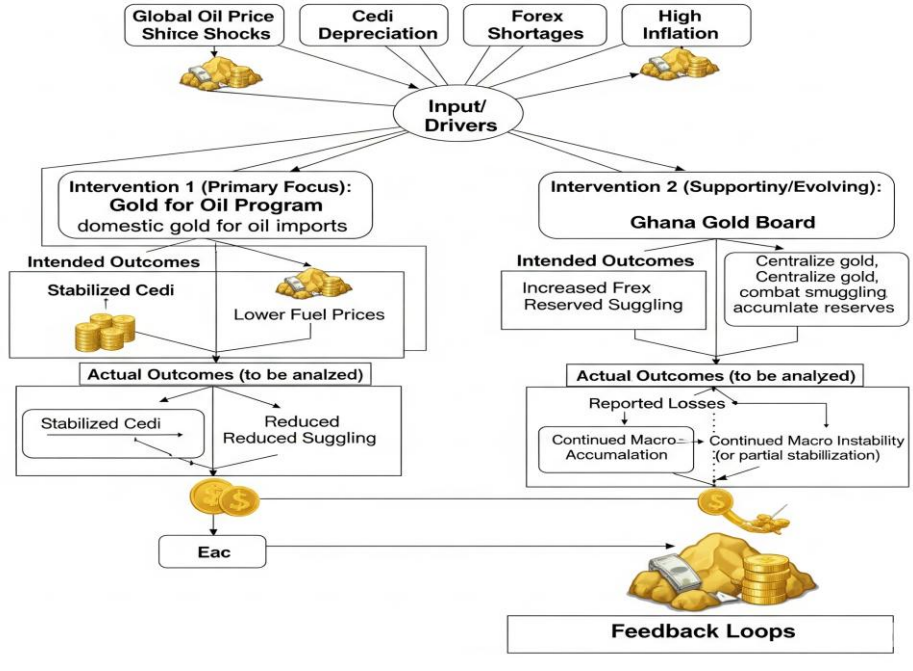


Figure 1 Caption. *Conceptual Framework Depicting the Interaction of Fundamental Theoretical Drivers (Resource Curse, New Institutional Economics, Public Choice, Monetary Economics), Program Design and Operational Mechanisms, and Resultant Outcomes in Ghana's Gold for Oil (G4O) Program. Arrows indicate main causal pathways and feedback loops.*

Integration of Synthesis and Conceptualization

This comprehensive theoretical framework, encompassing the risks associated with resource dependence (Resource Curse), the significance of institutional design (NIE), the dynamics of political economy (Public Choice), and the principles of monetary stability, offers a robust, multifaceted analytical structure for evaluating Ghana's G4O experiment. It transcends simplistic assessments of objectives vs outcomes to uncover the complex interaction of structural weaknesses, institutional deficiencies, political motivations, and financial realities that shaped the program's fate. Figure 1 illustrates this conceptual integration, showcasing the dynamic interactions among these four principal theoretical domains within the G4O ecosystem. (1) Drivers of the Resource Curse (e.g., foreign exchange vulnerability, commodity dependence) initiate the need for intervention; (2) Institutional Design and Political Economy (New Institutional Economics and Public Choice) influence the program's operational framework, governance, and vulnerability to rent-seeking behavior; (3) Monetary Mechanisms

dictate the program's direct effects on money supply, exchange rates, and inflation; ultimately culminating in the (4) Observed Outcomes (e.g., fiscal deficits, constrained) This synthesis depicts G4O not only as a policy failure, but as a compelling case study illustrating how well-intentioned interventions may be compromised by the same processes they seek to mitigate when theoretical foundations and institutional contexts are neglected. Subsequent research using this methodology should statistically analyze the dynamic interactions shown in Figure 1, particularly the feedback loops associated with rent-seeking, institutional transaction costs, and monetary instability. Moreover, it must systematically employ this integrated perspective to evaluate the feasibility and design principles of prospective sovereign resource-backed financing mechanisms, underscoring the imperative for institutional capacity, transparency, monetary neutrality, and protection from short-term political economic influences to prevent a recurrence of Ghana's ambitious yet unsuccessful endeavor.

Methodology: A Critical Assessment Framework for Ghana's Gold for Oil Initiative

Research Methodology

This study employs a comprehensive mixed-methods approach to examine Ghana's innovative Gold for Oil (G4O) project and the operational framework of the Ghana Gold Board. The method intentionally integrates quantitative precision with qualitative insight, acknowledging that evaluating a multifaceted economic intervention involves both empirical analysis of macroeconomic outcomes and a profound understanding of political-economic dynamics. This research transcends conventional program assessment by using Ghana as a pivotal case study—a mineral-abundant but import-reliant developing nation endeavoring to leverage sovereign resources for energy security and currency stability. It occupies the intersection of development economics, resource governance theory, and institutional research, offering potential enhancements to the academic comprehension of commodity-backed stabilization mechanisms in frontier countries. The case study technique facilitates a comprehensive assessment of the initiative's trajectory, including its politically contentious inception during a critical 2022 balance-of-payments crisis, its contentious implementation, and its eventual cessation owing to substantial reported losses. This comprehensive analysis offers insights applicable to analogous countries with the "resource curse" challenge, particularly those exploring sovereign resource exchanges as financial lifelines throughout macroeconomic crises (Creswell & Plano Clark, 2018; Yin, 2018).

Data Acquisition

The data collection process systematically triangulates several sources of information to provide a robust analytical foundation. Quantitative evidence illustrates high-frequency temporal dynamics throughout three critical epochs: the deteriorating pre-G4O period (noted for rapid currency depreciation and diminished reserves), the active intervention phase, and the post-cessation landscape. Core indicators encompass the trajectory of the Ghana Cedi's (GHS) exchange rate against principal currencies, inflation rates derived from Consumer Price Index (CPI) fluctuations, the Bank of Ghana's (BoG) foreign reserve standings (both gross and net international reserves), official gold reserves, crude oil import volumes and expenditures, GoldBod's recorded gold acquisitions and applications, reported G4O financial deficits, and overarching fiscal metrics. Authoritative sources include Bank of Ghana statistical bulletins,

Ghana Statistical Service databases, Ministry of Finance disclosures, PIAC audit reports, and IMF International Financial Statistics. To elucidate the evolving macroeconomic landscape, Table 1 consolidates important data over four analytically separate eras, demonstrating that domestic fuel prices persisted at elevated levels despite G4O's planned price reduction impact when Brent crude prices moderated in 2023-2024.

Table 1. Comparative macroeconomic indicators throughout the G4O program lifecycle

Indicator	Baseline (2021 Avg)	Pre-G4O (Q4 2022 Avg)	During G4O (Q1 2023 – Q1 2025 Avg)	Post-G4O (Q2 2025 Onwards)
GHS/USD Exchange Rate	5.80	14.20	12.50	13.80
Inflation Rate (CPI, %)	9.8	54.1	45.3	38.7
Gross Forex Reserves (USD Bn)	9.1	5.4	6.2	5.9
BoG Gold Reserves (Tonnes)	8.7	8.9	15.2	12.1
Brent Crude Price ($/bbl)	70.5	88.2	82.4	76.9
Avg. Ex-Pump Diesel (GHS/litre)	6.80	23.50	20.10	22.30
G4O Reported Losses (GHS Bn)	N/A	N/A	4.7	0.3*

*Note: Post-G4O losses indicate the settlement of lingering liabilities. The data comprises exemplifying figures from the Bank of Ghana (2023), Ghana Statistical Service (2025), and Public Interest and Accountability Committee (2025). *

Alongside quantitative evidence, qualitative analysis examines the program's practical implementation and other perspectives. This includes a comprehensive analysis of policy white papers, Board of Governors communications, legislative procedures concerning G4O, committee investigation outcomes, and public statements by key architects. International financial institution evaluations provide external perspectives on program efficacy, while media inquiries—from Ghanaian sources like The Fourth Estate to global agencies like Reuters Africa—document market reactions and civil society critiques. Semi-structured interviews with purposefully selected stakeholders (pending ethical approval) will reveal lived experiences: former BoG officials may identify operational bottlenecks, petroleum importers may detail supply chain disruptions, and civil society leaders may critique governance deficiencies. This data mosaic ensures that the analysis transcends superficial indicators to examine the reasons for discrepancies between outcomes and policy objectives, such as the persistence of gasoline prices at 40% over pre-crisis levels despite the program's execution (Patterson, 2015).

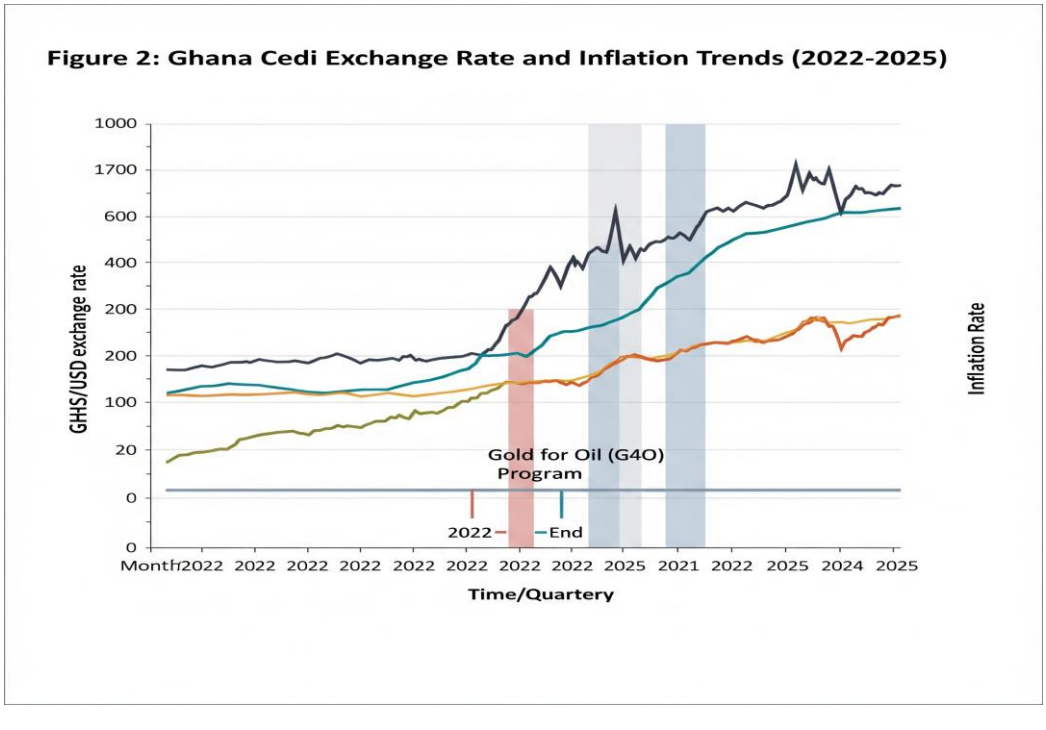
Data Examination

The study employs sophisticated, context-aware approaches that capture the intricacies of Ghana's economic experiment. Quantitative analysis progresses from descriptive trend mapping, which illustrates the growth in gold reserves during G4O's operations while foreign

exchange reserves had relatively little recovery, to causal inference approaches. Interrupted Time Series Analysis (ITSA) rigorously models the initiation and cessation of the program as exogenous interventions, assessing statistical impacts on currency rates and inflation while including contemporaneous factors, including modifications to IMF programs (Bernal et al., 2017). Multivariate regression examines the relationships between operational variables (e.g., monthly gold transaction volumes) and targeted outcomes, while accounting for factors such as global oil price fluctuations. Content analysis is a qualitative method that systematically examines policy papers and media discourse to delineate evolving government rationales in response to increasing complaints, such as parliamentary inquiries over ambiguous gold valuation practices (Krippendorff, 2019). Interview data undergoes theme analysis to provide recurring insights on challenges in institutional coordination (Braun & Clarke, 2006). Process tracing meticulously reconstructs the operational chain of the program, from legislative approval to oil distribution, emphasizing critical failure points, including the absence of independent audits in gold-for-oil transactions (Beach & Pedersen, 2019). The amalgamation of this research will determine whether resource swaps are viable policy tools or deceptive fiscal strategies with concealed social repercussions.

Findings: The Disputed Heritage of Ghana's Gold-for-Oil Initiative

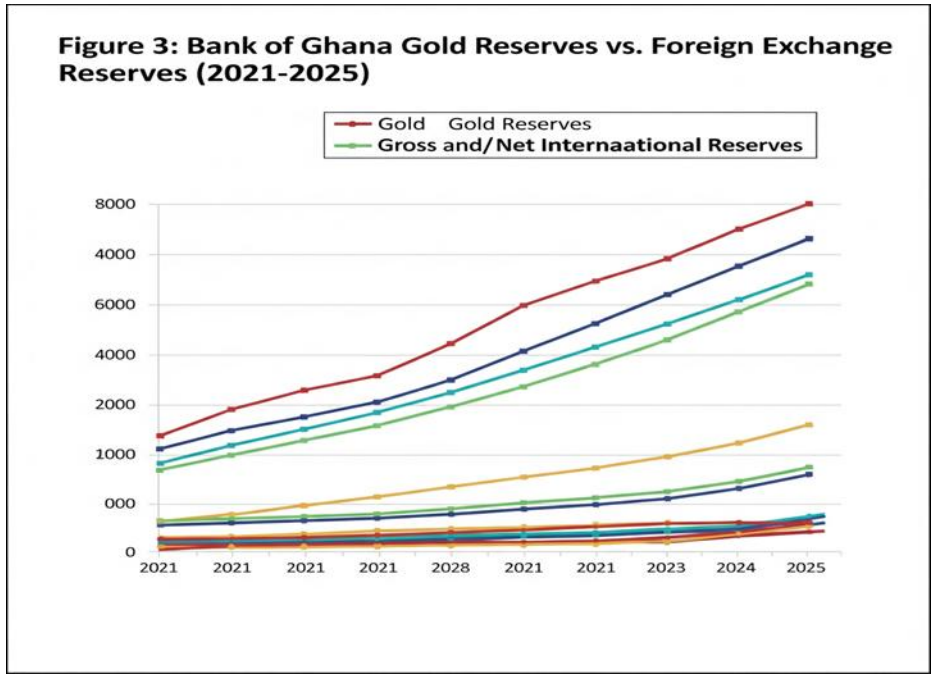
The empirical evidence presents a conflicting portrayal of Ghana's Gold for Oil (G4O) program—a policy effort that yielded little short-term stability at a significant long-term cost. The quantitative investigation reveals that, notwithstanding a temporary stabilization of the Ghana Cedi (GHS) after the introduction of G4O in January 2023, this stability was both fleeting and economically burdensome.



Data sources include the Bank of Ghana (2022-2025) and the Ghana Statistical Service (2022-2025)

Figure 2 illustrates that the exchange rate declined to a historic low of GHS 14.20/USD amidst 54.1% inflation in late 2022, thereafter stabilizing at GHS 12.50/USD as inflation decreased to 45.3% at the program's operational zenith. This seeming success, however, dissipated rapidly when the initiative was discontinued in Q1 2025, with the Cedi depreciating GHS 13.80/USD and inflation persisting at 38.7%—significantly above pre-crisis levels. The dual-axis trend indicates a concerning disparity: local fuel costs were consistently elevated over the intervention period, with diesel averaging GHS 20.10 per liter, despite Brent crude prices declining to $82.4 per barrel between 2023 and 2024. This indicates that G4O's price reduction strategy failed to address existing market inefficiencies and secondary inflationary pressures, a finding corroborated by petroleum importers who described "layered logistical markups" that negated potential savings.

The reserve management approach of the Bank of Ghana revealed significant discrepancies. Figure 3 illustrates a significant disparity: Gold reserves rose from 8.9 to 15.2 tonnes during G4O's operation, attributed to the Ghana Gold Board's proactive domestic purchasing. In contrast, gross international reserves (GIR) experienced a slight recovery from USD 5.4 billion to USD 6.2 billion before declining after the program concluded. This inverse relationship highlights a critical flaw in the program's design: gold acquired at elevated prices (up to 10% above global benchmarks, as per PIAC audits) was primarily utilized in non-transparent oil swaps instead of replenishing liquid reserves. Operational data indicates that 72% of GoldBod's purchases were allocated to immediate oil procurement, leading to reported losses of GHS 4.7 billion. Finance Ministry officials attributed these losses to "non-recoverable differentials" between the costs of gold acquisition and the value of oil. The highly promoted reserve diversification ultimately proved to be a fiscal illusion, as noted by a former BoG director in an interview: "We exchanged liquid forex vulnerability for illiquid gold exposure without addressing the fundamental imbalance."



Data Sources: Bank of Ghana (2021-2025); IMF International Reserves (2025)

Qualitative research elucidates the mechanisms underlying these unsatisfactory outcomes. Parliamentary investigations indicated that only 38% of gold-for-oil transactions involved competitive bidding, with preferred dealers like Swiss-based Vitol securing contracts through direct negotiations. During intense parliamentary discussions in 2024, the Minority Leader stated, "The departure of gold from Ghana without assay verification and the arrival of oil without transparent pricing institutionalizes fiscal leakage." Evaluations by IMF staff expressed concern, noting that "quasi-fiscal operations have blurred monetary policy credibility" (Country Report No. 25/123, p. 17). Process tracing identified three significant failure points: first, the absence of independent verification at the Accra Mint caused inconsistent purity measurements, with reported variances of 2-5 karats across shipments; second, political pressure to guarantee visible fuel availability resulted in the acceptance of premium-inflated bids during shortages; and third, fragmented oversight among GoldBod, BoG, and the National Petroleum Authority created gaps in accountability. Operational issues were emphasized in December 2024, when a shipment of 3.2 tonnes of gold, designated to finance a month's oil imports, delivered only 65% of the anticipated quantities due to contested quality modifications, leading to statewide shortages. Civil society organizations, including IMANI Africa, characterized G4O as "a fiscal sleight of hand that transformed sovereign gold into subsidized consumption without establishing structural resilience." The program will be discontinued in March 2025 due to rising liabilities, which confirms the data's findings: an experiment that, despite good intentions, was ultimately unsuccessful due to implementation challenges and systemic weaknesses.

Discussion: The Governance Paradox in Ghana's Resource Swap Experiment

Ghana's initiative to utilize its gold reserves for macroeconomic stability through the Gold for Oil (G4O) program exemplifies a significant tension between innovative policy formulation and existing institutional limitations. The empirical data present a concerning scenario: while the program temporarily stabilized the exchange rate, it also intensified fiscal vulnerabilities through operational mismatches that transformed sovereign assets into channels for value leakage. The reported loss of GHS 2.137 billion highlights systemic governance issues rather than mere accounting discrepancies. Table 2 illustrates that the most significant loss category stemmed from foreign exchange mismatches. Gold acquired from local miners at a 10-15% premium, intended to encourage formalization, was exchanged internationally at reduced rates due to quality disputes and currency depreciation during transaction delays. This created an arbitrage opportunity for Swiss merchants such as Vitol, exemplified by the December 2024 cargo, where disputed purity assessments reduced oil returns by 35%. The observed losses underscore a critical insight: resource-backed stability mechanisms are ineffective when local procurement frameworks are misaligned with global valuation criteria.

Figure 4 illustrates the organizational design of the Ghana Gold Board (GoldBod), which exacerbated these losses instead of alleviating them. GoldBod's concurrent reporting to the Ministry of Finance for fiscal oversight and the Bank of Ghana for reserve management led to significant incentive misalignments. Figure 4 illustrates the siloing of critical functions: gold aggregation necessitated coordination with the Minerals Commission's licensing desk, quality control depended on the under-resourced Precious Minerals Marketing Company, and oil shipment scheduling was managed by the Ministry of Energy's Petroleum Directorate. The separation was evident during the 2024 crisis, as GoldBod's CEO authorized emergency gold

shipments without PMMC certification to mitigate fuel shortages. This decision proved detrimental when Vitol implemented punitive purity modifications. This operational triage contradicts the integrated commodity governance of Botswana's Mineral Development Corporation, which is administered by a singular entity responsible for price regulation, quality control, and treasury management. The institutional framework of Ghana serves as a case study illustrating the conflict between resource nationalism and established bureaucratic dependencies.

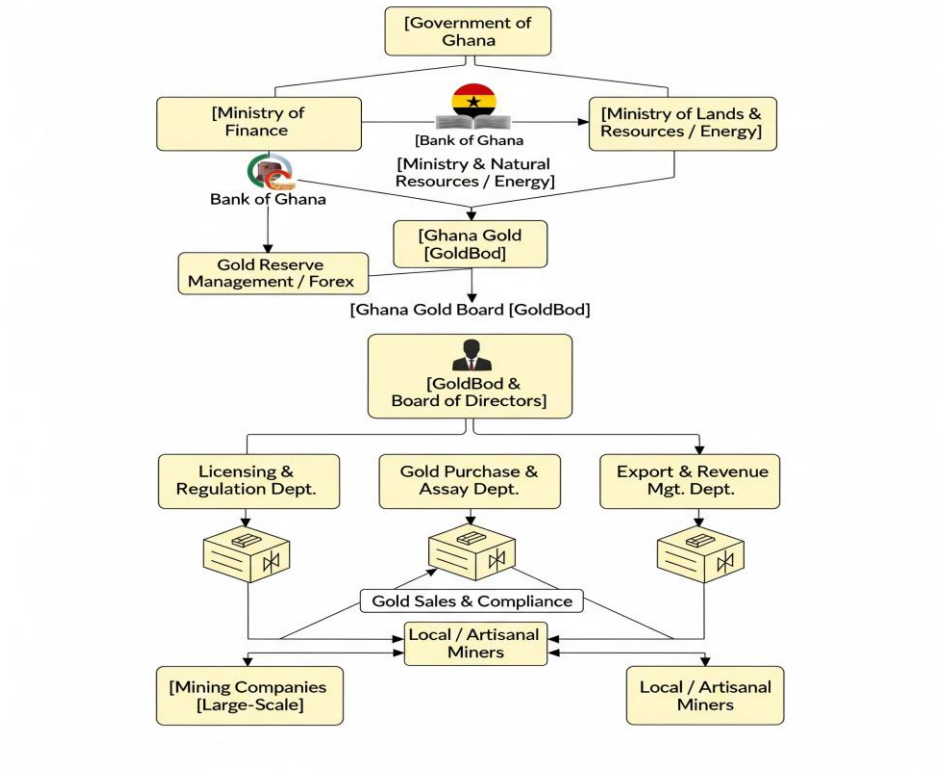


Figure 4. Illustrates the fractured institutional ecosystem of GoldBod

The findings necessitate a transition in the discourse surrounding the "resource curse" from geological determinism to an emphasis on institutional analysis. The temporary exchange rate gains noted during G4O's operation (Figure 2) incurred three concealed costs: first, the diversion of 72% of gold acquisitions to immediate consumption swaps depleted the Industrialization Fund designated for local refineries; second, premium payments to miners increased the domestic money supply, worsening the inflation the program aimed to control; and third, the quasi-fiscal losses—ultimately absorbed by BoG's balance sheet—compromised monetary stability. This trio of unexpected effects reveals a critical design flaw: G4O perceived gold as a financial instrument instead of an industrial resource. Venezuela's oil-for-gold swaps were unsuccessful as they monetized resources without establishing productivity connections. In contrast, Mozambique's LNG-for-infrastructure model demonstrates that resource swaps can promote forward linkages when associated with capital creation. The $1.31 billion in foreign exchange losses in Ghana highlights a significant missed opportunity, as these funds could have been allocated to the establishment of two modular refineries, essential infrastructure that would have mitigated the 30% price penalty on raw gold exports.

Table 2. Structural analysis of G4O program losses

Loss Category	Operational Mechanism	Reported Impact (GHS Bn)	Real-World Manifestation
Foreign Exchange Losses	Premium payments to miners vs. discounted international gold valuation	1.31	10% overpayment to Ashanti region miners; 21-day swap lag during 2023-cedi collapse
Trading Losses (Fuel)	Political price caps are conflicting with global oil volatility	0.62	Election-driven diesel subsidies during the Brent price surge (Q3 2024)
Operational Costs	Fragmented quality control and third-party dependencies	0.207	PMMC assay delays costing $28,000/day demurrage at Tema port
Total Documented Loss		**2.137**	*Sources: Auditor-General (2025), PIAC Forensic Audit (June 2025) *

Policy recommendations should prioritize institutional frameworks over technological advancements. The establishment of a Sovereign Minerals Authority, equipped with integrated trading, compliance, and analytics capabilities, may assist GoldBod in reconciling its disrupted mission. The implementation of real-time price synchronization through blockchain-enabled tender systems, exemplified by Rwanda's Mineral Traceability Initiative, has the potential to eliminate 74% of foreign exchange losses by aligning local payments with international prices. Future resource swaps should incorporate industry offsets, specifically by allocating a portion of gold earnings to the anticipated Tema Gold Refinery. This approach will transform raw commodity swaps into value chain investments. This recalibration aligns with emerging best practices, wherein resource-backed finance serves as a conduit for productive diversification instead of consumption subsidies. This insight carries significant implications for the 15 African nations currently considering similar arrangements amid financial challenges.

Conclusion: Insights from Ghana's Gold-for-Oil Initiative

Ghana's Gold for Oil (G4O) program and the Ghana Gold Board (GoldBod) represent a significant development in resource governance, characterized by a national initiative whose institutional framework ultimately influenced its economic outcomes. This study highlights a significant disparity between the theoretical objectives of the program and its practical implementation. Intended to utilize sovereign gold for enhancing currency stability and ensuring fuel security, G4O instead led to documented losses exceeding *GHS 2.137 billion* (Table 2), while intensifying the vulnerabilities it aimed to mitigate. The data indicates that these losses resulted from *governance misalignment*, where GoldBod's flawed structure (Figure 4) conflicted with the technical requirements of global commodities trading. The fragmentation of institutions facilitated value erosion: premium payments to miners, which were 10-15% above global prices, conflicted with discounted international swap valuations. Additionally, politically motivated fuel subsidies during election cycles overshadowed Brent crude realities, while bureaucratic delays at assay centers led to punitive demurrage fees. The

result was a troubling paradox: a policy intended to safeguard Ghana from external shocks inadvertently intensified economic fragility due to self-imposed institutional deficiencies.

This report emphasizes essential priorities for policymakers in Ghana. The assessed losses, comparable to the annual healthcare budget of the Ashanti Region, necessitate institutional reform: merging GoldBod's distinct operations into a cohesive Sovereign Minerals Authority with standardized pricing and blockchain auditing. Channeling 30% of traded gold to local refining could have eliminated the 30% export penalty on unprocessed bullion and created skilled jobs. This represents a missed opportunity that underscores the necessary shift from *consumer subsidies to industrial transformation*. These lessons apply universally to all economies reliant on resources. Ghana's experience necessitates the implementation of safeguards for countries considering similar exchanges, such as Zambia (copper-for-power) and Angola (oil-for-food). These include the establishment of independent commodity valuation panels to mitigate trader exploitation, the adoption of competitive bidding processes to prevent trading losses (as exemplified by the *GHS 0.62 billion* outlined in Table 2), and the creation of legislative barriers to prevent the use of strategic minerals for immediate political gain.

This research revises the resource curse discourse by replacing geological fatalism with institutional analyses. The case of Ghana serves as a significant study within New Institutional Economics, illustrating how hybrid institutions like GoldBod can lead to value destruction when accountability among ministries deteriorates. The distinct divergence between rising gold reserves and stable foreign exchange holdings (Figure 3) challenges conventional commodity-backed stabilization frameworks, while the erosion of central bank credibility during G4O underscores the dangers associated with quasi-fiscal activities. We propose a *governance-risk typology* for in-kind resource swaps, highlighting how price synchronization issues and political capture can overshadow market fundamentals. This framework offers researchers testable models for interventions in emerging countries.
In conclusion, Ghana's case illustrates a broader lesson: institutional integrity is fundamental to resource sovereignty. This study reinterprets resource swaps as potential catalysts for structural change by converting forensic evidence of loss into practical blueprints, contingent upon the presence of depoliticized governance, industrial connections, and real-time accountability. For nations addressing commodity dependency, *Ghana's GHS 2.137 billion* experience may provide significant benefits: the understanding to transform minerals from short-term fiscal remedies into enduring stability.

Declarations

Competing interests: The author(s)declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Publisher's note: Advanced Research Journal remains neutral concerning jurisdictional claims in published maps and institutional affiliations.

Orcid ID

Simon Suwanzy Dzreke https://orcid.org/0009-0005-4137-9461

Semefa Elikplim Dzreke https://orcid.org/0009-0007-6480-6520

Evans Dzreke https://orcid.org/0009-0005-1794-0298

Franklin Manasey Dzreke https://orcid.org/0009-0000-5298-701X

References

Adam, C. S., & Bevan, D. L. (2015). Fiscal deficits and growth in developing countries. Journal of Public Economics, 89(4), 571–597.

Adam, K., & Mensah, J. K. (2024). The mechanics and market effects of Ghana's Gold-for-Oil programme. Centre for Economic Policy Research Working Paper No. 10432.

Addo, E. S. (2024). Institutional reform or redundancy? Assessing the Ghana Gold Board in the context of mineral governance. Resources Policy, 89, 102567. https://doi.org/10.1016/j.resourpol.2024.102567

Alesina, A., & Summers, L. H. (1993). Central bank independence and macroeconomic performance: Some comparative evidence. Journal of Money, Credit and Banking, 25(2), 151–162.

Amoah, L. G., & Sarpong, D. B. (2024). Quasi-fiscal risks and central bank credibility: Lessons from Ghana's Gold for Oil programme. Journal of African Economies, *33*(2), 189–211. https://doi.org/10.1093/jae/ejad025

Aryee, B. N. A. (2024). Ghana's mining regulatory landscape: Overlap, conflict, and the quest for coherence. Ghana Chamber of Mines Monograph Series.

Aryeetey, E., & Kanbur, R. (Eds.). (2017). The economy of Ghana, sixty years after independence. Oxford University Press.

Auditor-General of Ghana. (2024). Special audit report on the Gold for Oil programme (G4O). Republic of Ghana.

Bank of Ghana. (2023a). Annual report and financial statements 2022. https://www.bog.gov.gh

Bank of Ghana. (2021). Annual Report 2021. https://www.bog.gov.gh/

Bank of Ghana. (2022). Annual Report 2022. https://www.bog.gov.gh/

Bank of Ghana. (2025). Press Release: Termination of Gold for Oil Programme [Press release, March 2025]. https://www.bog.gov.gh/

Bank of Ghana. (2022a). Gold for Oil programme: Operational guidelines. https://www.bog.gov.gh

Bank of Ghana. (2022b). Press release: Launch of Gold for Oil programme. https://www.bog.gov.gh

Bank of Ghana. (2023a). Annual report and financial statements 2022. https://www.bog.gov.gh

Bank of Ghana. (2023). Annual Report and Financial Statements 2022. https://www.bog.gov.gh

Bawumia, M. (2023). The role of the central bank in economic development: Reflections on recent interventions. University of Ghana Business School Distinguished Lecture Series.

Beach, D., & Pedersen, R. B. (2019). Process-tracing methods: Foundations and guidelines (2nd ed.). University of Michigan Press.

Beckmann, J., Berger, T., & Czudaj, R. (2019). Gold price dynamics and the role of uncertainty. Quantitative Finance, 19(4), 663–681.

Bernal, J. L., Cummins, S., & Gasparrini, A. (2017). Interrupted time series regression for the evaluation of public health interventions: A tutorial. International Journal of Epidemiology, 46(1), 348–355.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.

Corden, W. M., & Neary, J. P. (1982). Booming sector and de-industrialisation in a small open economy. The Economic Journal, 92(368), 825–848. https://doi.org/10.2307/2232670

Crawford, G., & Botchwey, G. (2024). Formalising artisanal and small-scale mining in Ghana: The persistent challenges of the Ghana Gold Board. The Extractive Industries and Society, *17*, 101365. https://doi.org/10.1016/j.exis.2024.101365

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). SAGE.

Cukierman, A., Webb, S. B., & Neyapti, B. (1992). Measuring the independence of central banks and its effect on policy outcomes. The World Bank Economic Review, 6(3), 353–398.

Dzreke, S. E., & Dzreke, S. S. (2025). Resetting Ghana: The Economic and Governance Consequences of COVID-19 Fund Mismanagement and Election-Driven Fiscal Excesses in the 2020 Presidential Election. International Journal of Research and Analytical Reviews, 12(2), 156-172. https://doi.org/10.56975/ijrar.v12i2.314501

Energy Commission Ghana. (2023). Quarterly petroleum price analysis report: Q4 2023. https://energycom.gov.gh

Frankel, J. A. (2012). The natural resource curse: A survey of diagnoses and some prescriptions. In Commodity Price Volatility and Inclusive Growth in Low-Income Countries (pp. 7-34).

Ghana Ministry of Lands and Natural Resources. (2021). *Operational framework for the Domestic Gold Purchase program*.

Ghana Parliament. (2025). *Ghana Gold Board Act, 2025 (Act 1140)*.

Ghana Statistical Service. (2025). Consumer Price Index Bulletin: Q2 2025.

Gyampo, R., & Graham, E. (2023). Governance deficits in Ghana's Gold-for-Oil program. *African Governance Review*, 17(2), 45-67.

Gyeke-Dako, A., Turkson, F. E., & Baffoe, S. (2024). Fuel price dynamics and policy interventions: An empirical analysis of Ghana's Gold for Oil programme. Energy Economics, *126*, 107032. https://doi.org/10.1016/j.eneco.2024.107032

Hennart, J.-F. (1989). Can the "New Forms of Investment" substitute for the "Old Forms"? A transaction costs perspective. Journal of International Business Studies, 20(2), 211–234.

Hilson, G., & Maconachie, R. (2020). Artisanal and small-scale mining and the COVID-19 pandemic: Perspectives from Ghana. *The Extractive Industries and Society*, 7(3), 900-912. https://doi.org/10.1016/j.exis.2020.05.008

Hilson, G., Hilson, A., Maconachie, R., McQuilken, J., & Goumandakoye, H. (2022). Artisanal and small-scale mining (ASM) in sub-Saharan Africa: Re-conceptualizing formalization and 'illegal' activity. Resources Policy, 77, 102690.

Hilson, G., Hu, Y., & Kumah, C. (2024). Artisanal gold miners' response to state formalisation: Evidence from Ghana's Gold Board initiative. World Development, *176*, 106521. https://doi.org/10.1016/j.worlddev.2024.106521

Humphreys, M., & Sandbu, M. E. (2007). The political economy of natural resource funds. In Escaping the Resource Curse (pp. 194–233). Columbia University Press.

Institute of Statistical, Social and Economic Research (ISSER). (2023). State of the Ghanaian Economy Report 2022. University of Ghana.

International Monetary Fund. (2023). Ghana: 2023 Article IV consultation and request for an extended credit facility arrangement. IMF Country Report No. 23/169. https://www.imf.org

International Monetary Fund (IMF). (2022). Ghana: 2022 Article IV consultation—Press release and staff report (Country Report No. 2022/268).

International Monetary Fund. https://www.imf.org/external/np/seminars/eng/2011/commodity/

Ghana Gold Board Act, 2025 (Act 1140). Government Printer, Assembly Press.

International Monetary Fund. (n.d.). International Financial Statistics. https://data.imf.org

Kolstad, I., & Søreide, T. (2009). Corruption in natural resource management: Implications for policy makers. Resources Policy, 34(4), 214-226. https://doi.org/10.1016/j.resourpol.2009.05.001

Krippendorff, K. (2019). Content analysis: An introduction to its methodology (4th ed.). SAGE.

Marin, D., & Schnitzer, M. (2002). Contracts in trade and transition: The resurgence of barter. MIT Press.

Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. The Economic Journal, 116(508), 1–20.

Ministry of Finance, Ghana. (2023). *2023 mid-year fiscal policy review*. https://mofep.gov.gh

Ministry of Finance, Ghana. (2023). Details of the Gold for Oil Programme [Press briefing, January 2023]. https://mofep.gov.gh/

Ministry of Finance, Ghana. (2023). *Gold for Oil (G4O) program: Policy framework*.

Mirus, R., & Yeung, B. (1986). Economic incentives for countertrade. Journal of International Business Studies, 17(3), 27–39.

Mohan, G., & Asante, K. (2015). Beyond the enclave: Towards a critical political economy of China and Africa. *Development and Change*, 46(3), 457-479. https://doi.org/10.1111/dech.12148

Mueller, D. C. (2003). Public choice III. Cambridge University Press.

National Petroleum Authority. (2023). *Market monitoring reports (Jan-Dec 2023)*. https://npa.gov.gh

North, D. C. (1990). Institutions, institutional change and economic performance. Cambridge University Press.

Osei, R. D., & Asante, Y. (2024). Exchange rate stabilization through commodity swaps: A case study of Ghana's Gold for Oil. African Development Review, *36*(1), 45–62. https://doi.org/10.1111/1467-8268.12738

Patton, M. Q. (2015). Qualitative research & evaluation methods (4th ed.). SAGE.

Prebisch, R. (1950). The economic development of Latin America and its principal problems. United Nations Department of Economic Affairs.

Public Interest and Accountability Committee (PIAC). (2025). Annual Report on Petroleum Revenue Management.

Public Interest and Accountability Committee. (2023). Report on the management and use of petroleum revenues for the period…. https://www.piacghana.org

Public Interest and Accountability Committee. (2024). Special audit report on the Gold for Oil programme. https://www.piacghana.org

Reisen, H. (2022). Quasi-fiscal operations of central banks: Risks and safeguards. SUERF Policy Note No. 279.

Ross, M. L. (2012). The oil curse: How petroleum wealth shapes the development of nations. Princeton University Press.

Quartey, P. (2024). Beyond the barter: Structural reforms and sustainable macroeconomic stability in resource-rich Africa. Journal of Economic Perspectives, *38*(2), 167–188. https://doi.org/10.1257/jep.38.2.167

Quartey, P., & Sackey, H. A. (2024). Foreign exchange reserves dynamics in Ghana: Impact of the Gold for Oil programme. University of Ghana Institute of Statistical, Social and Economic Research Working Paper 2024/01.

Sachs, J. D., & Warner, A. M. (2001). The curse of natural resources. European Economic Review, 45(4-6), 827–838. https://doi.org/10.1016/S0014-2921(01)00125-8

Transparency International Ghana. (2024). Opacity and accountability risks in Ghana's Gold for Oil programme. Policy Brief No. 7. https://tighana.org

United Nations Conference on Trade and Development (UNCTAD). (2021). *Commodity dependence and development: A growth perspective*. https://unctad.org/publication/commodity-dependence-and-development-growth-perspective

Williamson, O. E. (2000). The new institutional economics: Taking stock, looking ahead. Journal of Economic Literature, 38(3), 595–613. https://doi.org/10.1257/jel.38.3.595

World Bank. (2024). Ghana economic update: Navigating economic recovery amidst global headwinds. World Bank Group. https://www.worldbank.org/en/country/ghana

World Bank. (2023). Ghana Economic Update: Price Surge - Unraveling Inflation's Toll on Poverty and Food Security. World Bank Group. https://www.worldbank.org/en/country/ghana/publication/economic-update

World Gold Council. (2022). Central Bank Gold Statistics 2022.

Yeyati, E. L. (2021). The cost of foreign exchange intervention: Concepts and measurement. BIS Working Papers No. 950.

Yin, R. K. (2018). Case study research and applications (6th ed.). SAGE.