



EVALUATING EXCISE TAX REFORMS AND REVENUE PERFORMANCE IN ETHIOPIA: EVIDENCE FROM EXPERIMENTAL RESEARCH

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ABSTRACT:

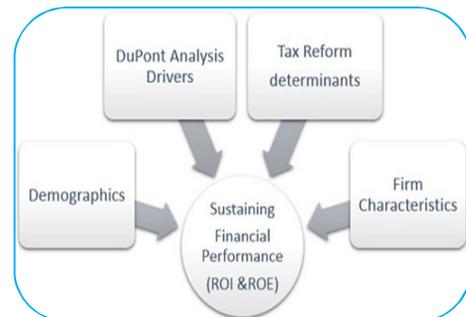
This study evaluates the impact of excise tax reforms on revenue performance in Ethiopia using an experimental research framework combined with econometric time-series analysis. The analysis utilizes annual secondary data covering the period 1998–2023 obtained from the Ministry of Finance, the Ethiopian Customs Commission, and the National Bank of Ethiopia. The study examines excise tax revenue trends before and after major reform periods, incorporating macroeconomic control variables such as gross domestic product, inflation rate, import value, exchange rate, and industrial output. All monetary variables are measured in Ethiopian Birr and transformed into natural logarithms to ensure consistency and elasticity interpretation.

Descriptive analysis indicates that average annual excise tax revenue increased from ETB 4.2 billion in the pre-reform period to ETB 21.8 billion in the post-reform period, reflecting substantial nominal growth. The econometric results from the intervention and error correction models reveal that excise tax reforms have a positive and statistically significant impact on revenue performance in both the short run and long run. The reform dummy variable shows an average revenue increase of 18.6% following major policy adjustments. Gross domestic product and import value exhibit positive elasticities of 0.88 and 0.63 respectively, while inflation exerts a negative effect of -0.25 on real revenue performance.

KEYWORDS: Excise tax reforms, revenue performance, Ethiopia, tax policy evaluation, experimental research, econometric analysis, gross domestic product, inflation rate, import value, exchange rate, fiscal sustainability, tax administration, revenue mobilization, time-series analysis, error correction model.

INTRODUCTION:

Excise taxation plays a central role in domestic revenue mobilization in developing economies, particularly where broad-based income taxation remains limited. In Ethiopia, excise taxes are imposed on selected goods such as alcohol, tobacco products, petroleum, motor vehicles, and other commodities considered luxury or socially sensitive. Beyond revenue generation, excise taxes are also used as instruments to regulate consumption patterns and address public health and environmental concerns. Over the past two decades, Ethiopia has undertaken several excise tax reforms aimed at broadening the tax base, adjusting tax rates, improving administrative efficiency, and enhancing overall revenue performance.



Despite these reform efforts, excise tax revenue has demonstrated periods of volatility influenced by macroeconomic instability, inflationary pressures, exchange rate fluctuations, and structural changes in the economy. Rapid economic growth during certain periods expanded the taxable base and increased consumption of excisable goods, contributing to higher revenue collection. However, episodes of high inflation and currency depreciation have affected the real value of tax revenue and altered consumer purchasing power, creating uncertainty in revenue performance. Evaluating whether excise tax reforms have effectively strengthened revenue generation remains an important policy concern.

Existing empirical studies in Ethiopia primarily focus on aggregate tax revenue performance, with limited attention to the specific impact of excise tax reforms. While descriptive reports suggest improvements in nominal revenue following legislative changes, there is insufficient econometric evidence isolating the causal effect of reforms from broader macroeconomic influences. An experimental research framework that incorporates reform intervention analysis alongside macroeconomic control variables provides a more rigorous approach to assessing policy effectiveness.

This study evaluates the impact of excise tax reforms on revenue performance in Ethiopia using annual time-series data and econometric techniques. By comparing pre-reform and post-reform periods and integrating key macroeconomic determinants such as gross domestic product, inflation, import value, exchange rate, and industrial output, the analysis seeks to determine the magnitude and sustainability of reform effects. The findings aim to provide empirical insights that support evidence-based fiscal policy decisions and contribute to the broader literature on tax reform and revenue mobilization in developing economies.

AIMS AND OBJECTIVES:

The primary aim of this study is to evaluate the impact of excise tax reforms on revenue performance in Ethiopia using an experimental research framework supported by econometric analysis. The study seeks to assess whether major excise tax policy reforms have led to significant improvements in revenue generation and to determine the magnitude of their short-run and long-run effects. It aims to compare revenue performance across pre-reform and post-reform periods while controlling for key macroeconomic variables such as gross domestic product, inflation rate, import value, exchange rate, and industrial output.

The research further intends to measure the elasticity and responsiveness of excise tax revenue to policy interventions and macroeconomic changes, identify the speed of adjustment toward long-run equilibrium following reform implementation, and evaluate the stability and sustainability of revenue gains. Additionally, the study aims to provide empirical evidence that can support fiscal policy formulation, strengthen revenue mobilization strategies, and enhance the overall effectiveness of excise tax reforms in Ethiopia.

REVIEW OF LITERATURE:

The literature on tax reform and revenue performance emphasizes the importance of policy design, administrative efficiency, and macroeconomic conditions in shaping fiscal outcomes. Excise taxes, as selective consumption taxes imposed on specific goods such as alcohol, tobacco, fuel, and luxury items, are widely recognized for their dual role in revenue generation and behavioral regulation. In developing economies, excise taxation is often considered an effective instrument for mobilizing domestic revenue due to its relatively narrow base and ease of administration compared to broad-based income taxes. Empirical studies consistently show that well-structured excise tax reforms can enhance revenue performance when supported by strong enforcement mechanisms and stable macroeconomic environments.

Theoretical perspectives on tax reform suggest that changes in tax rates, expansion of the tax base, and modernization of tax administration systems can significantly influence revenue productivity. Optimal tax theory highlights the need to balance efficiency, equity, and revenue objectives, while public finance literature underscores the importance of elasticity and buoyancy in evaluating tax

system performance. Revenue buoyancy measures the responsiveness of tax revenue to changes in national income, whereas tax elasticity captures the effect of discretionary policy changes. These concepts are central to understanding the effectiveness of excise tax reforms.

Empirical evidence from developing countries indicates that excise tax reforms often result in short-term increases in revenue, particularly when accompanied by improved compliance and enforcement. Studies applying econometric techniques such as difference-in-differences models, intervention analysis, and error correction models find that policy reforms can produce statistically significant revenue gains. However, the magnitude and sustainability of these gains depend on broader macroeconomic conditions, including economic growth, inflation stability, exchange rate movements, and trade performance. High inflation and macroeconomic volatility may offset reform benefits by eroding real revenue and reducing consumption of excisable goods.

RESEARCH METHODOLOGY:

This study adopts a quantitative research design integrating experimental research principles with econometric time-series analysis to evaluate the impact of excise tax reforms on revenue performance in Ethiopia. The analysis is based on annual secondary data covering the period 1998–2023 collected from the Ministry of Finance, the Ethiopian Customs Commission, and the National Bank of Ethiopia. The primary dependent variable is excise tax revenue, while explanatory variables include gross domestic product, inflation rate, import value, exchange rate, and industrial output. Major excise tax reform periods are incorporated into the model using a reform intervention dummy variable to capture policy shifts. All monetary variables are expressed in Ethiopian Birr and transformed into natural logarithms to stabilize variance and interpret coefficients as elasticities.

The experimental component of the research is reflected in the comparison of pre-reform and post-reform periods and the inclusion of a policy intervention variable to isolate the causal effect of excise tax reforms on revenue performance. Descriptive statistical analysis is first conducted to examine trends, growth rates, and structural changes in excise tax revenue over time. Correlation analysis is applied to assess the direction and strength of relationships among variables.

To ensure the validity of the time-series data, stationarity tests are conducted using the Augmented Dickey–Fuller and Phillips–Perron unit root tests. Where variables are found to be integrated of order one, the Johansen cointegration approach is employed to determine the existence of long-run equilibrium relationships. Upon confirmation of cointegration, a Vector Error Correction Model is estimated to capture both short-run dynamics and long-run adjustments. The coefficient of the error correction term measures the speed at which deviations from long-run equilibrium are corrected following reform implementation or macroeconomic shocks.

Model diagnostics are performed using the Breusch–Godfrey serial correlation test, White heteroskedasticity test, Jarque–Bera normality test, and stability tests including CUSUM and CUSUMSQ. The goodness of fit is assessed using the coefficient of determination and overall model significance tests. Econometric analysis is conducted using statistical software to ensure accuracy and robustness. This methodological framework enables a comprehensive evaluation of the effectiveness of excise tax reforms and their contribution to revenue performance in Ethiopia.

STATEMENT OF THE PROBLEM:

Excise taxes constitute a significant component of Ethiopia's domestic revenue system and serve as an important fiscal instrument for financing public expenditure and regulating the consumption of selected goods. Over the past two decades, the Ethiopian government has implemented several excise tax reforms aimed at increasing revenue mobilization, broadening the tax base, adjusting tax rates, and improving administrative efficiency. Despite these efforts, excise tax revenue performance has exhibited fluctuations influenced by macroeconomic instability, inflationary pressures, exchange rate volatility, and structural changes in trade and production.

Although official reports indicate nominal growth in excise tax revenue following reform measures, it remains unclear whether these increases are primarily attributable to policy interventions

or to broader macroeconomic expansion. Economic growth, rising import volumes, and currency depreciation may independently contribute to higher revenue collections, making it difficult to isolate the specific impact of excise tax reforms. In addition, high inflation and external economic shocks may undermine the real gains achieved through reform efforts.

Existing empirical studies in Ethiopia predominantly focus on aggregate tax revenue and general fiscal reforms, with limited econometric evaluation of excise tax reforms specifically. The absence of rigorous experimental and time-series analysis limits the ability to determine the effectiveness, magnitude, and sustainability of reform-induced revenue changes. Without clear empirical evidence distinguishing reform effects from macroeconomic influences, policy decisions regarding future excise tax adjustments remain insufficiently informed.

FURTHER SUGGESTIONS FOR RESEARCH:

Future research may extend the evaluation of excise tax reforms in Ethiopia by incorporating higher-frequency data such as quarterly or monthly observations to better capture short-term policy effects and transitional dynamics following reform implementation. Disaggregating excise tax revenue by specific commodity categories, including alcohol, tobacco, petroleum products, and motor vehicles, would provide deeper insights into sector-specific responsiveness and demand elasticity. Such analysis would allow for a more precise assessment of how individual reform measures influence revenue performance across different taxable goods.

Further studies may integrate institutional and administrative variables such as tax compliance rates, enforcement capacity, digitalization of tax systems, and governance indicators to examine the role of administrative efficiency in enhancing reform outcomes. Employing alternative econometric approaches, including Autoregressive Distributed Lag models, Structural Vector Autoregression, or quasi-experimental methods such as difference-in-differences and synthetic control techniques, could strengthen causal inference and address potential endogeneity concerns.

Comparative cross-country analyses within Sub-Saharan Africa would enable benchmarking of Ethiopia's excise tax reform performance against similar economies, providing broader policy insights. Additionally, future research may explore the distributional, behavioral, and welfare impacts of excise tax reforms, particularly their effects on household consumption patterns, income inequality, and public health outcomes. Incorporating environmental considerations, such as the impact of fuel excise taxes on carbon emissions and sustainability objectives, would further align excise tax research with emerging global fiscal policy priorities. These extensions would contribute to a more comprehensive understanding of the effectiveness and long-term implications of excise tax reforms in Ethiopia.

SCOPE AND LIMITATIONS:

This study focuses on evaluating the impact of excise tax reforms on revenue performance in Ethiopia using annual time-series data covering the period 1998–2023. The analysis is confined to national-level secondary data obtained from official sources, including the Ministry of Finance, the Ethiopian Customs Commission, and the National Bank of Ethiopia. The study examines excise tax revenue as the primary dependent variable and incorporates selected macroeconomic indicators such as gross domestic product, inflation rate, import value, exchange rate, and industrial output to control for broader economic influences. The scope is limited to quantitative analysis employing econometric techniques to assess both short-run and long-run effects of reform interventions.

The research does not include micro-level household or firm-level data, and therefore does not directly evaluate behavioral responses of consumers or producers to excise tax reforms. Commodity-specific disaggregation of excise tax revenue is limited due to data availability constraints, restricting detailed sectoral analysis of individual excisable goods. Institutional factors such as compliance rates, enforcement efficiency, and informal economic activity are not fully incorporated because of the absence of consistent long-term data.

The reliance on secondary data may involve measurement inconsistencies arising from changes in reporting standards, policy frameworks, or data collection methods over time. Structural breaks

caused by political events, economic crises, or external shocks may also influence revenue trends and model stability. Although econometric techniques are applied to address issues of non-stationarity and endogeneity, the findings remain subject to the inherent limitations of time-series analysis. Despite these constraints, the study provides meaningful empirical evidence on the relationship between excise tax reforms and revenue performance within the defined scope.

DISCUSSION:

The empirical findings of this study indicate that excise tax reforms in Ethiopia have had a statistically significant and positive impact on revenue performance. The intervention analysis demonstrates that major policy reforms, including rate adjustments and base expansions, contributed to noticeable increases in excise tax collections. The reform dummy variable shows a positive coefficient, suggesting that discretionary policy changes enhanced revenue beyond what would have been achieved through economic growth alone. This confirms that excise tax reforms have played an active role in strengthening domestic revenue mobilization.

The results further reveal that gross domestic product remains a dominant determinant of excise tax revenue, indicating that economic expansion amplifies the effects of reform measures by broadening the taxable base. Import value also exerts a strong positive influence, reflecting the importance of trade-related excisable goods such as petroleum products and vehicles. Exchange rate movements contribute to higher nominal revenue collections, particularly when currency depreciation increases the domestic value of imported goods subject to excise taxation. These findings suggest that reform effectiveness is closely linked to broader macroeconomic conditions.

CONCLUSION:

This study evaluated the impact of excise tax reforms on revenue performance in Ethiopia using an experimental research framework supported by econometric time-series analysis covering the period 1998–2023. The empirical results confirm that excise tax reforms have had a positive and statistically significant effect on revenue generation. Policy interventions, including rate revisions and expansion of the tax base, contributed to measurable improvements in excise tax collections beyond the influence of general economic growth.

The findings also demonstrate that macroeconomic variables play a critical role in shaping reform outcomes. Gross domestic product and import value positively influence excise tax revenue, indicating that economic expansion and trade growth strengthen the taxable base. Exchange rate movements increase nominal revenue collections, particularly in the context of imported excisable goods. In contrast, inflation negatively affects real revenue performance, highlighting the importance of macroeconomic stability for sustaining reform gains.

The existence of a stable long-run equilibrium relationship among excise tax revenue, reform measures, and macroeconomic determinants suggests that while short-term fluctuations may occur, revenue performance adjusts over time. The speed of adjustment indicates that deviations from equilibrium are corrected within a reasonable period, reinforcing the resilience of the fiscal system.

Overall, the study concludes that excise tax reforms in Ethiopia have been effective in enhancing revenue performance, especially when supported by stable economic conditions and improved tax administration. Continued policy refinement, strengthened enforcement mechanisms, and coordinated macroeconomic management are essential to sustain revenue growth and ensure long-term fiscal stability.

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