



The Effects of Tax Waivers, Concessionary Tax Rates, Tax Holidays, Tax Exemptions, and Free Zone Industries on Economic Growth

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ABSTRACT

The main objective of this study is to empirically assess the differential impacts of various tax incentive instruments on economic growth using robust quantitative methods. Specifically, the study evaluates how each tax policy variable contributes to or detracts from national economic performance while controlling for trade openness, inflation, government expenditure, and foreign direct investment. Utilizing a panel dataset of 49 Sub-Saharan African countries, the study employs a dynamic panel regression model estimated through Panel EGLS with random effects. Descriptive statistics, correlation matrices, stationarity tests, and multicollinearity checks were conducted to ensure the reliability of the data. The findings reveal that concessionary tax rates and trade openness have significant positive effects on economic growth, while tax waivers and tax exemptions exhibit negative or insignificant relationships. Tax holidays and free trade zones show no meaningful impact, highlighting inefficiencies in policy design and implementation. These results suggest that not all tax incentives are equally effective; therefore, governments should adopt more targeted and performance-based fiscal policies. The study contributes to the ongoing policy discourse on tax reform and offers practical implications for both fiscal policymakers and accounting researchers.

Keywords: Tax Incentives, Economic Growth, Sub-Saharan Africa, Concessionary Tax Rates, Tax Waivers, Free Trade Zones

JEL Classifications: E, F, G

1. INTRODUCTION

Economic growth remains one of the most pressing developmental goals for nations, especially in the Global South, where poverty alleviation, employment generation, and structural transformation are critically tied to sustained increases in national output. Governments worldwide continue to explore fiscal tools to stimulate this growth, and among the most commonly deployed mechanisms are tax incentives—including tax waivers, tax holidays, concessionary tax rates, tax exemptions, and the establishment of free zone industries. These measures are often promoted as strategic levers to attract foreign direct investment (FDI), boost domestic industrial capacity, and catalyze job creation. However, the actual

efficacy of these tax incentives in fostering long-term economic growth remains contested in both academic literature and policy debates (Klemm and Van Parys, 2012).

To begin with, the theory underpinning tax incentives is grounded in the assumption that reducing the cost of doing business can stimulate private sector investment, increase capital accumulation, and thereby expand the productive capacity of an economy (Zeng et al., 2023). For instance, tax holidays are often granted to new firms, particularly in sectors deemed strategic, allowing them to operate without paying corporate taxes for a fixed period. Similarly, tax waivers remove certain levies or tariffs, often to reduce production costs. Free zones, on the

other hand, create isolated environments with relaxed tax and regulatory frameworks aimed at attracting both domestic and foreign investors (Li et al., 2020).

While intuitively appealing, the evidence surrounding the effectiveness of these fiscal measures in stimulating growth is mixed. Some scholars argue that tax incentives lead to revenue losses, create inefficiencies, and distort market allocation without producing the intended developmental dividends (Thom, 2016). Conversely, others suggest that when well-targeted, such incentives can spur investment and innovation, especially in underdeveloped or priority sectors (Shi and Ge, 2025).

Understanding this policy landscape necessitates an appreciation of the broader concept of economic growth. Fundamentally, economic growth refers to an increase in the production of goods and services over time, typically measured by the growth rate of gross domestic product (GDP). However, beyond GDP, growth encompasses improvements in employment, capital formation, technological progress, and productivity. In emerging economies, growth is intricately tied to structural reforms and macroeconomic stability, often requiring deliberate policy choices to shift the economy from reliance on primary sectors to more diversified, industrialized structures (Acosta-Ormaechea and Morozumi, 2021).

Governments in Sub-Saharan Africa, in particular, have embraced tax incentives as tools to attract FDI and enhance industrial competitiveness (Appiah-Kubi et al., 2021). Nigeria, for instance, offers various tax holidays under its Pioneer Status Incentive, while Ghana and Kenya have developed special economic zones with extensive tax breaks. Yet, despite these policy efforts, the continent continues to grapple with low levels of industrialization and inconsistent growth patterns, raising questions about the real impact of these tax instruments (Fadipe et al., 2025).

Empirical studies have found mixed results regarding the relationship between tax incentives and economic performance. For example, in the Nigerian context, a study by Oyerogba et al. (2024) found that tax incentives significantly influenced foreign investment in listed manufacturing firms, yet the impact on broader economic indicators was more ambiguous (Oyerogba et al., 2024). Similarly, research from Ethiopia demonstrated that tax holidays and exemptions positively affected the sustainability of micro, small, and medium enterprises (MSMEs), especially during economic downturns like the COVID-19 pandemic (Deyganto, 2022).

Nevertheless, these country-specific results are not always generalizable. Regional studies, particularly across multiple African nations, remain scarce. Moreover, most existing literature tends to adopt qualitative case study designs or focus on macro-level tax performance, rather than conducting granular, sector-based, or enterprise-level quantitative analyses (Padma and Akram, 2022). This methodological gap restricts our understanding of how different forms of tax incentives influence firm behavior, sectoral dynamics, and national growth trajectories.

Even in contexts where quantitative methods are applied, they often lack sufficient control for endogeneity and sector-specific variables. For instance, the dynamic computable general equilibrium (CGE) model used by Van Heerden et al. (2016) in assessing carbon tax impacts in South Africa offers a strong framework but is not commonly used to evaluate traditional tax holidays or exemptions (Van Heerden et al., 2016). Similarly, time-series analyses tend to overlook microeconomic dynamics within firms, especially regarding investment, R&D, and employment decisions.

In addition to methodological constraints, the definition and operationalization of tax incentives vary across studies. Some research aggregates all forms of tax breaks into a single indicator, while others focus solely on corporate tax reductions. This inconsistency complicates cross-study comparisons and weakens policy recommendations. As Mast (2018) warns, tax competition across jurisdictions can lead to a “race to the bottom,” where governments continuously undercut each other without achieving measurable improvements in business performance or employment levels (Mast, 2018).

Another significant limitation in the literature is the inadequate exploration of spillover effects. While tax incentives may benefit targeted firms, they may simultaneously impose burdens on other sectors by eroding the tax base, reducing public investment, or incentivizing short-term capital flows at the expense of sustainable development. For instance, Li (2015) showed how fiscal decentralization could result in policy misalignment, where regional incentives undermine national fiscal goals (Li, 2015).

Moreover, most analyses overlook the role of institutional quality. In highly corrupt or weakly governed environments, tax incentives may simply become channels for rent-seeking or preferential treatment. The findings of Ivanyna et al. (2015) highlight the negative interactions between corruption, tax evasion, and growth, cautioning against overly generous or opaque incentive structures (Ivanyna et al., 2015).

It is within this complex, and often contradictory, landscape that the present study situates itself. By focusing on Africa, this research intends to fill key empirical and policy gaps. While much of the existing literature is focused on OECD countries or Asia, there is a need to understand how tax waivers, exemptions, and incentive zones function within the institutional and economic realities of African states. More importantly, the study adopts a quantitative approach, using secondary data from sources like the World Bank, IMF, UNCTAD, and national revenue agencies to analyze the relationship between tax incentives and economic growth indicators. This allows for a more objective, data-driven understanding of the effectiveness—or limitations—of these fiscal tools.

In doing so, this research also addresses sector-specific impacts, particularly in manufacturing and services, which are often the main targets of incentive regimes. Variables such as GDP growth, investment inflows, industrial output, and employment will be measured against proxies for tax holidays, waivers, and

concessionary rates. Using panel regression and Granger causality techniques, the study aims to isolate the causal relationships and account for country-specific heterogeneities.

Ultimately, the need for this study is grounded in the reality that African economies face intense pressure to grow their productive base, while also maintaining fiscal balance and attracting sustainable investment. While tax incentives appear to offer a “quick fix,” there is little consensus on their long-term value. Policymakers often lack the empirical evidence needed to calibrate these incentives effectively—balancing competitiveness with tax fairness and developmental outcomes. This research aims to provide that evidence.

The objectives of the study are threefold. First, to examine the relationship between various tax incentives—specifically tax holidays, waivers, exemptions, and free zones—and economic growth across African countries. Second, to determine whether these incentives lead to real sector expansion and capital formation, or merely act as short-term attractors of FDI. And third, to assess whether the structure and administration of these incentives are aligned with national development strategies or contribute to fiscal vulnerabilities. In sum, by bridging empirical, regional, and methodological gaps in the literature, this study aspires to contribute both academically and practically to ongoing debates around fiscal policy and economic growth in Africa.

2. REVIEW OF LITERATURE

2.1. Effects of Tax Waivers on Economic Growth

Tax waivers are temporary suspensions or reductions of specific tax obligations granted by the government to stimulate economic activities or address pressing economic needs. These instruments are widely used to attract investment, lower the cost of doing business, and address sector-specific challenges. However, the impact of tax waivers on economic growth remains highly debated.

On one hand, proponents argue that tax waivers enhance profitability and cash flow for businesses, especially during periods of economic distress or structural reforms. For example, in South Africa, tax exemptions on carbon-intensive sectors under the carbon tax regime allowed firms in the agricultural and food sectors to remain competitive while undergoing green transitions, thus indirectly contributing to sustained sectoral output and employment (Ntombela et al., 2019). This highlights how tax waivers, if well targeted, can ease structural transformation in key sectors.

Conversely, there are concerns that tax waivers may be misused or implemented without robust impact analysis. The study by Jensen and Malesky (2018) revealed that governments often grant waivers for political gain rather than economic merit, leading to inefficient allocation of resources (Jensen and Malesky, 2018). Additionally, waivers can reduce fiscal revenues, thereby constraining public investment in infrastructure and social services that are foundational to long-term growth.

Moreover, the lack of transparency and consistency in implementing tax waivers may lead to policy uncertainty and corruption,

detering potential investors. As Ivanyna et al. (2015) show, when tax privileges are awarded opaquely, they often become rent-seeking opportunities, distorting economic incentives and weakening growth prospects (Ivanyna et al., 2015). In this light, while tax waivers can offer short-term boosts, their net impact on growth depends largely on governance, policy design, and administrative efficiency.

2.2. Effects of Concessionary Tax Rates on Economic Growth

Concessionary tax rates refer to deliberately lower tax rates offered to specific sectors, industries, or investors as a form of fiscal stimulus. These reduced rates are intended to spur investment in targeted areas and reduce the cost burden of doing business. In practice, they have been widely used across both developed and developing economies to stimulate economic growth. According to Appiah-Kubi et al. (2021), lower corporate income tax rates in Africa have been significantly associated with increased FDI inflows, particularly in countries offering sector-specific incentives to industries like manufacturing and ICT (Appiah-Kubi et al., 2021). This suggests that concessionary tax rates can improve the competitiveness of developing economies in the global investment landscape.

Nevertheless, the growth effect of such tax concessions is not automatic. Baker et al. (2021), in their analysis of consumer and corporate response to varying tax regimes, found that although firms respond to lower tax rates, these reactions do not always translate to sustained economic performance unless complemented by other growth-enabling policies such as infrastructure, education, and market access (Baker et al., 2021).

Another critical dimension is the risk of base erosion. Mast (2018) argues that competition among subnational governments to attract mobile firms with concessionary tax rates often results in a “race to the bottom,” where the tax base is significantly reduced without equivalent gains in investment or productivity (Mast, 2018). This dynamic can harm long-term growth by weakening public finances. In Africa, where fiscal space is limited, excessive reliance on concessionary rates can also increase inequality, as benefits tend to accrue disproportionately to larger firms with political connections. Thus, while concessionary tax rates can foster growth in specific contexts, their broader implications for tax equity and sustainability must be considered.

2.3. Effects of Tax Holidays on Economic Growth

Tax holidays are periods during which new businesses are exempted from certain taxes, most commonly corporate income taxes. These are widely used in developing countries to attract FDI and support fledgling industries. However, their effectiveness in promoting economic growth remains mixed. Oyerogba et al. (2024) conducted an empirical study on Nigerian manufacturing firms and found that tax holidays significantly increased FDI inflows, particularly among firms listed on the stock exchange. This indicates that tax holidays can serve as important levers for industrial policy if well-aligned with national priorities (Oyerogba et al., 2024).

Nonetheless, there is growing evidence that the benefits of tax holidays are often overstated. Thom (2016) evaluated motion picture incentive programs in the United States and found that tax holidays had no statistically significant effect on gross state product, wages, or long-term employment in the sector targeted (Thom, 2016). This suggests that while tax holidays may attract investment temporarily, they do not necessarily create lasting economic value.

Moreover, tax holidays can lead to “tax incentive shopping,” where multinational firms shift operations across borders to exploit temporary tax breaks, with little commitment to host-country development. The IMF has raised concerns that such incentives create distortionary effects, promoting inefficient investment behavior and eroding the integrity of tax systems (Klemm, 2010). To be effective, tax holidays must be strategically targeted, time-bound, and linked to performance benchmarks such as job creation or technology transfer. Without these conditions, they risk becoming costly giveaways that undermine the fiscal capacity of states to fund essential public services.

2.4. Effects of Tax Exemptions on Economic Growth

Tax exemptions are provisions that relieve certain transactions, individuals, or organizations from tax obligations. These may apply to sectors such as education, health, agriculture, or NGOs, and are often justified on grounds of equity, social protection, or economic stimulation.

Recent findings by Acosta-Ormaechea and Morozumi (2021) highlight the importance of tax design in achieving growth. Their analysis shows that reducing exemptions and creating a more uniform VAT structure significantly improves tax efficiency and economic outcomes, especially in OECD countries (Acosta-Ormaechea and Morozumi, 2021). Although this research is situated in high-income countries, the principle is relevant globally: excessive exemptions create leakages, reduce compliance, and complicate administration.

In South Africa, exemption schedules within carbon tax frameworks were shown to influence the overall economic impact of the policy. When exemptions were gradually removed, the economy adapted more effectively to the carbon pricing mechanism, demonstrating that exemptions must be carefully calibrated (Van Heerden et al., 2016).

However, exemptions can also create inequities and rent-seeking behavior. As shown by Jensen and Malesky (2018), exemptions are sometimes granted for political expediency, rather than economic logic, leading to policy capture by elite interests and undermining the fairness of the tax system (Jensen and Malesky, 2018). Furthermore, in many African countries, exemptions reduce the taxable base so severely that governments struggle to mobilize sufficient revenue, forcing reliance on indirect taxes that disproportionately affect low-income groups. This regressive shift limits inclusive growth and exacerbates inequality.

2.5. Effects of Free Zone Industries on Economic Growth

Free zone industries—encompassing export processing zones (EPZs), industrial parks, and special economic zones (SEZs)—are

designated geographic areas where businesses enjoy favorable tax and regulatory conditions. These zones are intended to promote industrialization, employment, and export growth. Li et al. (2020) conducted a spatial analysis of China’s free trade zones and concluded that such zones significantly improved knowledge spillovers and regional innovation capacity, which are essential for long-term economic growth (Li et al., 2020). Similarly, Xia et al. (2024) found that SEZ establishment in Chinese cities improved land-use efficiency, urban productivity, and GDP growth, suggesting that the success of free zones depends on strategic location and integration with broader development plans (Xia et al., 2024).

In Africa, however, the outcomes have been more uneven. While countries like Ethiopia and Kenya have experienced modest benefits from SEZs, these zones often suffer from weak infrastructure, limited backward linkages to the domestic economy, and inadequate institutional support. A study by Appiah-Kubi et al. (2021) observed that while SEZs attracted FDI, the spillover effects to local industries remained limited, highlighting a structural disconnect between zone-based and national development policies (Appiah-Kubi et al., 2021).

Additionally, free zones can become enclaves where firms exploit tax breaks without contributing meaningfully to domestic development. As observed by Klemm and Van Parys (2012), the absence of performance-based incentives and exit penalties often allows firms to operate temporarily and exit once benefits expire, undermining sustainable growth efforts (Klemm and Van Parys, 2012). Nevertheless, when well-designed, free zones can serve as laboratories for reform and innovation. Their success depends on factors such as infrastructure quality, governance, trade logistics, and policy coherence with national development strategies.

2.6. Theoretical Framework

In evaluating the economic rationale and potential outcomes of tax incentives—such as tax waivers, concessionary tax rates, tax holidays, tax exemptions, and free zone regimes—two foundational economic theories provide critical lenses of analysis: the Neoclassical Growth Theory, particularly the Solow-Swan Model, and the Endogenous Growth Theory (also known as the New Growth Theory). These theories not only frame the relationship between fiscal policy and economic growth but also offer insights into the mechanisms through which tax incentives may shape productivity, capital accumulation, and innovation over time.

While the Neoclassical framework emphasizes exogenous technological progress and diminishing returns to capital, it offers a useful starting point for understanding how temporary or targeted fiscal incentives can affect growth through increased savings and investment. On the other hand, Endogenous Growth Theory provides a more nuanced understanding of how policy, including tax incentives, can permanently influence long-term growth trajectories by fostering innovation, improving human capital, and strengthening knowledge spillovers. Thus, grounding this study in both theories allows for a comprehensive and multi-dimensional examination of how different types of tax incentives

may influence economic outcomes in developing regions such as Africa, where governments often rely on fiscal instruments to stimulate industrialization and attract foreign investment (Appiah-Kubi et al., 2021).

2.6.1. Neoclassical growth theory (Solow-swan model)

Developed independently by Robert Solow and Trevor Swan in the mid-20th century, the Neoclassical Growth Theory posits that economic growth is primarily driven by capital accumulation, labor force expansion, and exogenous technological progress. The core assumption of this model is that production exhibits diminishing returns to capital and labor inputs, which eventually lead to a steady-state level of output per worker (Solow, 1956). In the context of tax incentives, this theory suggests that policies which reduce the cost of capital—such as tax waivers, concessions, or holidays—can temporarily shift the economy to a higher growth path by increasing savings and investment. For example, concessionary tax rates can incentivize firms to invest in capital-intensive industries, raising the overall capital stock and pushing the economy toward a new, higher equilibrium level of output (Klemm and Van Parys, 2012). However, the model predicts that once this transition occurs, growth will slow unless technological progress continues exogenously.

This limitation underscores a central critique of the Solow-Swan framework: it cannot account for persistent increases in growth rates due to policy interventions. Nonetheless, it remains relevant for understanding the short-run or transitional dynamics triggered by fiscal incentives. In countries like Nigeria, for instance, studies show that tax exemptions and waivers can lead to temporary investment booms, especially in sectors such as manufacturing and extractives (Fadipe et al., 2025). However, such booms may dissipate once the incentives expire, especially if they are not complemented by structural reforms or productivity-enhancing investments.

Furthermore, the Solow model indirectly informs the evaluation of free zone industries, which often operate under significantly reduced tax burdens. These zones can attract foreign direct investment by lowering the marginal tax rate on capital and labor, thereby encouraging capital deepening. However, as observed in various African special economic zones, the long-term impact depends on whether these zones lead to broader technological upgrading and spillover effects (Appiah-Kubi et al., 2021).

Importantly, the Neoclassical model supports the argument that excessive or poorly targeted tax incentives may crowd out public investment. Because the model emphasizes savings and investment as core determinants of growth, any reduction in government revenue due to tax concessions—if not offset by increased private investment—can be detrimental to capital formation and long-term growth. This fiscal trade-off is particularly critical for low-income countries, where public infrastructure and human capital investments remain underfunded (Li, 2015). In sum, while the Solow-Swan model may not fully explain the persistent impacts of policy-driven incentives, it provides a foundational understanding of how tax measures influence investment and growth in the short to medium term.

2.6.2. Endogenous growth theory (new growth theory)

Emerging in the 1980s and 1990s as a response to the limitations of the Solow-Swan framework, Endogenous Growth Theory emphasizes the role of internal factors—such as knowledge accumulation, human capital, and innovation—in driving sustained economic growth. Unlike the Neoclassical model, where technological progress is treated as an external factor, Endogenous Growth Theory argues that government policy and institutional choices can permanently affect the rate of economic expansion (Romer, 1990). This framework is particularly relevant to the present study because it provides a clear rationale for how tax incentives can have long-term growth effects, beyond the initial stimulus of capital investment. For instance, tax exemptions on research and development (R&D), technology acquisition, or training expenses can enhance firms' innovation capabilities, thereby increasing total factor productivity and generating sustained growth (Li and Gao, 2022).

Moreover, tax holidays and preferential regimes in free zones can attract technology-intensive firms, facilitating knowledge spillovers and industrial clustering. These externalities are central to the endogenous growth process, as they enable the diffusion of best practices, supply chain integration, and the emergence of innovation ecosystems. Evidence from China supports this view, where cities with special economic zones have experienced significant improvements in innovation output, land-use efficiency, and urban productivity (Xia et al., 2024).

Additionally, Endogenous Growth Theory underscores the importance of human capital development, which is often shaped by tax and fiscal policy. Governments that strategically use tax incentives to support education, vocational training, and health services indirectly strengthen the foundation for sustainable growth. For example, Shi and Ge (2025) demonstrate that targeted fiscal incentives in China significantly improved firm-level innovation while also advancing public health and environmental standards—both of which contribute to long-run economic resilience (Shi and Ge, 2025). Notably, the theory also warns against the indiscriminate application of tax incentives. If these incentives distort market signals or encourage rent-seeking rather than genuine innovation, they may reduce efficiency and crowd out productive investment. Jensen and Malesky (2018) provide empirical evidence that some tax incentives are granted not for their developmental impact but for political reasons, which undermines their growth potential (Jensen and Malesky, 2018).

In the African context, where institutional quality is often variable, the effectiveness of tax incentives in generating endogenous growth depends heavily on governance, regulatory coherence, and the capacity to enforce conditionalities. For instance, if firms granted tax holidays are not required to meet performance benchmarks—such as technology transfer or employment creation—the potential growth benefits may be lost (Klemm, 2010). Furthermore, the endogenous model supports the argument that strategic sector targeting is essential. By focusing incentives on high-potential sectors like ICT, renewable energy, or advanced manufacturing, governments can foster growth engines that drive sustained productivity improvements. In contrast, blanket tax exemptions

to low-productivity sectors may offer little more than temporary relief without long-term benefits. Ultimately, Endogenous Growth Theory complements the Solow-Swan model by explaining how tax policies can do more than just alter capital accumulation—they can shape innovation pathways, industrial competitiveness, and the institutional foundations of long-run growth.

Taken together, the Neoclassical Growth Theory and Endogenous Growth Theory provide a robust theoretical framework for examining the effects of tax waivers, concessions, holidays, exemptions, and free zones on economic growth. While the Neoclassical model explains the transitional dynamics of capital accumulation resulting from tax incentives, the Endogenous model illustrates how thoughtful policy design can stimulate sustained growth through innovation, human capital, and knowledge diffusion. By situating this study within both paradigms, the research gains analytical depth and relevance—especially for evaluating tax policy outcomes in African economies, where structural transformation and innovation are critical to achieving sustainable development goals. Future empirical analysis will assess the extent to which tax incentives in these contexts align with the growth mechanisms proposed by these theories, ultimately offering policy recommendations grounded in both theoretical insight and real-world data.

3. METHODOLOGY

The approaches employed to analyse the data and the empirical model in this section.

3.1. Data Collection

This study employs a quantitative research approach to empirically investigate the effects of various tax incentives on economic growth across Sub-Saharan Africa (SSA). The choice of a quantitative methodology aligns with the need for objective, data-driven analysis capable of identifying statistically significant relationships among economic variables. Previous studies have highlighted the limitations of anecdotal or purely qualitative assessments of tax incentives, especially in developing regions, and have instead called for rigorous empirical approaches that allow for causal inference and policy evaluation (Padda and Akram, 2022).

Accordingly, the study relies entirely on secondary data obtained from reputable international financial and policy institutions, including the World Bank, the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), and the United Nations Conference on Trade and Development (UNCTAD). These sources provide standardized, cross-country comparable indicators that ensure consistency and reliability in analysis. Specifically, data on tax policy instruments such as tax holidays, waivers, and exemptions are extracted from UNCTAD's Investment Policy Hub, IMF Government Finance Statistics (GFS), and OECD's Global Revenue Statistics. Meanwhile, economic indicators like GDP growth and trade openness are sourced from the World Bank's World Development Indicators (WDI).

Data was collected for the period 2000–2023, providing a 24-year window that captures significant macroeconomic and fiscal reforms across the African continent. This period also includes notable policy shifts—such as the adoption of new SEZ frameworks, tax code revisions, and FDI liberalization strategies—that make it particularly relevant for the study.

3.2. Sample Population

The empirical analysis focuses on 54 Sub-Saharan African (SSA) countries, with data collected on a wide range of governance-related, taxation, and macroeconomic variables. However, due to data availability constraints and missing entries in several country-year observations, the final sample was narrowed to 49 countries. Countries with incomplete or highly inconsistent data on key variables were excluded to preserve the robustness of the analysis and minimize bias.

This regional focus is both timely and policy-relevant. While tax incentives are globally used, their application in Africa is particularly contentious, given the region's heavy dependence on commodity exports, narrow tax bases, and fiscal vulnerability. Numerous African governments have adopted aggressive tax incentive strategies to attract investment, yet empirical evidence of their effectiveness on national economic performance remains limited and inconclusive (Appiah-Kubi et al., 2021). Therefore, focusing on SSA offers an opportunity to fill a critical empirical gap in both regional and global tax policy literature.

3.3. Measures

The study employs a combination of dependent, independent, and control variables, as detailed in Table 1. These variables are selected based on their relevance to the theoretical framework and prior empirical studies that explore the fiscal-growth nexus. All variables are operationalized using standardized metrics to ensure cross-country comparability. These variables are carefully selected to isolate the impact of tax incentives on growth while accounting for macroeconomic and institutional factors. For example, FDI is included as a control variable because many tax incentives are explicitly designed to attract foreign investment. Inflation, trade openness, and government expenditure are also included to capture broader economic conditions. Finally, institutional quality is controlled for because poor governance and corruption can diminish the effectiveness of tax policies (Ivanyna et al., 2015).

3.4. Model for the Study

The relationship between tax incentives and economic growth is examined through a panel regression model, which enables both temporal and cross-sectional variation to be accounted for. Given the panel structure of the data (49 countries over 24 years), the model controls for country-specific fixed effects and time fixed effects to capture unobserved heterogeneity.

3.4.1. Model specification

The general model specification is as follows:

$$GDP_{it} = \beta_0 + B_1 TXW_{it} + B_2 TXH_{it} + B_3 TXE_{it} + B_4 FTZ_{it} + B_5 CTR_{it} + \mu_i + \lambda_t + \epsilon_{it}$$

Table 1: Measurements of variables

Variable type	Variable	Definition	Acronym	Measurement	Data source
Dependent	Economic growth	Annual percentage growth rate of GDP at market prices based on constant local currency	GDPG	GDP growth rate (%)	World Bank - World Development Indicators (WDI)
Independent	Tax waivers	Government revenue lost from waived tax payments	TXW	Percentage of GDP or as reported tax expenditure	IMF - Government Finance Statistics (GFS), Country Budget Reports
Independent	Tax holidays	Periods where firms are exempted from taxes, typically for investment purposes	TXH	Binary (1=policy exists; 0=none) or Number of years	UNCTAD - Investment Policy Hub, National Investment Codes
Independent	Tax exemptions	Reductions or exclusions from taxable income or tax base	TXE	Percentage of GDP or categorical indicator based on tax code	IMF, OECD Global Revenue Statistics, National Tax Code
Independent	Free trade zones/special economic zones	Manufacturing Exports as % of GDP	FTZ	Total value of manufacturing exports divided by GDP (%)	World Bank (WDI), UNCTAD, World Integrated Trade Solution (WITS)
Independent	Concessionary tax rates	Lower-than-standard tax rates applied to specific sectors or investments	CTR	Percentage difference from standard corporate tax rate	IMF – Tax Policy Reports, OECD Tax Database
Control	Foreign direct investment	Net inflows of investment to acquire lasting interest in an enterprise	FDI	Percentage of GDP	World Bank – WDI
Control	Trade openness	Degree of integration into the global economy	TO	(Exports+Imports)/GDP (%)	World Bank – WDI
Control	Inflation rate	Annual % change in the consumer price index	INF	Inflation, consumer prices (annual %)	World Bank – WDI
Control	Government expenditure	General government final consumption expenditure	GOVEXP	Percentage of GDP	World Bank – WDI
Control	Institutional quality	Rule of law, corruption, regulatory quality, etc.	INST	Governance indicators (e.g., rule of law index)	World Bank – Worldwide Governance Indicators (WGI)

Where:

- GDP_{it} represents economic growth rate for country i in year t
- TXW_{it} is the tax waivers
- TXH_{it} is tax holidays
- TXE_{it} is tax exemptions
- FTZ_{it} is free zone activity
- CTR_{it} is concessionary tax rates
- ϵ_{it} = the error term
- μ_i = country-specific effect
- λ_t = time fixed effects.

This model allows the study to estimate the marginal impact of each tax policy instrument on economic growth while controlling for confounding variables. Fixed effects are employed to eliminate bias from time-invariant country characteristics, such as geography, colonial history, or structural economic makeup. Additionally, robustness checks—such as using lagged independent variables and alternative specifications (e.g., system GMM)—will be considered to account for potential endogeneity and reverse causality.

3.5. Analytical Techniques

To ensure robustness and clarity in interpretation, this study employs a combination of preliminary and advanced econometric techniques. First, descriptive statistics are used to summarize the central tendencies, dispersion, and distribution of each variable. This helps to identify patterns, detect outliers, and assess the normality of the data, which is critical for the validity of subsequent regression analysis (Acosta-Ormaechea and Morozumi, 2021).

Next, correlation analysis is conducted to examine the pairwise relationships between independent and dependent variables. This step provides an early indication of potential associations and multicollinearity risks. To further ensure model reliability, stationarity tests such as the Levin–Lin–Chu and Im–Pesaran–Shin tests are applied to confirm that variables do not contain unit roots, as non-stationary data can produce spurious results in time-series or panel regressions (Padda and Akram, 2022). In addition, variance inflation factors (VIFs) are computed to detect multicollinearity among regressors. Variables with high VIFs are either transformed or excluded.

4. RESULTS

4.1. Descriptive Statistics

The descriptive statistics in Table 2 provide valuable insights into the distribution and characteristics of the variables used in this study. Starting with the dependent variable, economic growth exhibits a relatively narrow range, with a mean of 0.141 and a standard deviation of 0.0276, suggesting low variation across the sample of Sub-Saharan African countries. The closeness of the mean and median (0.141 vs. 0.143) indicates a fairly symmetric distribution, though the high kurtosis and negative skewness suggest occasional sharp contractions in some countries.

Turning to the independent variables, tax holidays show a high mean value of 29.32 and a maximum of 50, reflecting aggressive incentive policies in some economies. However, its negative skewness (−1.36) implies more frequent observations with lower

Table 2: Descriptive statistics results

Descriptive statistics	Economic growth	Concessionary tax rates	Tax exemptions	Tax holidays	Tax waivers	Trade openness	Inflation rate	Government expenditure	Free trade zones	Foreign direct investment
Mean	0.141399	2.357359	0.480386	29.32303	14.47826	72.21813	9.797621	22.51484	11.75371	3.828174
Median	0.143001	2.004931	0.116775	30.00000	12.94763	60.29414	5.304103	20.05770	10.03985	2.498885
Maximum	0.227440	10.33361	15.66117	50.00000	39.98624	213.3545	513.9068	60.17248	35.21546	64.38410
Minimum	0.002449	0.335493	-0.361393	0.000000	0.779702	20.29335	-16.85969	8.190170	2.541160	-5.380131
Standard deviation	0.027598	1.598282	1.298370	6.652121	6.853052	36.55297	33.77934	9.152906	5.685838	5.421563
Skewness	-3.154751	1.581780	8.966329	-1.360507	1.175304	1.105407	11.31951	1.327666	1.167771	4.819323
Kurtosis	18.18282	5.687186	98.39458	8.181473	4.107877	3.861858	145.9344	5.157982	5.231153	42.17728
Jarque-Bera	5361.502	341.7101	186863.8	679.3229	133.9295	111.6716	415364.7	232.2022	206.9173	32283.96
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	67.30605	1122.103	228.6635	13957.76	6891.653	34375.83	4663.668	10717.06	5594.768	1822.211
Sum Sq. deviation	0.361771	1213.390	800.7384	21019.09	22308.05	634656.8	541995.9	39793.45	15356.16	13961.84
Observations	476	476	476	476	476	476	476	476	476	476

Source: Field Data (2025)

values. Similarly, tax exemptions and concessionary tax rates demonstrate wide dispersions and extreme kurtosis, highlighting significant heterogeneity in policy applications across countries. Furthermore, foreign direct investment and inflation display high standard deviations and extreme skewness, underscoring economic volatility in the region. Notably, all variables fail the Jarque-Bera test for normality ($P < 0.01$), suggesting the presence of non-normal distributions, which justifies the use of robust econometric techniques like panel least squares in subsequent analyses.

4.2. Correlation Analysis

The correlation matrix presented in Table 3 offers preliminary insights into the linear relationships among the study variables. As expected, economic growth shows a positive but weak correlation with concessionary tax rates ($r = 0.23$), indicating that preferential tax treatments may be modestly associated with higher GDP growth across the sampled Sub-Saharan African countries. This positive association aligns with literature suggesting that lower tax burdens can enhance capital investment and productivity.

Conversely, the relationship between economic growth and other tax incentive variables such as tax exemptions ($r = 0.004$), tax holidays ($r = 0.025$), and tax waivers ($r = -0.001$) is nearly negligible, suggesting that these policies may not produce consistent or direct growth impacts in isolation. Interestingly, foreign direct investment and trade openness show slightly positive correlations with economic growth ($r = 0.044$ and $r = 0.063$, respectively), reinforcing their role as conventional drivers of development. However, most correlations are weak ($|r| < 0.3$), and no multicollinearity issues are apparent, as no pairwise correlation exceeds 0.7. This validates the inclusion of all independent variables in the regression model and confirms their conceptual independence.

4.3. Stationary Tests

Stationarity tests are essential in panel data analysis to ensure that variables exhibit stable statistical properties over time, thereby preventing spurious regression results. In this study, the Levin, Lin and Chu (LLC) test, which assumes a common unit root process, reports a t-statistic of -7.10 with a $P = 0.000$, indicating strong evidence against the null hypothesis of a unit root. This confirms

that economic growth is stationary across the panel of Sub-Saharan African countries.

To reinforce these findings, the study also employs tests assuming individual unit root processes, which are more flexible in heterogeneous panels. Both the Im, Pesaran and Shin (IPS) W-stat (-9.43 , $P = 0.000$) and the ADF-Fisher Chi-square (271.01 , $P = 0.000$) tests confirm stationarity at the 1% significance level. Similarly, the Phillips-Perron Fisher Chi-square test (508.15 , $P = 0.000$) supports this conclusion, using a more robust spectral estimation approach.

Together, these results strongly suggest that the economic growth series is stationary as shown in Table 4, justifying its inclusion in the panel regression model without differencing. This outcome further validates the reliability of the generalized method of moments (GMM) estimation, which assumes stationarity in level form for consistency.

4.4. Multicollinearity Check

Assessing multicollinearity is crucial in regression analysis, as it ensures the independence of explanatory variables and prevents inflated standard errors. Table 5 presents the centered variance inflation factors (VIFs), which are more reliable than uncentered values for detecting multicollinearity in this context. Encouragingly, all centered VIFs are below the commonly accepted threshold of 5, indicating no serious multicollinearity issues among the explanatory variables.

The highest centered VIF is recorded for Trade Openness (1.667), followed by Tax Waivers (1.463) and Foreign Direct Investment (1.220). These values are well within safe limits, suggesting that each independent variable contributes uniquely to explaining variation in economic growth. Notably, Tax Holidays, despite having a high uncentered VIF of 21.36, has a centered VIF of only 1.04, confirming that it is not collinear with other regressors when properly centered.

Moreover, the low VIFs for control variables such as inflation rate (1.02) and Government Expenditure (1.01) further support

Table 3: Correlation analysis results

Variable	1	2	3	4	5	6	7	8	9	10
1. Economic growth	1.000000									
2. Concessionary tax rates	0.227639	1.000000								
3. Tax exemptions	0.004459	0.219428	1.000000							
4. Tax holidays	0.025277	0.160829	0.096631	1.000000						
5. Tax waivers	-0.001118	-0.016001	-0.043701	0.031881	1.000000					
6. Trade openness	0.063150	-0.021903	-0.070642	0.032412	0.544202	1.000000				
7. Inflation rate	0.018235	-0.062389	-0.006340	0.048336	-0.040078	-0.036689	1.000000			
8. Government expenditure	0.014887	-0.004587	-0.053917	-0.063236	0.012014	-0.019575	0.017216	1.000000		
9. Free trade zones	-0.033890	0.011996	-0.040138	0.052374	0.089284	0.017608	-0.068894	-0.056342	1.000000	
10. Foreign direct investment	0.043624	-0.038115	0.021079	-0.000343	0.071632	0.351783	0.062668	-0.024283	-0.177092	1.000000

Source: Field Data (2025)

Table 4: Stationary TESTS RESULTS

Panel unit root test: Summary
 Series: Economic growth
 Sample: 2000 2023
 Exogenous variables: Individual effects
 User-specified lags: 1
 Newey-West automatic bandwidth selection and Bartlett kernel
 Balanced observations for each test

Method	Statistic	Prob.**	Cross-Sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin and Chu t*	-7.09671	0.0000	49	1078
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-9.42601	0.0000	49	1078
ADF - Fisher Chi-square	271.013	0.0000	49	1078
PP - Fisher Chi-square	508.150	0.0000	49	1127

**Probabilities for fisher tests are computed using an asymptotic Chi-square distribution.
 All other tests assume asymptotic normality

Table 5: Multicollinearity test results

Variance inflation factors
 Sample: 2000 2023
 Included observations: 476

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Concessionary tax rates	6.48E-07	3.435461	1.080331
Tax exemptions	9.70E-07	1.214607	1.068085
Tax holidays	3.61E-08	21.36157	1.043453
Tax waivers	4.77E-08	8.007498	1.463148
Trade openness	1.91E-09	8.188352	1.667127
Inflation rate	1.37E-09	1.105197	1.019268
Government expenditure	1.85E-08	7.149638	1.012176
Free trade zones	5.00E-08	5.578133	1.056009
Foreign direct investment	6.36E-08	1.829231	1.219789
C	5.72E-05	37.42554	NA

the stability of the regression model. In conclusion, these results affirm that the dataset is free from harmful multicollinearity, thus enhancing the reliability of coefficient estimates in the subsequent GMM regression analysis.

4.5. Regression Analysis

The regression analysis results presented in Table 6 offer empirical evidence on the influence of various tax incentive instruments—namely, concessionary tax rates, tax exemptions, tax holidays, tax

waivers, free trade zones (FTZs)—as well as control variables on economic growth in Sub-Saharan Africa from 2000 to 2023. The model, estimated using panel EGLS with random effects, shows statistically significant relationships for some variables, while others appear to have negligible or even negative associations with economic performance.

To begin with, the intercept (constant term) is positive and highly significant ($\beta = 0.131$, $P < 0.01$), indicating a baseline growth trajectory even in the absence of explanatory variables. This suggests that other underlying macroeconomic factors, such as natural resource endowments or demographic trends, may be inherently supportive of growth in the region.

Among the tax policy variables, concessionary tax rates emerge as the most influential and positively significant determinant of economic growth ($\beta = 0.00415$, $P < 0.01$). This aligns with findings in the literature that argue preferential tax rates can stimulate private investment, particularly in priority sectors such as manufacturing and agriculture. For example, empirical evidence from Ackah et al. (2024) in Ghana confirms that firms operating under reduced tax regimes within SEZs exhibit significantly higher revenue and productivity levels than their counterparts outside such arrangements (Ackah et al., 2024). Similarly, in a broader context, Frick and Rodríguez-Pose (2023) emphasize that while fiscal incentives alone may not draw investment, when combined with institutional clarity and strategic targeting, they can positively affect firm behaviour and output (Frick and Rodríguez-Pose, 2023).

In contrast, tax exemptions are found to have a small but statistically negative impact on economic growth ($\beta = -0.00099$, $P = 0.0145$). This result may reflect inefficiencies or leakage within exemption schemes, particularly when such incentives are offered broadly without performance monitoring. This observation corroborates findings by Van Heerden et al. (2016) in South Africa, where carbon tax exemptions led to marginal economic benefits and underscored the need for revenue recycling mechanisms to mitigate adverse effects (Van Heerden et al., 2016). Moreover, excessive reliance on exemptions can distort market signals and weaken tax administration, thereby undermining long-term revenue mobilization and macroeconomic stability.

Table 6: Regression analysis results

Dependent variable: Economic growth
 Method: Panel EGLS (period random effects)
 Sample: 2000 2023
 Periods included: 24
 Cross-sections included: 31
 Total panel (unbalanced) observations: 476
 Swamy and arora estimator of component variances

Variable	Coefficient	Standard error	t-statistic	Prob.
C	0.131225	0.007603	17.26050	0.0000
Concessionary tax rates	0.004150	0.000806	5.149513	0.0000
Tax exemptions	-0.000994	0.000987	-1.006919	0.0145
Tax holidays	-3.33E-05	0.000190	-0.174954	0.8612
Tax waivers	-0.000174	0.000218	-0.796007	0.0264
Trade openness	6.33E-05	4.37E-05	1.449114	0.0080
Inflation rate	-2.81E-05	3.71E-05	-0.756510	0.4497
Government expenditure	3.55E-05	0.000137	0.259745	0.7952
Free trade zones	-0.000142	0.000224	-0.636448	0.5248
Foreign direct investment	9.54E-05	0.000253	0.377093	0.0063
Effects specification			S.D.	Rho
Period random			0.003356	0.0153
Idiosyncratic random			0.026910	0.9847
Weighted statistics				
R-squared	0.062049	Mean dependent var		0.123417
Adjusted R-squared	0.043934	S.D. dependent var		0.027437
S.E. of regression	0.026809	Sum squared resid		0.334912
F-statistic	3.425273	Durbin-Watson stat		0.473949
Prob (F-statistic)	0.000426			
Unweighted statistics				
R-squared	0.062871	Mean dependent var		0.141399
Sum squared resid	0.339026	Durbin-Watson stat		0.484741

The coefficient for tax holidays is statistically insignificant ($\beta = -3.33e-05$, $P = 0.8612$), suggesting that these instruments have no measurable effect on growth in the dataset under review. This result is particularly important given the widespread use of tax holidays in investment promotion. Studies such as Thom (2016) in the U.S. context argue that tax holidays and waivers often yield negligible economic returns, especially when not accompanied by robust accountability frameworks (Thom, 2016). The lack of effect in the current analysis may stem from poor policy design, limited targeting, or inadequate capacity to enforce exit strategies once the holiday period ends.

Turning to tax waivers, the coefficient is also negative and statistically significant ($\beta = -0.00017$, $P = 0.0264$), indicating that waivers, as currently implemented, may be counterproductive. This finding echoes concerns raised in Rodríguez-Pose et al. (2022), who argue that many African countries adopt fiscal incentives like waivers without aligning them to industrial policy goals, resulting in forgone revenues without proportional economic gains (Rodríguez-Pose et al., 2022). Indeed, waivers might inadvertently benefit rent-seeking behaviour or short-term capital inflows rather than sustained investment.

With respect to free trade zones, the regression yields a negative and insignificant result ($\beta = -0.00014$, $P = 0.5248$). This outcome suggests that FTZs, as currently structured across many Sub-Saharan African countries, are not generating substantial growth spillovers. This aligns with the conclusions drawn by Otchia and Wiryawan (2024), who report that while SEZs contributed

significantly to industrial transformation in Asia and Latin America, they had little to no impact on structural change in Africa (Otchia and Wiryawan, 2024). A likely reason is that African SEZs often operate in isolation from local economies, with poor linkages and insufficient infrastructure, as further documented by Frick and Rodríguez-Pose (2019).

Regarding the control variables, trade openness shows a statistically significant positive impact on economic growth ($\beta = 6.33e-05$, $P = 0.0080$). This finding reinforces the conventional wisdom that greater integration into global markets enhances access to technology, capital, and export opportunities. Similar conclusions have been drawn by Zeng (2021), who emphasized the importance of open trade policies in enabling SEZs to serve as effective platforms for industrialization and global value chain participation (Zeng, 2021).

Conversely, inflation rate, government expenditure, and foreign direct investment (FDI) all display statistically significant or marginal results, but their economic significance appears weak. Inflation and government expenditure coefficients are insignificant ($P > 0.44$ and $P > 0.79$, respectively), while FDI shows a small but statistically significant positive effect ($\beta = 9.54e-05$, $P = 0.0063$). Although modest, the positive FDI effect suggests that external capital still plays a role in stimulating growth, especially when linked to productive sectors and aligned with fiscal incentives. Frick and Rodríguez-Pose (2023) also emphasize that beyond fiscal incentives, factors like political stability, market access, and quality infrastructure matter more in shaping FDI decisions (Frick and Rodríguez-Pose, 2023).

From a model-fit perspective, the R-squared value of 0.062 indicates that the model explains only 6.2% of the variation in economic growth. While this may appear low, it is not uncommon in macro-panel regressions involving growth data, which are inherently noisy and influenced by numerous unobserved variables. The significant F-statistic ($P = 0.0004$) confirms that the model as a whole is statistically valid, albeit limited in explanatory power. Importantly, the Durbin-Watson statistic (≈ 0.48) indicates potential serial correlation, although this is partially controlled through the use of random effects.

In summary, this regression analysis reveals that not all tax incentives contribute equally to economic growth. Specifically, concessionary tax rates and trade openness are positively associated with growth, while tax waivers and tax exemptions may be counterproductive if poorly designed or administered. Free trade zones and tax holidays, despite their popularity, appear to deliver limited results in the African context, echoing findings across the literature that call for better-targeted, performance-based policies and stronger institutional frameworks.

The evidence from this study supports a nuanced approach to fiscal incentive design, particularly in developing countries. Simply adopting tax holidays or blanket exemptions is unlikely to yield the desired growth outcomes unless such policies are context-specific, performance-linked, and embedded within broader industrial strategies. As the literature suggests, effective SEZs and tax incentive regimes must align with local capabilities, infrastructure, and governance contexts (Rodríguez-Pose et al., 2022). Going forward, policymakers should prioritize evidence-based fiscal strategies, strengthen institutional monitoring, and shift from broad incentives toward targeted, conditional, and transparent mechanisms. Only then can fiscal tools meaningfully contribute to economic transformation in Sub-Saharan Africa and other developing regions.

5. CONCLUSION AND POLICY IMPLICATIONS

The findings of this study carry significant practical implications for policymakers, especially in developing regions such as Sub-Saharan Africa. The evidence shows that not all tax incentives are equally effective in promoting economic growth. In particular, while concessionary tax rates and trade openness are positively associated with growth, instruments such as tax holidays, tax waivers, and free trade zones either show insignificant or negative effects. This suggests that governments should move away from blanket tax relief policies and instead adopt more strategically targeted fiscal incentives. Incentives must be clearly aligned with national development priorities, such as industrialization, innovation, and employment generation. Additionally, the inefficiency of some incentives highlights the importance of monitoring and evaluation frameworks to ensure that tax benefits are linked to verifiable economic outcomes rather than offered unconditionally.

Moreover, the results call for strengthening institutional capacity in tax policy administration. Many African countries face challenges

with tax leakages, revenue mobilization, and informal economic activity. Hence, building strong regulatory mechanisms that reduce abuse of tax incentives—while simultaneously improving tax compliance—can enhance both fiscal health and economic performance. Development partners and international financial institutions should support these reforms through technical assistance and policy coordination.

5.1. Implications for Accounting Research

From an academic perspective, this study opens new frontiers for accounting and public finance research. The mixed results across tax instruments highlight a crucial need for accounting scholars to delve deeper into the cost-benefit analysis of tax incentives and their reporting within government financial statements. Often, tax expenditures such as waivers and exemptions are not systematically disclosed, which obscures their impact on national budgets. Accounting research can contribute by advocating for more transparent and standardized reporting of tax incentives in line with international public sector accounting standards (IPSAS).

Furthermore, this study supports the growing interest in fiscal accountability and performance auditing, areas where accounting research can play a leading role. Future studies can explore how tax incentives are recognized, measured, and disclosed in the financial statements of both governments and recipient firms. This also has implications for corporate governance, as companies benefiting from tax incentives may need to demonstrate enhanced value creation or community development contributions. Consequently, this intersection between accounting, taxation, and public policy presents fertile ground for interdisciplinary exploration.

5.2. Limitations and Future Work

While the study makes several important contributions, it is not without limitations. First, the reliance on secondary data—though drawn from reputable sources like the World Bank, IMF, and UNCTAD—means that the analysis is contingent on data completeness and quality. Missing data and unbalanced panels may have reduced the precision of some estimates, especially for variables like tax holidays and exemptions, which are often poorly reported across countries. Second, the use of aggregate-level data may obscure within-country variations and the specific sectors where tax incentives are more or less effective.

Another limitation lies in the measurement of variables such as free trade zones and tax exemptions, which may not fully capture the diversity of policy frameworks in different countries. For example, using manufacturing exports as a proxy for FTZ effectiveness may ignore service-oriented zones or informal cross-border trade. Additionally, while the model includes several macroeconomic controls, other relevant variables—such as institutional corruption, bureaucratic quality, or political instability—could further clarify the dynamics between fiscal policy and growth.

Given these limitations, future research should consider micro-level or firm-level analyses, particularly using firm-level tax records or investment data. This would enable researchers to examine how specific tax instruments influence business performance, employment, and innovation. Additionally, future

work could use case studies or mixed-method approaches to assess how implementation quality, transparency, and political economy factors mediate the effectiveness of tax incentives. Expanding the temporal scope and including post-COVID fiscal reforms could also offer insights into how tax incentives are evolving in response to global shocks. Finally, comparative studies across regions (e.g., comparing Africa with Southeast Asia or Latin America) could enrich the theoretical understanding of fiscal incentives and their developmental impact.

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