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Research Article



Effect of Socioeconomic Factors on Internally Generated Revenue in Northwestern States in Nigeria

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ABSTRACT

The ability of subnational governments to generate internal revenue is a cornerstone of fiscal autonomy and sustainable development, particularly in regions facing structural socioeconomic challenges. This study investigated the effects of socioeconomic factors on Internally Generated Revenue (IGR) in Northwestern Nigeria, a region characterized by widespread poverty, limited fiscal autonomy, and institutional governance issues. Using Structural Equation Modeling (SEM) as the main analytical technique and ordinal logistic regression as a robustness test, the study provides empirical evidence on how these factors influence IGR performance. The SEM results revealed that all five socio-economic factors, poverty (POV), limited fiscal autonomy (LFA), unemployment (UNEMP), demographic factors (DEMF), and external factors (EXF) exert a positive and statistically significant influence on IGR. This indicates that improvements in governance, fiscal decentralization, population management, external partnerships, and socio-economic inclusion can significantly enhance the revenue-generating capacity of states in the Northwest. The model explained 81.2% of the variation in IGR ($R^2 = 0.812$), confirming a strong explanatory power. The ordinal logistic regression confirmed the robustness of the findings, yielding consistent direction and significance of all variables. The study concludes that a strategic, multi-sectoral approach that targets socio-economic reform, institutional strengthening, and fiscal empowerment is essential for improving internal revenue generation in the region. The findings offer critical insights for policymakers, development agencies, and local authorities aiming to enhance subnational fiscal sustainability in Nigeria.

1. Introduction

Internally Generated Revenue (IGR) is a critical component of fiscal autonomy and sustainable development for subnational governments. In Nigeria, the North West geopolitical zone, comprising states such as Kano, Kaduna, Katsina, Kebbi, Sokoto, Jigawa, and Zamfara, faces persistent socioeconomic challenges that significantly hinder its ability to generate adequate IGR. These challenges include high poverty rates, low literacy levels, unemployment, limited industrialization, and severe infrastructural deficits, all of which collectively suppress economic productivity and reduce the efficacy of revenue mobilization strategies (National Bureau of Statistics [NBS], 2023; Ogundele & Salihu, 2022). Sokoto State, for instance, continues to rank as the poorest state in Nigeria, with a poverty incidence of 87.73%, while Zamfara and Katsina follow closely behind (NBS, 2023). Such extreme poverty reduces the effective tax base, as a large segment of the population lacks the income capacity to pay taxes, levies, or service charges.

Similarly, the region records some of the lowest literacy rates

in the country. Katsina and parts of Kebbi have literacy rates below 20%, which significantly hampers human capital development and limits formal economic engagement (UNICEF, 2022). Infrastructural limitations such as inadequate roads, erratic electricity supply, and limited access to digital services further compound the region's developmental bottlenecks (World Bank, 2022). These deficits raise the cost of doing business, discourage private investment, and curtail local economic activity, thereby weakening IGR potential. Despite Nigeria's federal efforts to promote fiscal federalism, states in the North West continue to rely heavily on federally allocated revenues. This overdependence underscores systemic inefficiencies in local revenue governance, poor policy execution, and the absence of a robust institutional tax framework (Akinola et al., 2023; Usman & Ibrahim, 2022). Moreover, the growing insecurity and high informality of the regional economy continue to erode tax compliance and revenue visibility.

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Although, a lot of studies have examined the relationship between socioeconomic variables and IGR, limited empirical attention has been paid to the North West region, which possesses unique structural and institutional characteristics. This study seeks to bridge this gap by using a region-specific approach to investigate the influence of poverty, unemployment, fiscal autonomy, demographics, and external shocks as measures or indicators of socioeconomic factors on IGR performance. Through a structural equation modeling (SEM) framework supported by ordinal logistic regression for robustness, the study integrates both quantitative and qualitative data to provide actionable insights for state governments and development partners. Addressing these challenges is not merely a fiscal concern but a developmental imperative. Strengthening IGR capacity in the North West requires a context-sensitive policy framework that aligns tax reforms with investments in human capital, infrastructure, and institutional development. Doing so can empower subnational governments to enhance fiscal sustainability and reduce overdependence on federal allocations.

The main objective of this study is to examine the effects of socioeconomic factors on internally generated revenue in the North-Western States in Nigeria.

1. Literature Review

This section reviews literature research on conceptual, empirical, and theoretical studies of socioeconomic factors on internally generated revenue (IGR).

Conceptual Literature

This subsection presents conceptual literature on the effects of socioeconomic factors on internally generated revenue in the North Western Nigeria. The concept review includes internally generated revenue and socioeconomic factors.

2.1 Concept of Internally Generated Revenue

Internally Generated Revenue (IGR) refers to the income that state governments in Nigeria generate from local sources, independent of allocations from the Federation Account. These sources typically include personal income taxes, property taxes, business licenses, fines and fees, land-related revenues, and returns on investments in state-owned enterprises (CBN, 2021; FIRS, 2020). Conceptually, IGR represents the fiscal capacity and autonomy of a subnational government to fund its recurrent and capital expenditures using locally mobilized resources. It is a key indicator of a state's economic self-reliance and financial sustainability (Obadan, 2023). IGR is particularly critical in the context of Nigeria's fiscal federalism, where subnational units are expected to supplement federally allocated revenues through internally sourced income to meet local development needs (Ekeocha, 2012). However, disparities in IGR performance among states are often influenced by economic structure, administrative efficiency, population size, and governance quality. Research has shown that strengthening IGR is essential for achieving sustainable development, especially in federated systems where subnational units require financial independence to meet local needs (Agnes, 2023; Usman, 2022 & Hauwah, 2022). Low IGR performance in Nigerian states,

especially in the North, is often linked to over-dependence on oil revenues, poor tax compliance, and weak administrative capacity (Sani, 2019; Bakare & Olubokun, 2011). In the North West region, the challenge is more acute due to structural socioeconomic issues such as poverty and insecurity that reduce taxable economic activities and thus constrain IGR (This DayLive, 2022).

2.2 Concept of Socioeconomic Factor

Socioeconomic factors refer to the social and economic conditions that influence individuals, communities, and broader societal outcomes, including economic productivity, health, education, and governance. These factors encompass variables such as income level, employment status, education, housing, access to basic services, governance quality, and demographic characteristics. In the context of public finance and development studies, socioeconomic factors are often viewed as foundational determinants of a government's ability to generate and manage resources effectively (World Bank, 2019; UNDP, 2020). These variables operate at both micro and macro levels. At the micro level, they determine individual economic behavior such as tax compliance and spending. At the macro level, they shape the structure and performance of regional economies, influencing public revenue systems, poverty incidence, and administrative capacity (Ariyo & Fagbemi, 2004). In this study, socioeconomic factors are conceptualized as critical explanatory variables influencing Internally Generated Revenue (IGR) performance in the North-Western states of Nigeria. The core dimensions include poverty, unemployment, fiscal autonomy, demographic trends, and external economic influences.

2.3 Review of Empirical Literature

This section deals with a review of empirical literature on the effects of socioeconomic factors on internally generated revenue. Several scholars have examined the influence of socioeconomic factors on the capacity of Nigerian states to generate sufficient internally generated revenue (IGR), especially as more subnational governments seek fiscal self-sufficiency to reduce dependence on federal allocations. This review highlights key studies that explore various dimensions of the relationship between socioeconomic conditions and revenue generation. A study by Agnes, Okpanachi, and Samuel (2023) investigated Kaduna State's strategic approach to enhancing IGR through domestic economic reforms. Their study descriptive Ex-post facto design and highlighted significant progress, with Kaduna improving its IGR ranking from 11th in 2016 to 6th in 2021, surpassing Kano, a traditional economic leader in northern Nigeria. These improvements were attributed to reforms in tax policy, public sector modernization, and human capital development. The findings underscore the importance of effective governance in driving fiscal performance and demonstrate the potential for similar outcomes in other regions through targeted reform.

Olaoye et al. (2021) found that Nigerian states with greater fiscal autonomy mobilized higher IGR due to flexibility in revenue strategies. Olusola and Oluwakayode (2021) found that high unemployment led to informal sector expansion, which state governments increasingly taxed, thereby boosting IGR.

Omodero (2020) reported that in fiscally constrained environments, governments turn to the informal sector to enhance tax mobilization, indirectly increasing IGR. In another related study, Samuel (2021) assessed the impact of limited internally generated revenue on Nigeria's broader economic development. Employing an ex post facto research design and the Auto-Regressive Distributed Lag (ARDL) model, the study examined the interactions between IGR, poverty, unemployment, governance quality, and economic growth. Results showed that IGR, alongside poverty, unemployment perception and governance indicators, significantly influenced economic development, underscoring the interconnectedness of fiscal and institutional variables in national progress. Amah and Nwaogwugwu (2020) found that some forms of unemployment in Nigeria are integrated into informal systems that ironically generate revenue, though not sustainably. Adegbite (2022) suggested that local tax officials may extract bribes or levies that indirectly contribute to IGR, albeit unaccountably. World Bank (2019) Identified that densely populated urban centers in Nigeria account for a large share of state-level tax collections. Akinyemi and Olayiwola (2020) found that states with large working-age populations had better IGR performance due to stronger consumption and employment rates. Asiedu (2006) found that foreign direct investment (FDI) contributes to tax revenue through capital inflows and indirect job creation. Abiola & Asiweh (2018) showed that foreign donor programs helped improve Nigeria's tax administration systems, indirectly raising IGR.

Likewise, Hauwah et al. (2022) contributed to the discourse by evaluating the role of poverty alleviation and social inclusion in promoting sustainable development in Nigeria between 1970 and 2019. Using the Vector Error Correction Model (VECM), they found that economic and social factors such as GDP per capita, foreign direct investment (FDI), life expectancy, and female political representation positively influenced sustainable development. In contrast, environmental degradation and poverty gaps negatively affected it. These findings emphasize the multidimensional nature of socioeconomic development and its implications for fiscal capacity. Also, Sani and Ahmad (2019) explored the contribution of taxation to Nigeria's economic growth, noting the underperformance of non-oil tax revenue due to weak tax administration and enforcement. Their ARDL-based analysis over the 1979–2018 period revealed that property and corporate income taxes had a positive and statistically significant impact on GDP. These findings suggest that strengthening the tax system can yield substantial economic benefits. Similarly, John and Michael (2018) focused on the role of IGR in national development, highlighting the challenges of poverty, unemployment and poor fiscal discipline at the state and local levels. Their study, which used regression analysis on data from 1981 to 2016, showed a strong positive correlation between various types of governmental revenue (federal, state, and local) and real GDP. However, they also pointed to a lack of compelling empirical evidence supporting the long-term sustainability of IGR gains, calling for improved fiscal accountability. Baskaran and Lopes da Fonseca (2018) demonstrated that fiscal decentralization leads to more efficient local taxation and

higher.

In contrast to the positive results seen in Kaduna, Ifeanyi-chukwu (2021) examined land-based revenue in Abia State between 2007 and 2019. The study, which adopted a descriptive research approach, revealed a negative and significant relationship between land-based income and overall IGR. Abia consistently underperformed in revenue generation, with land-based income contributing less than 5% to total IGR. This shortfall was attributed to weak financial planning and governance, underscoring the need for digital solutions to reduce revenue leakage and improve transparency. Similarly, Samuel (2021), in a separate study, found no significant relationship between IGR and economic development when analyzing Nigeria's fiscal data using ARDL. These results challenge the assumption that increased IGR automatically leads to economic growth and suggest that other contextual factors may moderate this relationship. Eze and Ogiji (2016) found that higher poverty rates were associated with lower tax compliance and limited taxable economic activity, thus reducing IGR. Adusei and Awunyo-Vitor (2022) emphasized that poverty erodes the tax base and reduces voluntary compliance, thereby undermining revenue generation. Okonjo-Iweala and Osafo-Kwaako (2014) argued that decentralization without institutional capacity leads to inefficiencies and unemployment, potentially weakening IGR. Transparency International (2021) repeatedly asserts that poverty and unemployment reduces tax morale, undermines trust in institutions, and limits formal IGR. Fjeldstad and Heggstad (2012) found that corruption distorts tax systems and disincentivizes compliance, reducing long-term revenue capacity. Ogbonna and Ebimobewe (2016) noted that demographic pressures can strain public infrastructure and reduce per capita IGR if economic growth doesn't match population growth. Moyo (2009) warned that excessive reliance on aid creates dependency and disincentivizes domestic revenue mobilization. IMF (2021) highlighted that donor-funded projects often bypass local tax systems, contributing less to IGR than anticipated.

Outside Nigeria, Owusu (2015) studied internally generated funds (IGF) in Ghana's Kumasi Metropolitan Assembly (KMA) over the 2009–2014 period. The descriptive analysis showed that while IGF was allocated across several critical sectors, including education (26%), environment (20%), and economic initiatives (12%), the total revenue generated was insufficient to meet the region's socioeconomic needs. The study concluded that IGF had a limited impact on economic development, calling into question the fiscal adequacy of locally generated revenue in resource-constrained settings.

2.4 Theoretical Framework

This paper study the effects of socioeconomic factors on internally generated revenue in the North Western Nigeria is grounded on the following theory fiscal capacity theory. The Fiscal Capacity Theory provides a foundational framework for understanding the influence of socioeconomic factors on a government's ability to mobilize internal revenues. First introduced by Musgrave (1959) and later expanded by Lotz and Morss (1967), the theory posits that a government's revenue-

generating ability depends largely on its economic structure, administrative efficiency, and social development. In essence, fiscal capacity reflects a state's potential to raise revenue from domestic sources without relying on external transfers or borrowing.

In the context of North Western Nigeria, the application of Fiscal Capacity Theory is particularly relevant. The zone is characterized by high poverty rates, widespread unemployment, low educational attainment, and infrastructural challenges, all of which directly impact the size and productivity of the taxable economy. According to Bird, Martinez-Vazquez, and Torgler (2008), high poverty and unemployment reduce the proportion of the population that can meaningfully participate in the formal economy and pay taxes. This is consistent with Musgrave's view that the tax base must be broad and supported by sufficient economic activity for a state to attain fiscal sustainability (Musgrave, 1959). Similarly, Lotz and Morss (1967) emphasized that the capacity to tax is not merely a function of legal authority but also of socioeconomic realities such as income levels, literacy, and administrative effectiveness. In the case of North Western Nigeria, states such as Sokoto, Zamfara, and Kebbi have some of the lowest IGR performance in the country, which reflects the structural constraints predicted by fiscal capacity theory. Moreover, issues like weak governance further erode tax morale and administrative effectiveness, thereby weakening revenue performance (Bird et al., 2008; IMF, 2019). Thus, Fiscal Capacity Theory offers a comprehensive explanation for the observed relationship between socioeconomic disadvantages and poor IGR performance in the region. It supports the argument that improving education, employment, governance, and infrastructure is essential for strengthening the fiscal autonomy of North Western states.

2.5 Gaps in the Empirical Literature

Despite the growing body of literature on Internally Generated Revenue (IGR) in Nigeria, several critical gaps remain, particularly in relation to socioeconomic influences in the North-Western region. For example, while Agnes et al. (2023) examined fiscal reforms in Kaduna State and Ifeanyichukwu (2021) assessed land-based income in Abia State, there is a notable lack of empirical studies focused on other North-Western states, such as Sokoto, Kebbi and Zamfara states, that consistently report some of the lowest IGR figures, low literacy and highest poverty levels nationally. This indicates a significant regional research gap, where the unique socioeconomic challenges of these states, including widespread illiteracy, unemployment, and infrastructural deficits, are underexplored. Furthermore, while studies by Samuel (2021) and John & Michael (2018) investigate governance and revenue collection, they often overlook a comprehensive integration of multidimensional socioeconomic factors such as poverty depth, human development indices, informal sector dynamics, and demographic pressure in their analytical frameworks. This reveals a thematic gap in understanding the nuanced drivers of IGR performance at the subnational level.

In terms of methodology, many existing studies rely heavily

on quantitative techniques such as ARDL, regression, and VECM models. However, they often neglect qualitative insights that could illuminate the contextual realities of state and local governance, tax morale, and informal economic activities. Additionally, no studies were found to utilize advanced modeling techniques such as Structural Equation Modeling (SEM) or conduct robustness checks, which are essential for validating complex variable interactions and ensuring empirical reliability. In contrast to studies that merely highlight the need for reform, this study is designed to yield practical, evidence-based recommendations for subnational governments. Based on empirical findings, the study will develop policy frameworks tailored to the specific socioeconomic and institutional realities of each state in the North West. This bridges the policy gap by offering implementable strategies for IGR improvement. Recognizing the limitations of outdated data in many past studies, this research will use the most up to 2024 data, (2011–2024)

2. Research Methodology

The study focuses on Sokoto, Kebbi, and Zamfara States in Northwestern Nigeria. These states share cultural and economic similarities and have predominantly agrarian economies. Sokoto is known for agriculture and livestock trading. Kebbi is famous for rice production and fishing; some small-scale industrial activity. Zamfara: Agriculture and gold mining dominate the economy.

Each state's Internally Generated Revenue (IGR) is influenced by agriculture, trade, urbanization, governance, and infrastructure. A cross-sectional survey design was adopted, using structured questionnaires distributed to two respondent categories: revenue officers and revenue administration in the selected states. Analysis methods using Structural Equation Modeling (SEM) using Smart-PLS and ordinal logistic regression for robustness. The population includes senior officers from five key Ministries, Departments, and Agencies (MDAs) responsible for IGR in each of the three states. The study employed a purposive (judgmental) sampling technique. The States selected include Sokoto, Kebbi, Zamfara (based on performance in IGR). The population is 2,464 senior MDA officers. The sample size is 344 respondents, determined using Yamane's formula (1967) with a 5% margin of error. The study adapt a structured questionnaires designed by a previous study of Almustapha (2018). The questionnaire emphasized confidentiality and was guided by previous research (e.g., McGee, 2005; Pallant, 2011).

The variable use includes Internally Generated Revenue (IGR) and socioeconomic factors. The dependent variable is internally generated revenue, while the independent variable is socioeconomic factors; measured using a 5-point Likert scale. The socioeconomic factors were measured using poverty (POV), Limited Fiscal Autonomy (LFA), unemployment (UNEMP), Demographic Factors (DF), and External Factors (EF). All variables are measured using a 5-point Likert scale. This study adapt model with slight modifications, which is in line with the work of Agness (2023).

$$IGR = f(POV, LFA, UNEMP, DEMF, EXF) \dots\dots\dots(3.1)$$

Where: “IGR” represents internally generated revenue, “POV” is poverty, “LFA” denotes limited fiscal autonomy, “UNEMP” is unemployment, “DEMF” represents demographic factor, and “EXF” external factor. The justification for restating a functional equation model into a mathematical model lies in the need for precision, empirical validation, operationalization, interpretability, forecasting, and flexibility. This conversion allows the theory to be tested, applied, and utilized in real-world contexts, thereby turning abstract ideas into actionable insights. Thus, the mathematical equation model can be specified as:

$$IGR_i = \beta_0 + \beta_1 POV_i + \beta_2 LFA_i + \beta_3 UNEMP_i + \beta_4 DEMF_i + \beta_5 EXF_i + \mu_i \dots$$

Where: β_0 = Constant, β_1 – β_5 = coefficients of the parameters to be estimated, i = cross section. The equation 3.2 can be restated as an econometric equation model to capture the error term μ_i . Thus, the inclusion of the error term is justified as a crucial part of translating theoretical or functional models into econometric equations that reflect the complexity and randomness inherent in real-world data.

$$IGR_i = \beta_0 + \beta_1 POV_i + \beta_2 LFA_i + \beta_3 UNEMP_i + \beta_4 DEMF_i + \beta_5 EXF_i + \mu_i \dots$$

Techniques for Data Analysis

The study investigated the effects of socioeconomic factors on Internally Generated Revenue (IGR) in Northwestern Nigeria by analyzing relationships between IGR and various socioeconomic factors. The study employed both descriptive and inferential statistical methods of analysis for estimation of the parameters. The descriptive statistics were used to summarize and describe data patterns using frequencies, percentages, means, standard deviations, etc. Validity and reliability were assessed using Cronbach’s Alpha (acceptable threshold: ≥ 0.70) to assess the internal consistency of questionnaire items. Validity test was conducted using convergent Validity and discriminant Validity. The convergent Validity is acceptable if correlation values are ≥ 0.70 (strong) or between 0.50 and 0.70 (moderate). While the discriminant Validity is ensured when the square root of AVE for a construct exceeds its correlations with other constructs.

The inferential statistics employed for this study are SEM and logistic regression as a robustness test; other estimation procedures that follow include multicollinearity test via the

Variance Inflation Factor (VIF). The Inferential Statistics is used to examine the relationships and effects between socioeconomic factors and IGR. The justification for the use of Structural Equation Modeling (SEM) it handles complex, multi-variable relationships involving both observed and latent constructs. Allows for modeling direct and indirect effects. Accommodates measurement error, unlike basic regression. Assesses model fit (e.g., RMSEA, CFI, TLI). Applicability is effective when there are many variables or when multicollinearity exists. Ideal for modeling causal pathways and testing theoretical models. Model Equation:

$$Y_i = \lambda_i \eta + \epsilon_i \dots$$

Where: Y_i denotes the i -th observed indicators, λ_i represents the factor loading for the i -th observed indicator, η is the latent variable (construct), ϵ_i denotes the error term for i -th observed indicator. The study also employed the logistic regression technique as a robustness test to validate SEM results by checking if relationships hold across different model specifications. The techniques are appropriate for ordinal dependent variables (e.g., Likert-scale responses). It is capable of estimating cumulative odds of being in a higher response category. Model Equation:

$$\text{Log} \left(\frac{P(Y \leq j)}{1 - P(Y \leq j)} \right) = \alpha_j + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k \dots$$

Where: $P(Y \leq j)$ represents the probability of the outcome being in category j or lower, α_j is the threshold for each category, and β_1 – β_k represents the coefficient of the independent variable X_1 – X_k . In sum, this study uses a robust methodological framework combining descriptive statistics, SEM, and logistic regression to thoroughly analyze the determinants of IGR in Sokoto, Kebbi, and Zamfara. The combination enhances the validity, reliability, and interpretive depth of the research findings.

3. Results and Discussions of Findings

Descriptive statistics, regression analysis results, and inferential statistical analyses using PLS-SEM and ordinal logistic regression, the latter serving as a robustness check, which focuses on the display and analysis of data, are all included in this section.

Table 4.1: Descriptive Statistics Analysis

Varbs.	Mean	Media	Max	Min	Std.Dev.	Skew.	Kurt.	Obs
IGR	3.742	3.980	4.630	1.800	0.557	-1.313	5.217	344
POV	3.875	4.000	5.000	1.000	0.821	-1.623	6.505	344
LFA	3.488	4.000	5.000	1.000	0.944	-0.923	3.667	344
UNEMP	3.484	4.000	5.000	1.000	1.029	-0.663	2.389	344
DEMF	3.432	3.500	4.500	1.500	0.699	-0.589	2.672	344
EXF	3.791	4.000	5.000	2.000	0.608	-0.433	3.966	344

Source: Field Survey 2023

Table 4.1 presents descriptive statistics for socioeconomic variables influencing Internally Generated Revenue (IGR) in Sokoto, Kebbi, and Zamfara states, based on responses from 344 participants. The variables include internally generated

revenue and socioeconomic factors measured with poverty (POV), limited fiscal autonomy (LFA), unemployment (UNEMP), demographic factor (DEMF), and external factor (EXF). It presents key descriptive statistics, mean, median, maximum, minimum, standard deviation, skewness, and

kurtosis for six variables. All variables are measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The mean gives the average response level for each variable, showing the general perception or extent of influence. The higher average mean value for poverty of 3.8 and external factor (EXF) of 3.7 indicates stronger agreement that these factors influence IGR. Policies should prioritize these areas: poverty reduction and managing external shocks. The moderate average means values for limited fiscal autonomy (LF) of 3.4, unemployment (UNEMP) of 3.4, and demographic factor (DEMF) of 3.4 suggest these factors are relevant but possibly less urgent or with mixed effects, guiding policymakers to allocate resources accordingly.

The median shows the middle value, indicating the typical respondent's view, less sensitive to extreme values than the mean. The medians close to the mean (for instance, IGR median 3.980 vs mean 3.742) confirm that perceptions are generally consistent without much distortion from outliers. This strengthens confidence in the mean-based policy focus. If the median were far from the mean, it would signal polarized views, suggesting a need for targeted communication or differentiated policies for subgroups. The maximum value of 5 across variables means some respondents strongly agree that these factors are influential. This indicates that for all variables, some stakeholders see them as critical. Policymakers should consider the greatest concerns seriously, even if average perceptions are moderate, ensuring no key issues are overlooked. The minimum values ranging from 1.0 to 2.0 suggest that some respondents strongly disagree or are neutral about the impact of these factors. The presence of dissent or low agreement points to heterogeneous contexts or understanding among respondents. Policies should be flexible and context-specific, not one-size-fits-all.

The standard deviation measures the variability or spread of responses. The larger values for unemployment of 1.02, and limited fiscal autonomy of 0.94 indicate more disagreement or diversity in opinions, while smaller values for internally generated revenue (IGR) of 0.55 show consensus. The high variation suggests some factors (unemployment, limited fiscal autonomy) are contentious or unevenly experienced; targeted interventions or further investigations are needed before broad policy rollout. The lower standard deviation or Lower variation for internally generated revenue (IGR) and external factor (EXF) means a broad consensus, making it easier to implement uniform policies. The skewness value indicates asymmetry in the response distribution. All variables used in this study have negative values, suggesting that most respondents rate these factors toward the higher end (agree/strongly agree), with fewer rating them low. Since all factors are negatively skewed, it shows strong agreement overall on their importance, justifying urgent policy focus. For example, strong negative skew on poverty (POV) with a skewness value of -1.62 and internally generated revenue (IGR) of -1.31 means poverty and revenue generation are widely seen as critical and should be prioritized. Kurtosis measures the "peakedness" of a distribution. High kurtosis (greater than 3) means many respondents cluster around the mean, with heavy tails indicating a mix of strong consensus

with some extreme views. Variables like POV (6.505), IGR (5.217), and EXF (3.966) show high kurtosis, implying most respondents agree strongly, but some extreme views (either very low or very high) exist. Policymakers should consider the majority consensus while remaining alert to outlier perspectives that may signal marginalized or underrepresented groups requiring special attention.

Table 4.2: Results of the Reliability Test

S/N	Constructs	Cronbach's Alpha	No of Items
1	POV	0.6	5
2	LFA	0.7	5
3	UNEMP	0.6	5
4	DEMF	0.6	5
5	EXF	0.6	5
Cronbach's Alpha =		0.7	

Source: Field Survey 2024

Table 4.2 presents the findings from the reliability assessment of the effects of socioeconomic factors of IGR in Sokoto, Kebbi, and Zamfara states. Therefore, the results in Table 4.2 indicate satisfactory reliability, meeting the criteria set by Zikmund et al. (2010). The statistical significance of these results takes into consideration the number of items used for each construct.

Table 4.3: Results of the Convergent Validity Test

S/N	Constructs	Components Factor	Average Factor Loading
1	POV	0.840	0.70
2	LFA	0.823	0.70
3	UNEMP	0.783	0.70
4	DEMF	0.818	0.70
5	EXF	0.851	0.70
Kaiser-Mayer-Olkin 743 (0.000)			

Source: Field Survey 2023

Table 4.3 presents the results of the convergent validity assessment. The findings confirm that convergent validity is achieved, as the average factor loading for all constructs, namely POV, LFA, UNEMP, DEMF, and EXF, exceeds the recommended threshold of 0.50. Each construct demonstrates strong convergent validity, with an average loading of 0.70. Additionally, the Kaiser-Meyer-Olkin (KMO) measure is above 0.70, indicating adequate sampling adequacy. The associated p-values are statistically significant, typically at the 1% level or lower, further supporting the robustness of the factor structure and the appropriateness of the data for factor analysis.

Table 4.4: Results of the Discriminants Validity Test

S/N	Constructs	Variance Components Factor Extracted	Average Components Factors
1	POV	0.70	0.53
2	LFA	0.67	0.53

3	UNEMP	0.61	0.53
4	DEMF	0.66	0.53
5	EXF	0.73	0.53
Square Correlation Matrix 0.002			

Source: Field Survey 2023

Table 4.4 presents the results of the discriminant validity assessment. The findings indicate that discriminant validity is confirmed, as the average factor loadings for all constructs, POV, LFA, UNEMP, DEMF, and EXF are greater than the square of the correlation value (0.002). This demonstrates that each construct is empirically distinct from the others. Since the square correlation matrix value (0.002) is consistently lower than the average component loadings, the constructs do not overlap significantly, thereby validating their uniqueness. Consequently, the study is justified in proceeding with inferential statistical analyses using PLS-SEM and ordinal logistic regression, the latter serving as a robustness check.

Table 4.5: Results of the Path Coefficients (Total Effects)

Dependent Variable: IGR					
Variables	Org. Sample	Sample Mean	Std Devi	t-Statistics	P-value
POV > IGR	0.244	0.239	0.054	4.531	0.000***
LFA > IGR	0.388	0.392	0.055	7.099	0.000***
UNEMP > IGR	0.216	0.216	0.039	5.556	0.000***
DEMF > IGR	0.250	0.250	0.034	7.437	0.000***
EXF > IGR	0.179	0.174	0.041	4.337	0.000***

Source: Author's Computation Smart PLS 4

Table 4.5 presents the path coefficients (total effects) of various variables on Internally Generated Revenue (IGR), with the dependent variable being IGR. The t-statistics and p-values indicate the statistical significance of each relationship. The positive path coefficient of 0.244 indicates that poverty has a moderate positive effect on IGR. This suggests that, as poverty and unemployment levels increase, IGR also increases. The t-statistic of 4.531 is significantly higher than the typical threshold of 1.96, and the p-value of 0.000 confirms that this effect is statistically significant at a 95% confidence level. This could imply that increased poverty might lead to higher reliance on IGR as governments attempt to fund welfare or poverty-alleviation programs, or it might reflect a higher burden on taxpayers in poorer regions. However, this relationship could also be complex, and further analysis would be needed to understand the causal dynamics.

Interestingly, the analysis found a positive and statistically significant relationship between poverty and IGR. While this may seem counterintuitive since high poverty is typically associated with reduced revenue capacity, it may reflect unique local dynamics. The possible explanation for these counterintuitive results could be that in regions with limited formal employment, the informal sector often becomes the primary source of income. Governments may be tapping into this sector for taxation or levies, thus boosting IGR. In the face of rising poverty and unemployment, state governments might intensify efforts to mobilize resources to support social safety nets and public welfare programs. However, this correlation is unlikely to be sustainable in the long term. Persistently high poverty undermines economic stability and

erodes the tax base. Structural reforms aimed at poverty reduction and employment generation remain essential for maintaining and improving fiscal health over time. The findings of this study corroborate the findings of Olusola and Oluwakayode (2021) and Omodero (2020), but also contradict the findings of Eze and Ogiji (2016) and Adusei and Awunyo-Vitor (2022).

Limited fiscal autonomy showed the strongest positive and significant impact on IGR among the five variables. This emphasizes the critical role of fiscal decentralization in enhancing state revenue performance. When subnational governments have control over their revenue sources and spending decisions, they are more motivated to mobilize resources effectively. Fiscal autonomy allows State and local governments to design revenue policies suited to their specific economic and demographic conditions. These findings advocate for greater decentralization, backed by institutional capacity-building, to improve IGR generation. Strengthening fiscal autonomy could be a cornerstone of public finance reform in the region. This finding agrees with the findings of Baskaran and Lopes da Fonseca (2018) and Olaoye et al. (2021). The finding also disagrees with the findings of Okonjo-Iweala and Osafo-Kwaako (2014).

Demography had a positive and statistically significant impact on IGR, indicating that population dynamics play an important role in shaping local revenue capacity. Higher population densities, especially in urban areas, create concentrated economic activities that can be more easily taxed. A growing labor force contributes to increased production, consumption, and taxable income. Policymakers should leverage these demographic strengths by supporting urban infrastructure development, education, and job creation. These investments expand the tax base and ensure inclusive, sustainable revenue growth. The finding corroborates the findings of the World Bank (2019) and Akinyemi and Olayiwola (2020). But also disagrees with the findings of Ogbonna & Ebimobwei (2016). External factors, including foreign aid, Foreign Direct Investment (FDI), and international development support, were also found to have a moderate positive effect on IGR. External funding can improve physical and economic infrastructure, boosting local productivity and thus the tax base. International partnerships often come with technical assistance, which can improve state governance and revenue administration. However, reliance on external sources carries risks of volatility and dependency. Such support must be used strategically to build internal capacity, not substitute for it. Asiedu (2006) and Abiola & Asiweh (2018), but not in conformity with the findings of Moyo (2009) and IMF (2021).

In sum, the findings from Table 4.5 indicate that all five variables, poverty, unemployment, limited fiscal autonomy, demographic factors, and external influences, positively influence Internally Generated Revenue in North Western Nigeria. Among these, Limited Fiscal Autonomy emerged as the most impactful factor. These results point to the multifaceted nature of local revenue performance, where even seemingly adverse conditions like poverty and unemployment can correlate with higher IGR under specific circumstances. However, such patterns often mask underlying inefficiencies or

unsustainable practices. Ultimately, a strategic mix of empowerment, reform, and investment will be necessary to achieve sustainable and equitable revenue generation in the region.

However, the positive associations with poverty and unemployment signal a deeper structural challenge. They suggest that revenue growth may sometimes stem from informal or coercive collection methods, or from attempts to compensate for systemic weaknesses, rather than from robust and equitable economic development. For North Western Nigeria to achieve sustainable and inclusive revenue growth, policy reforms must go beyond revenue collection tactics. They must address the root causes of underdevelopment, build strong local institutions, and harness the full potential of the population. A balanced strategy that combines structural reforms, governance improvements, and strategic investment will ensure that Internally Generated Revenue becomes a reliable foundation for development rather than a reactive measure to fiscal shortfalls.

Robustness Test

This section presents a robustness check using ordinal logistic regression to determine whether the observed relationships remain consistent across alternative model specifications. Robustness checks serve to verify that the results are stable and not unduly influenced by specific assumptions or methodological choices (Agresti, 2018; Wooldridge, 2016; Long, 1997; Menard, 2002). By applying a different estimation technique, this analysis tests the reliability of the findings and ensures they are not the product of arbitrary analytical decisions.

Table 4.6: Results of the Model Fitting Information

Model	-2Log Likelihood	Chi-square	Df	P-value
Intercept only	1696.558			
Final	1430.556 ^b	265.992	8	0.000

Source: Author's Computation, SPSS 20

Table 4.7: Results of the Goodness-of-Fit

Model	Chi-square	Df	P-value
Pearson	248.465	390	1.000
Deviance	327.191	390	0.991

Source: Author's Computation, SPSS 20

Table 4.8: Results of the Socio-Economic Factor Affecting IGR

Dependent Varb.: SEFIGR				
Indp. Varb.	Coefficient	Std. Error	Exp(B)	P-Value
POV	-12.15	1.803	3.240	0.000***
LFA	36.96	3.200	8.252	0.000***
UNEMP	32.55	3.128	2.654	0.000***
DEMF	-31.51	2.466	7.539	0.000***
EXF	1.589	0.203	6.775	0.000***
Pseudo R ² = 24.3%, F-Statistics = 10.6621 (0.0000)				

*Source: Author's Computation, Eviews 12, Note: Significant at 1 % (***), 5 % (**), 10 % (*)*

Table 4.9: Results of the Test of Parallel Line

Model	-2 Log Likelihood	Chi-Square	Df	P-value
Null Hypothesis	0.000			
General	0.000	0.000	390	1.000

Source: Author's Computation, Field Survey 2024, SPSS 20

Tables 4.6, 4.7, 4.8, and 4.9 present the results of the robustness test regression analysis examining the socio-economic factors affecting IGR (SEFFIGR) in the selected states as a robustness test. The independent variables include poverty (POV), limited fiscal autonomy (LFA), unemployment (UNEMP), demographic factors (DEMF), and external factors (EXF). The purpose of the robustness test is to determine whether the main result holds across different techniques, thereby increasing the reliability of the result. The two outputs using SEM (Structural Equation Modeling) results and Ordinal Logistic Regression results in the table both address the effects of socio-economic factors on Internally Generated Revenue (IGR), but use different techniques, each with its own assumptions and interpretations. The findings largely hold across SEM and ordinal logistic regression, especially for key constructs like poverty, limited fiscal autonomy, unemployment, demographic, and external factors. SEM provides stronger explanatory power due to its modeling of latent variables and measurement error, whereas the ordinal logistic model offers a direct interpretation of effects with observable indicators. This suggests the results of this finding are reliable, justified by strong statistical support, theoretical coherence, and methodological triangulation. They can be confidently used for policy recommendations or further research.

Test of Hypothesis

To test the formulated hypotheses, the study used ordinal logistic regression analysis. The criterion for accepting or rejecting the null hypotheses is based on the probability (p-value) at 5% and 1% levels of significance, respectively.

Table 4.9 Test of Hypotheses Summary Outcomes

Null hypotheses (H0) were rejected

S/N	Null Hypotheses
P-value	Verdict

HO1	Socioeconomic factors does not influence IGR
0.000***	Rejected

Source: Authors' Computation

H0: Socioeconomic factors do not significantly influence internally generated revenue in the Northwestern States.

The results in Table 4.8 reveal that the findings of the study indicated that there is a statistically significant association amid socioeconomic factors, which include poverty, unemployment, limited fiscal autonomy, demography, and external factors,

with IGR in the selected states of Sokoto, Kebbi, and Zamfara. Therefore, the data provide evidence for rejecting the null hypothesis and accepting the alternative hypothesis, which states that socioeconomic factors influence IGR in the selected states

4. Discussion of Findings

This section presents the discussion of findings on the effects of socioeconomic factors on IGR among the selected Sokoto, Kebbi, and Zamfara states in the northwestern states of Nigeria.

Table 4.8 of the logistic regression analysis presents the results of the analysis on the socioeconomic factors of IGR. The study revealed there is a positive and significant relationship amid the limited fiscal autonomy coefficient of 36.96, demographic factors of -31.51, external factors of 1.589, and IGR generation. A negative and substantial connection exists between the poverty coefficient of -12.15 and the unemployment coefficient of 32.55 in relation to IGR in these selected states, which all appear to have a p-value of $p < 0.000^{***}$. This conclusion implies that the regression analysis reveals that IGR generation in Sokoto, Kebbi, and Zamfara states is influenced by a combination of socio-economic factors, with poverty, limited fiscal autonomy, unemployment, demographic shifts, and external factors being key determinants. Policymakers should focus on addressing the negative impacts of poverty and unemployment while leveraging opportunities for fiscal autonomy and global economic conditions to enhance revenue generation. The results of this study agree with those of the Bureau of Economic and Business Affairs (2024) and Oyebola (2022). Furthermore, the finding contradicts the findings of Jacob and Victor (2023) and Sokoh (2023).

5. Conclusion and Recommendations

This section deals with conclusion and recommendations of socioeconomic factors of IGR in Sokoto, Kebbi, and Zamfara states.

Conclusion

Socioeconomic conditions, such as poverty, unemployment, limited fiscal autonomy, demography, and external factors, are the most influential environmental factors of fiscal performance of internally generated revenue. Poverty and unemployment alone harm IGR in the selected states. The study concludes that IGR is highly sensitive to poverty and unemployment levels, fiscal autonomy, and demographic shifts.

Recommendations

In view of the study's findings and conclusions, the following recommendations are provided to address the problems identified in section one of the study:

Addressing Poverty and Unemployment: The governments of Sokoto, Kebbi and Zamfara states should come out with policies that would tackle socio-economic challenges such as poverty and unemployment through targeted poverty alleviation programmes, job creation and skills development,

entrepreneurship and innovation, and a focus on the younger population, encouraging them to participate in economic activities; this will indirectly boost IGR by fostering economic stability and growth.

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