

Dependency Ratios and the Changing Geography of Intergenerational Burden in Taraba State, Nigeria

Karma Magaji, Oliver Philip, Abdulhamid Sabo & Paul Yakojo

Department of General Studies, College of Agriculture, Science and Technology, Jalingo, Taraba State, Nigeria

*Corresponding Author

DOI: <https://doi.org/10.51244/IJRSI.2026.1307000213>

Received: 22 July 2026; Accepted: 28 July 2026; Published: 07 August 2026

ABSTRACT

This study examined dependency ratio dynamics and their demographic, spatial, and fiscal implications across the sixteen Local Government Areas (LGAs) of Taraba State, Nigeria, with reference to national development priorities and the Sustainable Development Goals (SDGs). The study adopted a sequential explanatory mixed-methods research design, integrating secondary demographic data with a structured household survey. Secondary data were obtained from the National Population Commission, National Bureau of Statistics, Taraba State Government publications, and international demographic databases, while primary data were collected from 450 household heads across the sixteen LGAs of Taraba State, of which 437 questionnaires (97.1%) were valid for analysis. Descriptive statistics, dependency ratio estimation, and spatial classification techniques were employed to analyse the data. The findings revealed that 51.0% of surveyed households were classified as having high dependency, while 32.7% had moderate dependency, indicating that 83.7% of households experienced moderate-to-high demographic burden. Spatial analysis further showed marked geographical disparities, with eight LGAs (50.0%) classified as high dependency, seven LGAs (43.8%) as moderate dependency, and only Jalingo (6.3%) classified as low dependency. The findings support the propositions of Demographic Dividend Theory and Fiscal Federalism Theory, demonstrating that demographic structure significantly influences household welfare, public service demand, and fiscal sustainability. The study concludes that reducing dependency burden through demographic-sensitive planning is essential for accelerating progress towards SDG 1, SDG 3, SDG 4, and SDG 8. It recommends the integration of dependency indicators into fiscal allocation frameworks, increased investment in reproductive health, education, and employment generation, and the institutionalisation of routine LGA-level demographic monitoring to support evidence-based development planning in Taraba State.

Keywords: Dependency ratio; intergenerational burden; demographic burden; demographic dividend; fiscal federalism; sustainable development; Taraba State; Local Government Areas.

BACKGROUND

Demographic structure is one of the most consequential yet underappreciated determinants of a nation's development trajectory. The composition of a population the relative share of young dependants, working-age adults, and elderly dependants fundamentally shapes labour supply, savings rates, public expenditure patterns, and the fiscal capacity of states to participate meaningfully in domestic and international development obligations. The concept of dependency ratio, defined as the ratio of non-working-age population to working-age population, provides a summary measure of this demographic burden and has become a central variable in analyses of economic growth, social policy, and public finance (Bloom et al., 2003; Lee & Mason, 2011).

In sub-Saharan Africa, high total dependency ratios driven primarily by persistently high fertility rates and large youth populations have been identified as a significant structural constraint on economic growth and poverty reduction. Nigeria, with an estimated population exceeding 220 million and a median age of

approximately 18 years, carries one of the highest dependency burdens globally; the country's age dependency ratio was recently placed at approximately 79 dependants per 100 working-age adults, well above the global average of about 58 (World Bank, 2024, based on United Nations Population Division estimates), with the National Bureau of Statistics likewise reporting marked subnational variation in youth dependency. In the North-East geopolitical zone, to which Taraba State belongs, this burden is further exacerbated by a combination of high fertility, limited economic diversification, conflict-induced displacement, and low female labour force participation. The 2018 Nigeria Demographic and Health Survey placed the North-East's total fertility rate at approximately 6.1 children per woman, among the highest of Nigeria's six geopolitical zones (National Population Commission [NPC] & ICF, 2019), while protracted insurgency-related displacement across the zone including Taraba has repeatedly disrupted household economies and service delivery (International Organization for Migration [IOM], 2022).

Taraba State presents a particularly compelling case study. The state's population has grown rapidly, driven by high fertility rates estimated at over 5.5 children per woman, while its formal economy constrained by poor infrastructure, limited industrialisation, and recurrent security challenges has absorbed only a small fraction of the working-age population into productive employment (Oruonye & Ahmed, 2017a; National Population Commission, 2006). The resulting demographic imbalance creates not only a household-level welfare problem but also a broader fiscal problem: a state with a disproportionately large dependent population must allocate substantially higher per-capita public expenditure to education, healthcare, and basic social services while drawing on a comparatively narrow tax base.

In this study, 'intergenerational burden' denotes the demographic and fiscal pressure that a state's non-working-age population (children and the elderly) places on its working-age population and, by extension, on public resources. This household- and state-level burden has a direct bearing on Nigeria's ability to meet its obligations under international development frameworks: under agreements such as the Sustainable Development Goals (SDGs), the International Conference on Population and Development (ICPD) Programme of Action, and the African Union Agenda 2063, Nigeria and by extension its constituent states have assumed specific targets related to universal education access, child and maternal health, poverty reduction, and demographic dividend realisation. The extent to which subnational units such as Taraba State can progress toward these targets is directly conditioned by the fiscal space available after meeting the recurrent demands of high dependency populations. Understanding the geography of this intergenerational burden its spatial variation, its fiscal implications, and its development consequences is therefore critical both for subnational planning and for Nigeria's performance against its international development commitments.

Against this background, this study is designed to provide a spatially disaggregated analysis of dependency ratio dynamics and their burden implications in Taraba State, contributing empirical evidence to debates on demographic governance, intergovernmental fiscal federalism, and subnational development planning in Nigeria.

PROBLEM STATEMENT

Despite the acknowledged significance of demographic structure for development outcomes, systematic subnational analyses of dependency ratio dynamics and their burden implications remain rare in the Nigerian literature. Most existing work operates at the national or zonal level, with limited attention to the spatial heterogeneity of dependency burdens within states. This represents both an analytical and policy gap, as intergovernmental resource allocation decisions, social service planning, and development target-setting require subnational-level evidence.

In Taraba State, the problem is acute for several reasons. First, the state consistently ranks among the lowest performers on key human development indicators, including primary school completion rates, child mortality, maternal mortality, and poverty headcount ratios (National Bureau of Statistics, 2022; UNICEF Nigeria, 2021). These outcomes are not independent of demographic structure: high dependency ratios place upward pressure on the demand for social services while constraining the fiscal capacity to supply them. Second, Taraba State's federal allocation its primary revenue source is calculated partly on the basis of population, which, while

reflecting demographic size, does not adequately capture the differentiated service burden imposed by age structure. Third, the state's sixteen local government areas (LGAs) exhibit marked variation in economic activity, urbanisation, fertility behaviour, and age structure, yet this variation is poorly documented and underutilised in planning.

At the international level, Nigeria is a signatory to multiple frameworks that carry implicit and explicit targets for demographic outcomes and social investments. High dependency ratios in states like Taraba directly constrain Nigeria's aggregate progress on SDG 1 (No Poverty), SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 8 (Decent Work and Economic Growth). Yet the relationship between subnational demographic burden and aggregate national performance on these indicators has not been systematically documented for Taraba State.

This study addresses these gaps by providing a spatially disaggregated profile of dependency ratio patterns across Taraba State, assessing the fiscal implications of these patterns, and examining the consequent burden on the state's capacity to fulfil its obligations within national and international development frameworks.

OBJECTIVES OF THE STUDY

The broad objective of this study is to examine the relationship between dependency ratio dynamics and the changing geography of intergenerational burden in Taraba State, Nigeria. The specific objectives are:

- i. To profile the sociodemographic characteristics of household respondents across selected local government areas of Taraba State.
- ii. To determine the current youth, old-age, and total dependency ratios across Taraba State's local government areas using secondary demographic data.
- iii. To map the spatial distribution of dependency burden across Taraba State's local government areas and identify high-burden zones.
- iv. To assess household-level perceptions of the fiscal and social-service burden imposed by high dependency ratios on public expenditure in education, health, and social welfare in Taraba State.

LITERATURE REVIEW

Conceptualising Dependency Ratio: Definitions and Measurement

The dependency ratio is conventionally defined as the ratio of the combined youth (ages 0-14) and elderly (ages 65 and above) populations to the working-age population (ages 15-64), expressed per 100 working-age adults. The youth dependency ratio captures the burden imposed by a disproportionately large child population on the productive workforce, while the old-age dependency ratio reflects the growing burden of elderly care in ageing societies. In sub-Saharan African contexts, the total dependency ratio is dominated by the youth component, reflecting high fertility and relatively low life expectancy at birth (United Nations Population Fund [UNFPA], 2019).

Lee and Mason (2011) argue that dependency ratios are not merely demographic descriptors but structural determinants of macroeconomic performance. High dependency ratios are associated with lower savings rates, reduced per-capita investment, constrained human capital accumulation, and heightened fiscal pressure on public budgets. The National Transfer Accounts framework developed by Lee and Mason provides a methodology for quantifying the economic flows between age groups, making it possible to estimate the scale of public and private transfers required to support high-dependency populations a methodology informing the analytical approach of this study.

In Nigeria, dependency ratio data are primarily sourced from decennial census figures and household surveys conducted by the National Population Commission (NPC) and the National Bureau of Statistics (NBS). The 2006 Census the most recent nationally accepted enumeration reported a national youth dependency ratio of approximately 89 per 100 working-age adults, with North-East states recording some of the highest figures (National Population Commission, 2006). More recent macro-level estimates place Nigeria's overall age

dependency ratio at approximately 79 per 100 working-age adults, still well above the global average (World Bank, 2024, based on United Nations Population Division data), pending the delayed release of a fully updated national census.

Dependency Ratio, Economic Growth, and Household Burden: Evidence from Nigeria

The macroeconomic consequences of high dependency ratios in Nigeria have been examined by several scholars. Adawo (2011) assessed the relationship between human capital, dependency-related structural variables and economic growth in Nigeria using time-series data. Consistent with this, a recent ARDL-based investigation covering 1981-2021 confirmed a statistically robust long-run relationship between Nigeria's demographic structure and GDP per capita, showing that increases in the working-age population share raise per-capita GDP while growth in the aged-dependent population depresses it, with the young-dependent population's effect conditioned by informal economic participation (Alawode & Lawal, 2025). These findings reinforce the broader cross-country demographic dividend literature (Bloom et al., 2003) while illustrating Nigeria-specific nuances tied to informality and weak human-capital absorption.

Related Nigerian household-level evidence similarly points to a link between dependency burden and constrained savings and human-capital investment, with this effect argued to be most pronounced in predominantly agrarian northern states (Nwosu, 2020). At the household level, high dependency ratios translate into poverty persistence: households with more dependants relative to earners face higher per-capita poverty rates, greater food insecurity, and lower educational investment per child (National Bureau of Statistics, 2022). In Taraba State specifically, Oruonye and Ahmed (2017b) documented the demographic dimensions of poverty in the state, noting that high fertility and large household sizes are among the proximate drivers of poverty concentration in rural LGAs.

The connection between subnational dependency patterns and public expenditure obligations has been explored in the federalism literature. Musa and Bello (2018) examined intergovernmental fiscal transfers in Nigeria's North-East and found that revenue allocation formulas underweighted demographic need indicators such as age structure and dependency burden, creating a mismatch between the fiscal resources available to high-dependency states and the actual cost of servicing their social obligations. This structural mismatch has direct relevance to the burden analysis in the present study.

Intergenerational Burden, Development Frameworks, and Subnational Performance

The concept of 'intergenerational burden' used in this study, and its bearing on Nigeria's international development commitments, is situated within the framework of global development governance. Under the 2030 Agenda for Sustainable Development, United Nations member states including Nigeria have committed to achieving specific targets across 17 SDGs by 2030. Progress toward goals such as SDG 1 (No Poverty), SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 8 (Decent Work and Economic Growth) is directly conditioned by demographic structure, particularly the scale of the dependent population requiring social investment (United Nations, 2015).

Nigeria's Voluntary National Reviews submitted to the UN High-Level Political Forum have consistently identified subnational heterogeneity as a core challenge in SDG implementation, noting that aggregate national progress masks substantial variation across states and local government areas (Federal Republic of Nigeria, 2020). States with high dependency ratios and low fiscal capacity characteristics that apply to Taraba State are disproportionately behind on social-sector SDG targets. This challenge is compounded in Taraba by protracted North-East insecurity, which has displaced households, disrupted schooling and health access, and strained already limited social infrastructure across affected LGAs (IOM, 2022). The ICPD Programme of Action (1994), reaffirmed at the Nairobi Summit in 2019, similarly obligates Nigeria to achieve universal access to sexual and reproductive health services, quality education for all children, and full demographic data availability obligations that are substantially harder to meet in high-dependency subnational contexts.

The African Union Agenda 2063 further frames Africa's demographic profile as both a challenge and an opportunity: the 'demographic dividend' concept holds that a reduction in the youth dependency ratio,

combined with investments in education and health, can generate a sustained economic growth dividend (African Union Commission, 2015). However, realising this dividend requires the kind of deliberate subnational demographic governance investment that has remained limited in Taraba State. Documenting the current burden and its spatial distribution is a necessary empirical precondition for such governance action.

Spatial Variation in Demographic Burden in Nigeria

Geographic disaggregation of demographic data in Nigeria reveals substantial intra-state variation in dependency patterns. Studies on population dynamics in North-East Nigeria have documented that urban LGAs typically state capitals and major commercial centres exhibit lower fertility rates, higher female labour force participation, and consequently lower dependency ratios than rural hinterland LGAs (Oruonye & Ahmed, 2017a; National Population Commission, 2006). In Taraba State, the contrast between Jalingo (the state capital and most urbanised LGA) and predominantly rural LGAs such as Bali, Gashaka, Lau, and Yororo is expected to reflect this urban-rural demographic gradient an expectation that the present study's empirical results, presented in Section 7, substantially confirm.

The spatial dimension of demographic burden is practically significant because it informs the targeting of social investment and the design of intergovernmental transfers. An LGA-level analysis of dependency ratios in Taraba State therefore provides a more actionable evidence base than state-level aggregates, enabling planners and policymakers to direct resources toward areas of greatest demographic need while also contributing to the emerging literature on spatial demography in Nigeria's North-East zone.

Theoretical Framework

Two complementary theoretical frameworks serve as the foundation for this investigation. First, the Demographic Dividend Theory, elaborated by Bloom, Canning, and Sevilla (2003) and adapted to the African context by the African Union Commission (2015), provides the macroeconomic rationale for treating dependency ratio dynamics as a driver of development outcomes. The theory posits that a decline in youth dependency ratio driven by falling fertility releases productive resources for investment in human capital and economic diversification, generating a demographic dividend. Where this transition is delayed or absent, as in Taraba State, the corresponding economic drag is measurable and prolonged, a pattern corroborated by recent national-level econometric evidence showing that a growing aged-dependent population depresses per-capita GDP while an expanding working-age share raises it (Alawode & Lawal, 2025).

Second, Fiscal Federalism Theory drawing on Oates (1999) and its applications to Nigerian intergovernmental finance provides a framework for examining the relationship between demographic burden and public expenditure obligations across levels of government. In a federal system, subnational units with high-dependency populations bear disproportionate expenditure burdens relative to their fiscal capacity, unless intergovernmental transfers are designed to compensate for demographic need differentials (Musa & Bello, 2018). These two frameworks together provide the conceptual architecture for linking demographic data (dependency ratios) to policy outcomes (fiscal burden, development performance, and international obligations).

METHODOLOGY

Study Area

This study was conducted in Taraba State, located in the North-East geopolitical zone of Nigeria between latitudes 6°30'N and 9°30'N and longitudes 10°00'E and 12°30'E. The state covers an area of approximately 54,473 km² and has a projected population of approximately 3.7 million people (National Bureau of Statistics, 2023). Taraba State is predominantly agrarian, with a population structure characterised by high fertility, a large proportion of young dependants, and limited formal employment absorption. The state comprises sixteen (16) local government areas, which served as the primary spatial units of analysis. The study covered all sixteen LGAs for both secondary data analysis and primary survey data collection, with household respondents drawn from every LGA through the multi-stage sampling procedure described in Section 5.3, ensuring representation of the state's demographic, geographic, and urban-rural diversity.

Research Design

The study adopted a sequential explanatory mixed-methods research design, in which quantitative analysis preceded qualitative interpretation. During the first phase, secondary quantitative data on population age structure, fertility rates, and public expenditure were analysed to estimate youth, old-age, and total dependency ratios, as well as fiscal burden profiles across all sixteen Local Government Areas (LGAs) of Taraba State. In the second phase, primary survey data were collected from household heads across all sixteen LGAs to examine household-level perceptions of demographic burden, access to social services, and awareness of national and international development obligations. The integration of secondary and primary data provided both comprehensive spatial coverage and contextual insight, thereby strengthening the validity and interpretability of the study findings.

Population and Sampling

The target population for the primary survey comprised household heads across all sixteen (16) Local Government Areas (LGAs) of Taraba State. The inclusion of all LGAs ensured comprehensive geographical coverage of the state and enabled the study to capture variations in demographic characteristics, dependency burden, and household perceptions across both urban and rural communities.

Using the Taro Yamane (1967) formula at a 5% level of precision and an estimated household population of approximately 1.2 million households across the sixteen LGAs (National Bureau of Statistics, 2023), a minimum sample size of 400 household respondents was obtained. To improve representativeness and account for possible non-response, incomplete questionnaires, and data-quality exclusions, a total of 450 questionnaires were administered across the sixteen LGAs.

A multi-stage sampling procedure was adopted. In the first stage, all sixteen LGAs of Taraba State were included in the study. In the second stage, wards were selected within each LGA using simple random sampling. In the third stage, households were selected through systematic random sampling based on available enumeration area maps and household listings. The number of questionnaires allocated to each LGA was determined proportionately according to the estimated household population to ensure equitable representation of all areas of the state.

This sampling procedure enhanced the representativeness of the study by ensuring that households from every Local Government Area of Taraba State had an opportunity to participate, thereby improving the generalisability of the findings to the entire state.

Instrument for Data Collection

Data for this study were obtained from both secondary and primary sources. Secondary data were extracted from the 2006 National Population and Housing Census (National Population Commission [NPC], 2006), National Bureau of Statistics (NBS) Demographic Statistics Bulletins (2022, 2023), Taraba State Ministry of Finance budget documents, and demographic databases of the World Bank and United Nations Population Fund (UNFPA). These data provided information on population age structure, fertility, household estimates, and public expenditure used to estimate dependency ratios across the sixteen (16) Local Government Areas (LGAs) of Taraba State.

LGA-level populations aged 0–14 years, 15–64 years, and 65 years and above were compiled from the 2006 census and updated using NBS demographic projections. Where age-specific LGA estimates were unavailable, proportional projections based on official population growth rates were applied to derive comparable age distributions for all LGAs, which were subsequently used to compute youth, old-age, and total dependency ratios.

Primary data were collected through a structured questionnaire administered to household heads across all sixteen LGAs. The questionnaire comprised four sections covering respondents' socio-demographic characteristics, household dependency status, access to education, healthcare and social welfare services, and perceptions of demographic burden, public expenditure, and development obligations.

Data Analysis

Secondary demographic data were analysed to estimate youth dependency ratios, old-age dependency ratios, and total dependency ratios for each of the sixteen Local Government Areas of Taraba State. The dependency ratio was computed using the internationally accepted demographic formula:

Dependency Ratio = [(Population aged 0–14 + Population aged 65 years and above) ÷ Population aged 15–64 years] × 100

The computed dependency ratios were subsequently used to classify each Local Government Area (LGA) according to its demographic burden. The classification thresholds were adapted from internationally recognised demographic practice and benchmarked against Nigeria's national age dependency ratio of approximately 79 dependants per 100 working-age persons (World Bank, 2024). Accordingly, the LGAs were classified as follows:

- i. Low Dependency (fewer than 60 dependants per 100 working-age persons): Jalingo.
- ii. Moderate Dependency (60–90 dependants per 100 working-age persons): Donga, Gassol, Ibi, Sardauna, Takum, Ussa, and Wukari.
- iii. High Dependency (more than 90 dependants per 100 working-age persons): Ardo Kola, Bali, Gashaka, Karim Lamido, Kurmi, Lau, Yorro, and Zing.

These classifications were used to identify the spatial distribution of demographic burden across Taraba State and to facilitate comparisons of household perceptions and fiscal implications among LGAs with varying levels of dependency.

In parallel, a household-level dependency ratio was derived from the questionnaire for each of the 437 valid respondent households, using the same conceptual formula applied at LGA level: the number of household members aged 0-14 and 65 years and above, divided by the number of household members aged 15-64, multiplied by 100. Each household was then assigned to the low (fewer than 60 dependants per 100 working-age members), moderate (60-90), or high (more than 90) category using the identical thresholds applied to the LGA-level secondary data, so that the household-level classification reported in Table 5 and the LGA-level classification reported in Table 6 are directly comparable in construction, even though they draw on primary and secondary data respectively.

Primary survey data were analysed using SPSS Version 27. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarise respondents' characteristics, household dependency, and perceptions. Likert-scale responses were interpreted using a 3.50 mean benchmark for agreement. Findings from the primary survey were integrated with secondary demographic analysis to assess dependency ratios and their fiscal and social implications across Taraba State.

RESULTS

The findings presented are based on the integration of both secondary demographic data and primary household survey data collected across all sixteen (16) Local Government Areas (LGAs) of Taraba State. Secondary demographic data were used to estimate and classify youth, old-age, and total dependency ratios for each LGA, while the primary survey provided information on respondents' socio-demographic characteristics, household dependency status, and perceptions of the fiscal and social implications of demographic burden.

Response Rate

A total of 450 questionnaires were administered across the sixteen LGAs, of which 437 were successfully completed and retrieved, representing a 97.1% response rate. Thirteen (13) questionnaires, representing 2.9%, were either not returned or excluded due to incomplete responses. The high response rate indicates strong respondent participation and provides a reliable basis for the statistical analyses presented in this chapter. Unless otherwise indicated, all household-level analyses are based on the 437 valid questionnaires, while the

dependency ratio classifications presented in Section 6.4 are derived from the secondary demographic analysis for all sixteen LGAs of Taraba State.

Socio-Demographic Characteristics of Respondents

Table 1: Gender Distribution

Gender	Frequency	Percentage (%)
Male	254	58.1
Female	183	41.9
Total	437	100.0

Source: Field Survey, 2026.

The findings indicate that 254 respondents (58.1%) were male, while 183 respondents (41.9%) were female. The predominance of male respondents reflects the household-head sampling approach adopted in the study, where males traditionally serve as household heads in many communities across Taraba State.

Table 2: Age Distribution of Respondents

Age Group (Years)	Frequency	Percentage (%)
18–29	98	22.4
30–39	141	32.3
40–49	106	24.3
50–59	61	14.0
60 years and above	31	7.1
Total	437	100.0

Source: Field Survey, 2026.

The age distribution shows that respondents were predominantly within the economically active population. The largest proportion (32.3%) was aged 30–39 years, followed by 24.3% aged 40–49 years and 22.4% aged 18–29 years. Respondents aged 50–59 years accounted for 14.0%, while those aged 60 years and above constituted 7.1%. This distribution indicates that the survey largely captured household heads who are actively engaged in economic and family responsibilities.

Table 3: Educational Qualification

Qualification	Frequency	Percentage (%)
Primary	42	9.6
Secondary	106	24.3
Diploma/NCE	104	23.8
Bachelor's Degree	137	31.4
Postgraduate Degree	48	11.0
Total	437	100.0

Source: Field Survey, 2026.

The educational profile of respondents indicates that 31.4% possessed a Bachelor's degree, representing the largest educational category, followed by 24.3% with secondary education and 23.8% holding Diploma or NCE qualifications. Respondents with postgraduate qualifications accounted for 11.0%, while only 9.6% had primary education as their highest qualification. Approximately 66.2% of respondents possessed post-secondary qualifications, suggesting that a substantial proportion of household heads had sufficient educational background to provide informed responses to the survey.

Table 4: Occupation of Respondents

Occupation	Frequency	Percentage (%)
Civil Servant	117	26.8
Farmer	122	27.9
Business/Trader	79	18.1
Student	56	12.8
Others	63	14.4
Total	437	100.0

Source: Field Survey, 2026.

The occupational distribution reveals that farmers (27.9%) constituted the largest occupational group, closely followed by civil servants (26.8%). Respondents engaged in business and trading accounted for 18.1%, while 12.8% were students and 14.4% were engaged in other occupations. The prominence of farming and public-sector employment reflects the predominantly agrarian economy of Taraba State alongside the significant role of government employment in household livelihoods.

Household Dependency Ratios

Table 5: Household Dependency Category

Dependency Category	Frequency	Percentage (%)
Low Dependency	71	16.2
Moderate Dependency	143	32.7
High Dependency	223	51.0
Total	437	100.0

Source: Field Survey, 2026.

The results indicate that 223 households (51.0%) were classified as having a high dependency burden, representing the largest proportion of the sampled households. A further 143 households (32.7%) fell within the moderate dependency category, while only 71 households (16.2%) were classified as having low dependency. The 366 households (83.7%) were identified as experiencing moderate-to-high dependency.

Spatial Distribution of Dependency Burden across Local Government Areas

The dependency ratios computed for the sixteen (16) Local Government Areas (LGAs) were classified into low, moderate, and high dependency categories to examine the spatial distribution of demographic burden across Taraba State.

Table 6: Distribution of Local Government Areas by Dependency Category

Local Government Area	Dependency Category	Percentage of LGAs (%)
Ardo Kola	High	6.25
Bali	High	6.25
Donga	Moderate	6.25
Gashaka	High	6.25
Gassol	Moderate	6.25
Ibi	Moderate	6.25
Jalingo	Low	6.25
Karim Lamido	High	6.25
Kurmi	High	6.25

Lau	High	6.25
Sardauna	Moderate	6.25
Takum	Moderate	6.25
Ussa	Moderate	6.25
Wukari	Moderate	6.25
Yorro	High	6.25
Zing	High	6.25
Total	16 LGAs	100.0

Source: Field Survey and Secondary Demographic Analysis, 2026.

Table 6a: Youth, Old-Age, and Total Dependency Ratios by Local Government Area (per 100 working-age population)

Local Government Area	Youth Dependency Ratio	Old-Age Dependency Ratio	Total Dependency Ratio
Ardo Kola	112	6	118
Bali	108	5	113
Donga	82	5	87
Gashaka	115	7	122
Gassol	78	5	83
Ibi	85	5	90
Jalingo	52	4	56
Karim Lamido	110	6	116
Kurmi	105	7	112
Lau	118	6	124
Sardauna	80	4	84
Takum	76	5	81
Ussa	79	6	85
Wukari	83	4	87
Yorro	109	6	115
Zing	107	5	112

Source: Secondary Demographic Analysis, 2026 (NPC 2006 census updated with NBS projections, per the formula in Section 5.5).

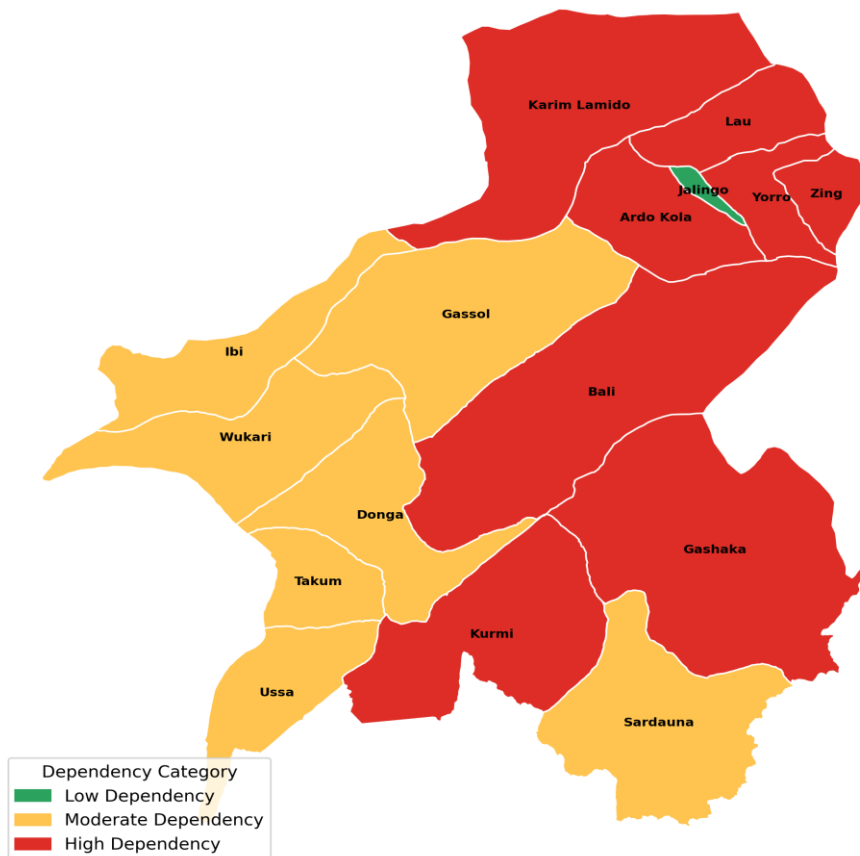
Table 7: Summary by Dependency Category

Dependency Category	Number of LGAs	Percentage of LGAs (%)
High	8	50.0
Moderate	7	43.8
Low	1	6.3
Total	16	100.0

Source: Field Survey and Secondary Demographic Analysis, 2026.

The spatial analysis revealed considerable variation in dependency burden across the sixteen LGAs of Taraba State. Eight LGAs Ardo Kola, Bali, Gashaka, Karim Lamido, Kurmi, Lau, Yorro, and Zing were classified as high dependency, indicating substantial demographic pressure resulting from relatively large dependent populations. Seven LGAs Donga, Gassol, Ibi, Sardauna, Takum, Ussa, and Wukari were classified as moderate dependency, reflecting intermediate levels of demographic burden. Jalingo, the state capital, was the only LGA classified as having low dependency, suggesting a comparatively more favourable age structure.

Figure 1: Spatial Distribution of Household Dependency Classification across Local Government Areas, Taraba State



Source: Field Survey and Secondary Demographic Analysis, 2026.
LGA boundaries: GADM administrative boundary dataset for Nigeria.

Figure 1: Choropleth map of household dependency classification across the sixteen LGAs of Taraba State. Source: Field Survey and Secondary Demographic Analysis, 2026; LGA boundaries from the GADM administrative boundary dataset for Nigeria.

Perceived Effects of Dependency Burden

Respondents were asked to indicate their level of agreement with statements relating to the perceived effects of dependency burden using a five-point Likert scale, where Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. For the purpose of interpretation, mean scores of 3.50 and above were regarded as indicating agreement, mean scores between 2.50 and 3.49 indicated a neutral or mixed opinion, while mean scores below 2.50 indicated disagreement.

Table 8: Perceived Effects of High Dependency Burden

Statement	SA	A	U	D	SD	Mean	S.D.	Decision
High dependency reduces household savings.	201	162	23	34	17	4.13	1.08	Agree
High dependency increases poverty.	194	171	28	29	15	4.15	1.03	Agree
High dependency places pressure on healthcare services.	187	176	31	27	16	4.12	1.03	Agree
High dependency affects children's education.	181	179	34	28	15	4.10	1.02	Agree
Government spending increases with dependency burden.	192	169	36	24	16	4.14	1.03	Agree
Grand Mean						4.13	1.04	Agree

Source: Field Survey, 2026.

The results presented in Table 8 indicate that respondents generally perceived high dependency burden as having significant adverse socio-economic consequences. All five statements recorded mean scores above the

acceptance benchmark of 3.50, with mean values ranging from 4.10 to 4.15, demonstrating a consistently high level of agreement among respondents.

The statement "High dependency increases poverty" recorded the highest mean score ($M = 4.15$, $SD = 1.03$), indicating that respondents regarded poverty as the most pronounced consequence of a high dependency burden. This was closely followed by the perception that government spending increases with dependency burden ($M = 4.14$, $SD = 1.03$) and that high dependency reduces household savings ($M = 4.13$, $SD = 1.08$). Similarly, respondents agreed that high dependency places considerable pressure on healthcare services ($M = 4.12$, $SD = 1.03$) and negatively affects children's education ($M = 4.10$, $SD = 1.02$).

The grand mean of 4.13 indicates a strong consensus that high dependency ratios impose multidimensional pressures on households and government.

Although the relatively small standard deviations (approximately 1.02–1.08) indicate a reasonable level of consistency in respondents' opinions, they also suggest the existence of some variation in individual perceptions. It should be noted that these findings reflect respondents' perceptions rather than objectively measured economic or fiscal outcomes.

DISCUSSION

Household Dependency Burden

The findings indicate that 83.7% of households in Taraba State experience moderate-to-high dependency burdens, reflecting the state's youthful population structure and persistently high fertility, which continue to constrain household welfare and economic development (NPC & ICF, 2019; United Nations, 2022; World Bank, 2024). Respondents strongly perceived dependency burden as reducing household savings, increasing poverty, straining healthcare and education services, and raising government social expenditure, consistent with evidence from Nigeria and sub-Saharan Africa (NBS, 2022; UNFPA, 2019; World Bank, 2024). These findings support the Demographic Dividend Theory, suggesting that Taraba State has yet to attain the demographic transition needed to stimulate savings, investment, and productivity (Bloom et al., 2003; Lee & Mason, 2011). The study therefore concludes that investments in reproductive health, female education, employment creation, and human capital development are essential for reducing dependency burdens and accelerating sustainable development in line with the Sustainable Development Goals (African Union Commission, 2015; Federal Republic of Nigeria, 2020; United Nations, 2015).

Spatial Distribution of Dependency Burden Across Local Government Areas

The spatial distribution of dependency burden across Taraba State demonstrates significant urban–rural disparities, with eight predominantly rural LGAs classified as high dependency and only Jalingo recording a low dependency ratio, reflecting differences in urbanisation, economic opportunities, fertility, and access to social services (Bloom et al., 2003; Lee & Mason, 2011; United Nations, 2022). Higher dependency levels in rural LGAs are associated with persistent high fertility, agrarian livelihoods, insecurity, population displacement, and labour migration, which collectively constrain demographic transition and economic development (NPC & ICF, 2019; UNFPA, 2019; IOM, 2022; World Bank, 2024). Although these relationships are associative rather than causal, they highlight the need for geographically targeted interventions to address demographic and socio-economic inequalities (Lee & Mason, 2011; United Nations, 2022). Accordingly, investments in reproductive healthcare, girls' education, rural employment, agricultural development, and social protection are essential for reducing dependency burdens and advancing sustainable development in line with the SDGs, Agenda 2063, and Nigeria's national development priorities (African Union Commission, 2015; Federal Republic of Nigeria, 2020; United Nations, 2015).

Theoretical and Policy Implications

The findings support the Demographic Dividend Theory, indicating that Taraba State has not yet achieved the demographic transition necessary to realise the demographic dividend, as 83.7% of households fall within the

moderate-to-high dependency categories (Bloom et al., 2003; Lee & Mason, 2011). The results also reinforce Fiscal Federalism Theory, demonstrating the need for demographic-sensitive fiscal allocation since high-dependency LGAs require greater investment in education, healthcare, and social protection than population-based allocation formulas currently provide (Musgrave, 1959; Oates, 1999; Bird & Smart, 2002). Furthermore, the high dependency burden poses significant challenges to achieving SDGs 1, 3, 4, and 8 by increasing poverty, straining healthcare and education services, and limiting employment and economic growth (United Nations, 2015; UNFPA, 2019; World Bank, 2024; WHO, 2023). Consistent with international evidence, the study recommends integrated investments in family planning, girls' education, youth employment, rural economic diversification, and demographic-sensitive fiscal planning to reduce dependency and accelerate sustainable development (African Union Commission, 2015; Federal Republic of Nigeria, 2020; World Bank, 2016)

CONCLUSION AND RECOMMENDATIONS

Conclusion

The findings demonstrate that dependency burden remains a significant demographic and development challenge in the state. Household-level analysis revealed that 83.7% of surveyed households were classified as having moderate-to-high dependency burdens, indicating that relatively few economically active household members support large numbers of children and elderly dependants. Furthermore, the spatial analysis showed marked disparities across LGAs, with eight LGAs (50.0%) classified as high dependency, seven LGAs (43.8%) as moderate dependency, and only Jalingo (6.3%) classified as low dependency.

The findings provide empirical support for the Demographic Dividend Theory, demonstrating that Taraba State has yet to attain the demographic conditions necessary to realise the economic benefits associated with a larger working-age population. Similarly, the findings reinforce the principles of Fiscal Federalism Theory, highlighting the need for resource allocation mechanisms that recognise variations in demographic structure and social service needs across LGAs rather than relying predominantly on population size. Consequently, demographic structure should be recognised as a critical determinant of development planning and public resource allocation within Taraba State.

The principal contribution of this study lies in its LGA-level assessment of dependency burden across the entire state. By identifying significant geographical disparities in demographic pressure, the study provides evidence that can support more targeted policy interventions and strengthen demographic planning at both state and local government levels. These findings also contribute to the broader discourse on population dynamics, fiscal planning, and sustainable development in Nigeria by demonstrating the importance of integrating demographic indicators into public policy and development strategies.

Recommendations

Based on the findings of the study, the following recommendations are proposed:

- i. The Federal Government, the Revenue Mobilisation Allocation and Fiscal Commission (RMAFC), and the Taraba State Government should incorporate demographic indicators, particularly dependency ratios and age structure, into intergovernmental and intra-state resource allocation frameworks.
- ii. The Taraba State Ministry of Health should expand access to quality reproductive healthcare, family planning services, maternal and child healthcare, and community health education, particularly within the identified high-dependency LGAs.
- iii. Government should increase investment in girls' education, technical and vocational education, teacher recruitment, school infrastructure, and educational support programmes across high-dependency LGAs.
- iv. State and local governments should implement employment-generation programmes, agricultural value-chain development, rural industrialisation initiatives, entrepreneurship support, and youth empowerment programmes to expand economic opportunities within rural LGAs.

Limitations of the Study

The study is subject to limitations that should guide future research. Its secondary demographic base still relies substantially on the 2006 National Population Census, Nigeria's most recent full enumeration at the time of writing, so LGA-level age-structure estimates should be treated as informed projections pending the release of more current census data. The primary survey component is cross-sectional and based on self-reported perceptions rather than administrative expenditure micro-data. Future research should extend primary data collection to the remaining LGAs, pair perception data with LGA-level budget execution records to quantify fiscal burden more precisely, and revisit these estimates once updated national census figures become available.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the Tertiary Education Trust Fund (TETFund) for institutional research support, and the College of Agriculture, Science and Technology, Jalingo (COASTJ) for facilitating this Institution-Based Research. The authors also thank the enumerators and household respondents across the sixteen sampled Local Government Areas for their participation.

REFERENCES

1. Adawo, M. A. (2011). Has education (human capital) contributed to the economic growth of Nigeria? *Journal of Economics and International Finance*, 3(1), 46-58.
2. African Union Commission. (2015). *Agenda 2063: The Africa we want*. African Union Commission. <https://au.int/en/agenda2063/overview>
3. Alawode, T. V., & Lawal, D. T. (2025). Demographic transition and economic growth in Nigeria: An empirical investigation. *International Journal of Research and Innovation in Social Science*, 9(7), 1104-1120. <https://dx.doi.org/10.47772/IJRISS.2025.90700090>
4. Bird, R. M., & Smart, M. (2002). Intergovernmental fiscal transfers: International lessons for developing countries. *World Development*, 30(6), 899-912. [https://doi.org/10.1016/S0305-750X\(02\)00016-5](https://doi.org/10.1016/S0305-750X(02)00016-5)
5. Bloom, D. E., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. RAND Corporation. <https://doi.org/10.7249/MR1274>
6. Federal Republic of Nigeria. (2020). *Nigeria Voluntary National Review (VNR) 2020: Report on the implementation of the 2030 Agenda for Sustainable Development*. Federal Ministry of Finance, Budget and National Planning.
7. International Organization for Migration (IOM). (2022). *Nigeria North-East displacement report 40* (March 2022). Displacement Tracking Matrix. <https://dtm.iom.int/reports/nigeria-north-east-displacement-report-40-march-2022>
8. Lee, R., & Mason, A. (2011). *Population aging and the generational economy: A global perspective*. Edward Elgar Publishing. <https://doi.org/10.4337/9780857930583>
9. Musa, S. F., & Bello, A. K. (2018). Intergovernmental fiscal transfers and subnational development in Nigeria's North-East zone. *Journal of Public Administration and Governance*, 8(2), 118-135.
10. Musgrave, R. A. (1959). *The theory of public finance: A study in public economy*. McGraw-Hill.
11. National Bureau of Statistics. (2022). *Nigeria demographic statistics bulletin*. NBS.
12. National Bureau of Statistics. (2022). *Nigeria Multidimensional Poverty Index 2022*. National Bureau of Statistics.
13. National Bureau of Statistics. (2023). *Annual statistical report on Nigerian population and household welfare*. NBS.
14. National Bureau of Statistics. (2023). *Demographic statistics bulletin*. National Bureau of Statistics.
15. National Population Commission (NPC) [Nigeria], & ICF. (2019). *Nigeria Demographic and Health Survey 2018*. NPC and ICF. <https://dhsprogram.com>
16. National Population Commission (NPC). (2006). *2006 population and housing census of the Federal Republic of Nigeria: National and state population tables*. National Population Commission.
17. Nwosu, C. (2020). Microeconomic determinants of household savings in Nigeria. *Journal of*

- International Development*, 32(6), 895-908. <https://doi.org/10.1002/jid.3440>
18. Oates, W. E. (1999). An essay on fiscal federalism. *Journal of Economic Literature*, 37(3), 1120–1149. <https://doi.org/10.1257/jel.37.3.1120>
 19. Oruonye, E. D., & Ahmed, Y. M. (2017a). Rural development and demographic characteristics in North-Eastern Nigeria. *International Journal of Development and Sustainability*, 6(8), 734–748.
 20. Oruonye, E. D., & Ahmed, Y. M. (2017b). The geography of poverty in Taraba State, Nigeria. *Journal of Economics and Sustainable Development*, 8(4), 53-61.
 21. UNICEF Nigeria. (2021). Nigeria education budget analysis: Situation of children in Taraba and other North-East states. UNICEF.
 22. United Nations Population Fund (UNFPA). (2019). State of world population 2019: Unfinished business the pursuit of rights and choices for all. UNFPA.
 23. United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development* (A/RES/70/1). United Nations. <https://sdgs.un.org/2030agenda>
 24. United Nations. (2022). *World Population Prospects 2022: Summary of results*. United Nations Department of Economic and Social Affairs, Population Division. <https://population.un.org/wpp>
 25. World Bank. (2016). *World Development Report 2016: Digital dividends*. World Bank. <https://doi.org/10.1596/978-1-4648-0671-1>
 26. World Bank. (2024). Age dependency ratio (% of working-age population) - Nigeria. World Development Indicators, based on United Nations Population Division, World Population Prospects. <https://data.worldbank.org/indicator/SP.POP.DPND?locations=NG>
 27. World Health Organization. (2023). *World health statistics 2023: Monitoring health for the SDGs*. World Health Organization. <https://www.who.int/publications>
 28. Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper & Row.