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Economic Model-Based Calculation of Per Capita Income Level in Nigeria

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Abstract

A survey carried out revealed that socio-economic human development programmes (SHDP) remain a major item of the United Nations development agenda. The objective of national development plans has always aimed to ascertain and improve the quality of living (QL) worldwide. Due to inaccuracies in available population and national income data, the existing method of calculating per capita income is inadequate and fails to manifest the true life situation. Nigeria has not conducted a national census since 2006, leaving the country to rely on projections from foreign agencies for demographic data. This paper develops an alternative method for calculating per capita income levels based on details of Nigerian workers' pay packages. The Nigerian population figures are classified into three economic groups of varying capabilities, utilizing the 25:75 basic-allowance ratio embedded in Nigerian public service pay structures. The adjustment error affecting the accuracy of the calculation is subjected to H-testing to facilitate relevance to true life affairs. The proposed model offers a methodology that addresses the data deficit problem in Nigeria by deriving income estimates from verifiable pay package data rather than relying solely on contested national aggregates.

Keywords: Formatted figure distribution, Human development elements, Pay indices; 25:75 SHDP, QL parameters.

1. Introduction

There is a growing need for rapid improvement in the quality of life (QL) of people worldwide. In carrying out effective implementation of development policy, accurate population and income data and effective demographic techniques are required. A United Nations Population Fund (UNFPA) sponsored television programme once revealed that "not the number but the people is required to achieve true socio-economic development". A true welfare package is required with emphasis on accurate data and information on social, economic, occupational attributes, and geographical spread of people in nation states.

If emphasis is on improvements of QL, then deliberate and progressive transformation would be required to stimulate large-scale and continually optimal resource utilization [1]. Agreeing with the statement quoted, it is required to examine the number of people and to seek an alternative approach to getting very close to the people.

The Human Development Index (HDI), developed by the United Nations Development Programme (UNDP), provides a summary measure of human progress across three basic dimensions: a long and healthy life, access to knowledge, and a decent standard of living. The Inequality-adjusted Human Development Index (IHDI) further accounts for inequality in the distribution of each dimension across the population, providing a more nuanced picture of human development (NBS, 2023). The HDI is computed as the geometric mean of normalized indices measuring achievements in life expectancy, education, and income, while the IHDI adjusts these averages according to their levels of inequality. Nigeria's HDI has been estimated at an average of 0.521, with significant state-level disparities ranging from 0.6515 in Lagos to as low as 0.3238 in Bauchi [2].

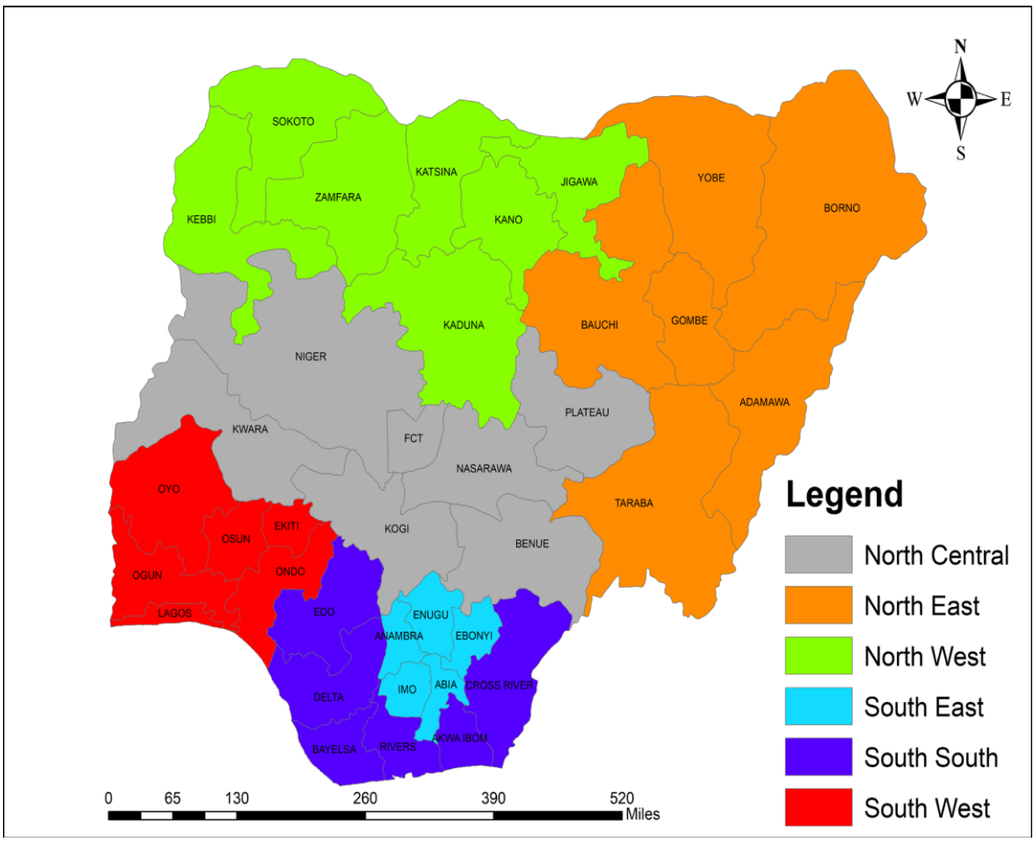
However, the debate over appropriate measures of economic progress continues. While GDP per capita remains a critical indicator of national prosperity, critics argue that it fails to capture inequality, wealth distribution, and the scope of informal economic activity-factors particularly relevant in the Nigerian context. As Simon Kuznets, who devised the GDP concept, noted, "Growth is a rising tide that lifts all boats," but the extent to which this tide lifts all Nigerians remains questionable given the country's high inequality levels [3] [4].

The objective of carrying out national head counting exercises has always been to ascertain the number of people to care for. Agreeing with [5] and [6], the head counting exercise in Nigeria marked the take-off of modern trends in 1953. The 1911-1953 population figures are presented below.

Table 1. Nigerian Population Figures 1911-1953.

Region	Population Figures (`000, 000)			
	1911	**1921**	**1931**	**1953**
Northern	8.12	10.56	11.44	16.84
	(50.6%)	(56.41%)	(57.03%)	(55.36%)
Eastern	4.50	5.11	4.55	7.22
Western	2.15	2.17	2.95	4.60
Mid-Western	1.21	0.78	0.99	1.49
Lagos	0.07	0.10	0.13	0.27
Total-South	7.93	8.62	8.62	13.58
	(49.40%)	(42.64%)	(42.64%)	(44.64%)
Total-Nigeria	16.05	18.72	20.06	30.42

Source: Aluko S. A. (1965).



1.1. Geo-Political Map of Nigeria

Subsequent post-independence censuses faced significant challenges. The 1962 census was cancelled, and the 1963 figures were rejected [7]. The 1973 figures were out rightly rejected, and the result of the successful 1991 census exercise was released five years later in 1996. Summary of census figures reported in [6] is provided below.

Table 2. Nigerian Population Figures 1962-2006.

Region	Population Figures (`000, 000)				
	1962	**1963**	**1973**	**1991**	**2006**
Northern	22.01	26.78	32.00	51.38	47.26
	(48.60%)	(53.50%)	(48.85%)	(64.42%)	(53.40%)
Eastern	12.33	12.39	18.00	13.75	18.92
Western	8.10	10.28	11.00	8.92	11.91
Mid-Western	2.40	2.53	3.00	3.24	4.73
Lagos	0.45	0.68	1.50	2.47	5.69
Total-South	23.28	25.88	33.50	28.38	41.25
	(51.40%)	(46.50%)	(51.15%)	(35.58%)	(46.60%)
Total-Nigeria	45.29	55.66	65.50	79.76	88.51

Source: NPC (1998), National Population Commission.

1.2. The Census Data Deficit Problem

Nearly two decades after Nigeria's last population census in 2006, the country continues to govern and plan using estimates from foreign bodies. The continued delay in conducting a census leaves Nigeria in a precarious position, with policy decisions, resource allocation, and even poverty rate calculations based on projections-mostly from the United Nations, World Bank, and other foreign agencies-rather than verifiable, home-grown data. For a country of Nigeria's size and complexity, the implications are as political as they are economic [8].

The turbulent history of census-taking in Nigeria dates back to the colonial era. The first nationwide attempt in 1952–53 recorded a population of around 31 million, but coverage was uneven. The post-independence censuses of 1962 and 1963 were mired in accusations of inflation and manipulation, as rival regions saw population figures as a ticket to political dominance and a greater share of federal revenue. The 1963 census, which put Nigeria's

population at 55.6 million, was hotly contested and contributed to the political instability that preceded the January 1966 coup. These contestations did not happen in a vacuum; since population figures determine representation in the House of Representatives, the distribution of local government areas, and federal character quotas in the civil service, military, and public universities, every headcount becomes a proxy battle for power and legitimacy [9].

The 2006 census was more broadly accepted and praised for improvements in methodology because it was scientific, yet it still attracted criticism over credibility and politicization. The 2006 census allegedly witnessed inflation of figures in parts of the country, with some individuals inflating the number of people in their families [10].

The absence of a credible census in nearly two decades has undermined evidence-based planning for infrastructure, healthcare, education, and security. It has also distorted revenue allocation between states and local governments. As the Revenue Mobilization Allocation and Fiscal Commission (RMAFC) reviews the revenue allocation formula for the first time in 33 years, concerns are mounting over the impact a lack of recent population data may have on the exercise. Without a current census, any review risks perpetuating old inequities-states with significant population growth over the past two decades may still be treated as though they have smaller populations, while those with slower growth may retain a disproportionately high share of resources [11].

1.3. GDP Per Capita as a Measure of Progress

GDP per capita remains a critical measure of national progress despite significant criticisms. The term consists of two components: "GDP" (Gross Domestic Product), which measures the monetary value of all goods and services produced in a country, and "per capita," which is obtained by dividing a country's GDP by its total population. This is analogous to dividing a household's total income by the number of people in the household. Therefore, if a country's population is bigger than the size of its economy, it will have a low per capita income, meaning its people will be thrown into poverty [12]

The strongest criticism of GDP is that it does not measure everything that matters-it only measures things sold in a market transaction and thus have monetary value. For instance, if you hire a cleaner to clean your house and pay them, that adds to the GDP, but if your daughter or son does the cleaning and is unpaid, that doesn't count for the GDP. As for per capita income, its greatest criticism is that merely dividing a country's GDP by its population and arriving at an average economic output per person doesn't tell us that everyone benefits equally [12]

Despite these criticisms, GDP and GDP per capita remain the main quantitative measures of a country's prosperity and the general prosperity of its citizens. Professor David Susskind expatiates on this, saying: "GDP is correlated with almost every measure of human flourishing". Without a doubt, fast economic growth is the most powerful way to tackle poverty and improve job opportunities and living standards [4].

Recent Nigerian economic discourse has highlighted the significance of per capita income. Akinwunmi Adesina, one time president of the African Development Bank, noted that Nigeria's GDP per capita was $1,847 in 1960 but fell to $824 in 2025, implying that Nigeria is poorer today than at independence . The Presidency disputed these figures, arguing that Nigeria's GDP in 1960 was $4.2 billion and per capita income was approximately $93-not $1,847-and that significant economic growth did not occur until the oil boom of the 1970s. Even then, per capita income only briefly peaked at $2,187 in 1981 before declining again. It wasn't until 2014, after a major GDP rebasing exercise, that Nigeria reached an all-time high per capita income of $3,200 [13].

The Presidency also took issue with the use of GDP per capita as a standalone measure of national progress, arguing that while it is a useful economic indicator, it often fails to reflect broader aspects of development such as inequality, wealth distribution, and the scope of informal economic activity. However, critics argue that belittling GDP per capita betrays a fundamental misunderstanding of its significance as an indicator of how well off a country's people are, which is determined by the size of the economy relative to the size of the population [13].

2. Materials and Methods

2.1. Alternative Measures of Human Development

The UNDP's Human Development Index (HDI) provides a composite measure that goes beyond income alone. The HDI is based on three dimensions: a long and healthy life (measured by life expectancy at birth), access to knowledge (measured by mean years of schooling and expected years of schooling), and a decent standard of living (measured by GNI per capita). The four indicators used in HDI computation are life expectancy at birth, mean years of schooling, expected years of schooling, and GNI per capita [2] [4].

The Inequality-adjusted Human Development Index (IHDI) further adjusts the HDI for inequality in the distribution of each dimension across the population. The IHDI is computed as a geometric mean of geometric means and is calculated across the population for each dimension separately. The IHDI accounts for inequalities in HDI dimensions by discounting each dimension's average value according to its level of inequality. The IHDI equals the HDI when there is no inequality across people but is less than the HDI as inequality rises. The "loss" in potential human development due to inequality is given by the difference between the HDI and the IHDI and can be expressed as a percentage [2] [4].

The Nigeria Human Development Indices General Household Survey 2017, conducted by the National Bureau of Statistics with support from UNDP, collected data on demographic characteristics, mortality, employment history, access to water, sanitation, housing characteristics, and educational attainment across 66,600 households in all 36 states and the FCT . This survey provides the most recent comprehensive data for computing HDI and related indices at the state level [3].

2.2. Nigerian Public Service Salary Structures

The Nigerian public service operates on several consolidated salary structures that reflect the 25:75 basic-allowance ratio noted in this study. These include the Consolidated Public Service Salary Structure (CONPSS), Consolidated Tertiary Institutions Salary Structure (CONTISS), Consolidated Universities Academic Salary

Structure (CONUASS), Consolidated Medical Salary Structure (CONMESS), and Consolidated Health Salary Structure (CONHESS), among others [11] [14].

Following the enactment of the National Minimum Wage (Amendment) Act 2024, which increased the national minimum wage from N30,000 to N70,000, the federal government approved the upward review of these consolidated salary structures . The review was carried out by the National Salaries, Incomes and Wages Commission (NSIWC) following a memorandum of understanding reached between the Federal Government and trade unions on September 20, 2024, with the agreement coming into effect from July 29, 2024 [11] [14].

The CONTISS salary structure for tertiary institutions shows varying pay levels based on grade level, with CONTISS 1 staff earning approximately N50,000–N60,000 monthly and CONTISS 15 staff earning N350,000–N500,000+ monthly . These pay packages provide a verifiable basis for developing per capita income estimates, as they reflect actual compensation rather than aggregated national income statistics. [14.]

2.3. Alternative Per Capita Income Calculation

Noting that the available database is poor, individuals, governments, and international bodies strive to provisionally use various combinations of interrelating social, economic, infrastructural, and productivity elements to calculate per capita income level. Consider a QL scheme with basic elements of income (I_1), food (F), health (H_1), housing (H_2), education (E), infrastructure (I_2), and insurance (I_3) (Table 3).

Table 3. Coded Nigerian Income Package.

Code	QL Item	Weight	Pay Index
(1)	(2)	(3)	(4)
I_1	Basic income	7	0.2500
F	Food	6	0.2140
H_1	Health	5	0.1780
H_2	Housing	4	0.1429
E	Education	3	0.1071
I_2	Infrastructure	2	0.0714
I_3	Insurance	1	0.0357

Source: Nigerian workers' pay slip

Figures in column 4 of Table 3 were calculated considering basic salary to be 25% and other allowances together to be 75%. This offers Nigeria a local scheme of human development plan (HDP) with a basic-allowance ratio of 25:75. It is assumed that income earned in the private sector is similarly decomposed.

In the current year k, a Nigerian whose net income is Ni and corresponding gross income is Gi is attracted with likelihood:

$$Pl = Ni/Gi \quad (1)$$

At the prevailing fertility rate Fr and corresponding mortality rate Mr, the worker belongs to a class level with population prospect:

$$PPk = 1 + Mr/Fr + Er \quad (2)$$

Given H-tested attribute Er, mortal-immortal factor:

$$Em = Pl \times Er \quad (3)$$

Consequently, the projected level of a worker's per capita income:

$$Wl = Pl \times PPk \quad (4)$$

It is desirable that attribute:

$$Er \rightarrow 0 \quad (5)$$

Note that the meanings attached to the terminologies used are slightly different from what they were before [12][15]. The following distribution, by age and economic capability, of the nation's population figures is desirable (Table 4).

Table 4. Format Population Distribution.

Year K	Age Range	Population Prospect	Member Description	Economic Capability
	00-18	P_1Pk	children, students, apprentices	Incapable
	19-24	P_2Pk*	students, apprentices	partially capable
	25-60	P_3Pk*	actively engaged	fully capable
	Over 60	P_4Pk	Retired	Incapable

3. Application of Results

3.1. Per Capita Income Calculation

A worker on CONTISS pay package 15/09 has his per capita level calculated as follows:

- Ni = N278,173.20
- Gi = N380,180.65
- Pl = Ni/Gi = 0.7317

Considering his family history:

- Br = 5, Mr = 1, Er = 0.01
- $PP_{2012} = 1 + Mr/Fr + Er = 1.21$
- $Em = Pl \times Er = 0.007317$
- k = 2022, $Wl = Pl \times PP_{2012} = 0.885357 = 88.5357\%$

Thus, the worker belongs to per capita income level 88.5357.

Similar calculations are applicable to other categories of workers in private and public sectors. The partial overlapping observed in P_2Pk and P_3Pk is offset by adjustment to be made, such that:

$$P_2Pk = P_2Pk\,(1 - Em);\ P_3Pk = P_3Pk\,(1 + Em)^{**} \quad (6)$$

3.2. Extension to 2025 under New Minimum Wage

Following the implementation of the National Minimum Wage (Amendment) Act 2024, which increased the minimum wage to N70,000, the National Salaries, Incomes and Wages Commission approved upward reviews of all consolidated salary structures effective from July 29, 2024 . Using the proposed methodology, per capita income levels for workers at various grade levels can be calculated based on their revised pay packages [14].

Table 5. Estimated Per Capita Income Levels Under 2024 Minimum Wage (Illustrative).

Grade Level	Estimated Gross Income (N/year)	Estimated Net Income (N/year)	Per Capita Level (%)
CONTISS 7	1,320,000	990,000	75.0
CONTISS10	2,400,000	1,800,000	75.0
CONTISS13	3,600,000	2,700,000	75.0
CONTISS15	6,000,000	4,500,000	75.0

Note: Values are illustrative based on the 25:75 basic-allowance ratio. Actual figures vary by step level and institutional policies.

4. Discussion

4.1. Implications of the Data Deficit

The lack of a recent population census in Nigeria has profound implications for per capita income calculations and economic planning. As Senator Victor Umeh, Chairman of the Senate Committee on Population, noted, Nigeria continues to rely on assumptions about its population size, with estimates ranging from 200 million to 230 million, and no verifiable data to support them. This situation has been described as "a symptom of deeper issues: political insecurity, institutional distrust, and a chronic failure to build a governance system grounded in altruism and truth" [8] [9] [16].

The continued delay in conducting a census undermines the integrity of per capita income calculations in several ways. First, population projections from foreign agencies may not reflect the actual demographic reality of Nigeria, with its rapid urbanization, mass migration, insurgencies, and shifting fertility trends. Second, without knowing the precise population distribution across states and local government areas, revenue allocation becomes inequitable. Third, political representation is skewed, with some areas overrepresented while others are underrepresented in the National Assembly [8] [9].

The absence of a credible census also affects the accuracy of GDP per capita calculations. When the denominator (population) is based on projections rather than actual enumeration, the resulting per capita income figures may be misleading. This is reflected in the recent debate between the African Development Bank and the Presidency over Nigeria's per capita income. Both parties used different population bases, leading to divergent conclusions about Nigeria's economic progress [8] [9].

4.2. The 25:75 Model and Local Context

The model developed in this paper addresses the data deficit problem by deriving per capita income estimates from workers' pay packages rather than relying solely on national income aggregates. The 25:75 basic-allowance ratio embedded in Nigerian public service pay structures provides a verifiable basis for these calculations. This approach has several advantages:

(i) Verifiability- Pay package data is verifiable through official documents (pay slips, salary structures) rather than relying on contested national income figures.
(ii) Contextual Relevance- The model reflects the Nigerian economic context, where basic salary often constitutes a smaller portion of total compensation compared to allowances.
(iii) Local Ownership- The methodology can be applied by Nigerian institutions without relying on international data sources.
(iv) Disaggregation- The model allows for disaggregation by grade level, sector, and region, providing a more nuanced picture of income distribution.

4.3. Limitations and Challenges

While the proposed model offers an alternative approach to per capita income calculation, it has several limitations:

(i) Private Sector Coverage- The model is primarily based on public sector pay structures. While it is assumed that private sector income is similarly decomposed, this assumption may not hold for all private sector workers, particularly those in the informal economy.
(ii) Data Currency- The model requires regular updating of pay package data. With frequent salary reviews and changes in the minimum wage, maintaining up-to-date data is challenging.
(iii) Geographical Variation- The model does not account for geographical variations in the cost of living. A given per capita income level may have different purchasing power in different regions.
(iv) Informal Economy- A significant portion of the Nigerian workforce operates in the informal economy, where pay structures are not systematically documented.

4.4. Census as a National Imperative

The centrality of population data to economic planning cannot be overstated. As the Group Head of Research at BudgIT, Vahyala Kwaga, noted: "If the understanding that the government exists to serve the people is true, then having precise data on those citizens is an imperative". Accurate citizen data is significant in helping determine the adequate level and range of resources needed. Where the number of citizens is known with specificity, it aids in deploying resources and helps save what would otherwise be spent frivolously.

The failure to conduct a census in nearly two decades has undermined evidence-based planning for infrastructure, healthcare, education, and securit . It has also distorted revenue allocation and political

representation. As Nigeria prepares for the 2027 general elections, stakeholders have called for the urgent conduct of a census to ensure credible elections and democratic representation [8] [9].

The Open Alliance coalitions warned that Nigerians aged 25 years and below have never witnessed a credible population census, despite the country holding five general elections, experiencing multiple federal and state administrations, and undergoing significant demographic changes since the return to democratic rule. The coalition noted that the Presidency's announcement in April 2025 of a committee to lay the groundwork for a long overdue census was initially welcomed, but several months later, there has been no publicly available report, clear timeline, or policy direction emanating from the committee's work [17].

5. Conclusion

With emphasis on "not number of people but the people," improvement in the quality of life and living of the people is implied. Thus, to achieve policy objectives, various governments and institutions should extend the provision of basic needs to the poor, disabled, and old citizens.

This paper has developed an alternative method for calculating per capita income levels based on details of Nigerian workers' pay packages, addressing the data deficit problem that has long plagued Nigerian economic planning. The model utilizes the 25:75 basic-allowance ratio embedded in Nigerian public service pay structures, providing a verifiable and contextually relevant methodology for per capita income estimation.

However, the continued absence of a recent population census undermines the accuracy and reliability of all per capita income calculations, regardless of methodology. The lack of a census in nearly two decades has left Nigeria "a nation adrift, heard but not heeded, present but not powerful". As the British physicist Lord Kelvin once said, "If you cannot measure it, you cannot improve it". Nigeria is attempting to manage its economy, plan its infrastructure, combat insecurity, and deliver social services without a clear understanding of its demographic makeup.

The way forward demands courage, not only from policymakers but from the entire political class. A reliable census will require funding, transparency, and the proper use of technology. Most importantly, it will demand honesty-moving away from the zero-sum mentality of inflated claims and adopting a governance ethic that prioritizes truth over advantage.

It is recommended that stakeholders should ensure:

(i) Effectiveness of women's empowerment and poverty alleviation/eradication programmes
(ii) That effort is geared up on enforcing human settlement policy and meaningful geographical distribution of the people
(iii) That proper management and effective administrative, financial, and delivery systems prevail in rural and poor urban areas
(iv) That funds allocated are judiciously disbursed

References

Adamu, S. O. (1989). Population and planning in Nigeria since independence—the first 25 years. In T. N. Tamuno & J. A. Atanda (Eds.), *Government and public policy* (Vol. 4, pp. 208–226).

Africa. (1995). International business, economic and political monthly, 29, 12–15.

Aiyelabegan, A. B., & Abdul-kareem, S. O. (2007). A per capita prediction analysis and improvements on human development data generation. *Journal of Interdisciplinary Science and Technology, 2*(1), 21–27.

Aluko, S. A. (1965). How many Nigerians? An analysis of Nigeria's census problems, 1901–63. *The Journal of Modern African Studies, 3*(3), 371–392. https://doi.org/10.1017/S0022278X00006170

Abdullateef, B., & Mashood, R. A. (2004). *A modified Atkinson's function* [Unpublished manuscript]. Department of Mathematics and Statistics, Kwara State Polytechnic, Nigeria.

Daily Post Nigeria. (2024). *Minimum wage implementation: Nigerian govt revises consolidated salary structure*.

Ebigbola, J. A. (1981). Politics and population enumeration in Nigeria, 1960–1973. *Odu: Journal of West African Studies, 21*, 28–51.

Ekanem, I. I. (1972). *The 1963 Nigerian census: A critical appraisal*. Ethiope Publishing Corporation.

Fasan, O. (2025, June 18). GDP per capita: It's a critical measure of progress; Why is Tinubu dismissing it? *Vanguard*.

Ibitoye, P. (2025, September 6). Two decades, no headcount: How lack of actual demography is distorting Nigeria's growth. *Tribune Online*.

National Bureau of Statistics. (2023). *Human Development Indices General Household Survey 2017: Study documentation*. National Bureau of Statistics.

National Bureau of Statistics. (2024). *Human Development Indices General Household Survey 2017* [Data set].

National Population Commission. (2022). *1991 population census of Nigeria*. National Population Commission.

Onukwuli, P. (2025, July 20). Victor Umeh and Nigeria's census reckoning. *THISDAYLIVE*.

Open Alliance Group. (2023). *A group of civil society organizations working together to improve openness and accountability in government*.

Presidency faults Adesina's assessment of Nigeria's economy. (2025, May 4). *Ripples Nigeria*.

TheCable. (2024, September 23). FG revises consolidated salary structure for minimum wage implementation. *TheCable*.