Nigerian Statistical Data and their Trustworthiness

Its Implication for Economic Planning and National Development

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Key Points

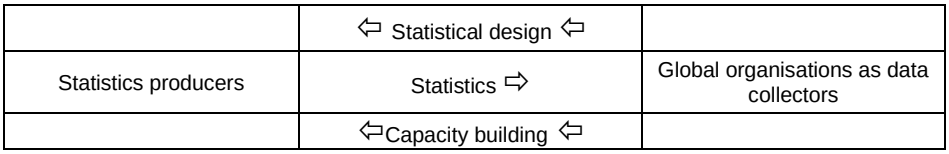
- As at 2020, the population of Nigeria was said to be about 200 million (World Bank, 2020). However, the actual population of Nigeria remains a subject for national debates, since there are no databases for birth or death rates.
- To ascertain the trustworthiness of the statistical data in Nigeria, this study used various secondary data. Critical discourse analysis was used to analyse the information obtained.
- We find that most of the information supplied for usage are distorted; the Bureau of Statistics lacks skilled personnel; data for the same year may vary depending on which organisation supplied it; and obsolete techniques are used for generating economic data.
- The study suggests that providers acknowledging data limitations will help users during usage and application.

Introduction

The quality of research is dependent on the quality of the data collected for the research. Evaluating the reliability of the data is of great significance to the researcher because the reliability will determine the level of acceptability of the research. Researchers investigating a country, region or sector in particular need to have reliable secondary statistical data. Nigerian data are often drawn from

well-known international organisations such as the World Bank (WB), the United Nations Food and Agriculture Organization (FAO), the International Monetary Fund (IMF), the World Trade Organization (WTO), the African Development Bank (AfDB) and others. But this does not necessarily mean that the data from these bodies are without errors (Manski, 2014). These organisations make efforts to improve data reliability by imposing common statistical designs for basic measures and building capacity in local statistical offices. However, they have to largely rely on data supplied by those local offices for their databases. In Nigeria, some of the agencies saddled with the responsibility for publishing economic statistical data used by the government, researchers, international organisations and the general public include the National Bureau of Statistics (NBS), the Central Bank of Nigeria (CBN), the Federal Office of Statistics (FOS), and the National Agricultural Extension & Research Liaison Services (NAELS). If the process shown in Figure 1 worked as intended in this research then, over time, there would be an improvement in the amount, reliability and validity of Nigerian statistical data. However, Jerven and others have argued that the recent history of the whole of sub-Saharan Africa has involved 'a statistical tragedy' of data availability and trustworthiness (Jerven, 2009; Ammani, 2011; Jerven, 2012, 2013; Aderibigbe et al., 2014). This is particularly obvious in Nigeria.

Figure 1. The ideal process of statistical improvement



Critical Discourse Analysis of Related Literature

The problem with the statistical data in Nigeria

The real problem arises when suspect data are used to econometrically test hypothesises without adequate concern for their reliability and validity. Jerven (2009, 2013) identified some variances in data from the supposed best published GDP series. He took the data for the year 2000 showing GDP per capita for sub-Saharan Africa from three different international sources, which gave different results and found striking variations in levels and rankings. The data for Nigeria in 2000 are set out below:

Table 1. Nigerian GDP per capita and GDP rank in 2000 in three major international databases

Madison		WID		PWT	
Value	Rank	Value	Rank	Value	Rank
1,251	28	254	15	1,074	21

Source: Jerven (2009)

This shows that even data from well-known, respected organisations have statistical issues that could lead to policy errors if used to implement and assess policies without critical evaluation of their reliability. Thus, it is essential for researchers and policymakers to make proper allowance for margins of error, to avoid faulty interpretation.

As an example, let us take the *Nigerian Annual Abstract of Statistics* for 2012. The year is important because after this no annual abstract had appeared on the website as of 2017 and the organisation moved towards more of a database approach where problems are more easily hidden. Figure 2 below shows two extracts. We see first that the abstract pays relatively little attention to agriculture whereas every successive government claims to be revamping the agricultural sector, which is believed to be the main driver of growth in the country. This chapter contains only 13 tables, which make up less than 2% of the yearbook's 619 pages. Six of these tables are about fishing. We see a similar

pattern in table 362, the annual livestock data. Yet there is no account of the methods used to collect the data. Nonetheless, we see claimed a quite spurious level of accuracy. The Nigerian state statisticians appear to be able to estimate the exact number of livestock—for example, that there were 201,928,991 chickens in 2011. Figure 2 shows how short the methodology discussion is for the agricultural part of the yearbook (Figure 3 reproduces the whole section), showing the lack of attention to describing the methods by which the data were collected.

Figure 2. Extracts from the Nigerian Annual Abstract of Statistics 2012

Table 362: Estimated population of domestic livestock in Nigeria, 2007–11

Livestock	2007	2008	2009	2010	2011
POULTRY Chicken* **OTHERS**	166,127,481	174,433,855	183,155,548	192,313,325	201,928,991
Cattle	16,152,698	16,293,226	16,434,978	16,577,962	16,722,190
Goats	25,488,222	53,800,428	5,677,901	56,524,075	57,937,176
Sheep	33,080,353	33,874,281	34,687,264	35,519,759	36,372,233
Pig	6,642,341	6,908,034	7,184,356	7,471,730	7,770,599

Source: Federal Livestock Department

In reality, such data can come from different types of counting with different types of problem. Some of these sources are set out in Table 2 below:

Table 2. Data sources for state statistics

Type of data collection		Example
National counts		Census
Survey		National household survey
Estimates	(a) local organisation	CBN, NBS
	(b) international organisation	WB, WTO, FAO, IMF, UN Development Program, UNESCO

Errors in Nigeria Statistical Data

Figure 3. Extract: complete methodology section on agriculture

This chapter represents agricultural statistics on crop, livestock, fishery and forestry sub-sectors.

Estimates of crop in hectare, yield and production by National Bureau of Statistics are based on sample survey data obtained from farming household. Annual inventory of livestock and estimates of livestock and poultry production were prepared by the Livestock Department of Federal Ministry pf Agriculture and Rural Development (FMARD) and National Bureau of Statistics based on information from farmers and Agricultural Sample Surveys.

The principal source of data on fishery is from Fisheries Department of Federal Ministry of Agriculture and Rural Development (FMARD). The key data include quantity of fish caught annually by species within the water of the maritime and inland States, production of fish by sectors, imports and estimated number of fishing craft and fishermen.

All the methods of data collection highlighted earlier are open to error, but the size of the error will vary. Some statistics will combine different methods for GDP and therefore have different degrees of error. Table 3 groups these error problems into four types:

Table 3. Types of error encountered in statistical data in Nigeria

Nature of error	Type of problem
Politically influenced	Political influence to have certain results
Conceptual error	What to measure and how
Measurement errors	How to estimate the margin of error accurately
User error	Mistakes made by users in transcribing data, calculations based on them, etc.

Politically influenced error: The question how large is the population of Nigeria illustrates this problem. Politicians in Nigeria have ways of influencing and inflating the population of their regions/areas. This manipulation enables them to have a bigger share in the national allocation of resources. The alleged manipulation of census figures has made it difficult to establish the true population figures of Nigeria. This is a problem with a long history (Aluko, 1965; Ahonsi, 1988; Bamgbose, 2009).

Conceptual error: This relates to what should be measured or included (e.g. in GDP), and how to measure what has been agreed to be measured. This is a major issue with Nigerian statistics. In the year 2014, for example, there was a 'rebasing project': Nigeria was announced to have the largest economy in Africa, ahead of South Africa. This rebasing was necessary. Sturgess (2013) argues that the delay in rebasing of the Nigerian economy shows the problems of producing national statistics in Africa. But this revaluation should have called for critical review of the reliability of the underlying data. But the attempt to add weight to new sectors was a problem. The Nigeria Telecommunication Commission, for example, published no statistical data on mobile telephone subscriptions for about three years (2007–9) before the rebasing. Another example: the entertainment industry became very vibrant but is not well accounted for,

though it is referred to as a large contributor to the economy (and the rebasing of GDP). Another problem is how the informal sector was accounted for in the rebasing, since adequate data for the informal sector are lacking, as affirmed by the CBN and the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN).

Measurement error: The quality of statistical data is also dependent on the quality of the measurement itself and its trustworthiness (Aktritidis, 2002: 38) Statistical data for national accounting, for example, usually involve different sources which can have complex interactions among them. While some are more reliable than others, some are not easy to determine. All sources form part of the aggregate that is eventually used to form national statistical data. As a result of this complexity, interaction and uncertain reliability, it has become necessary to make provision for margins of error, because the errors in statistical data make it difficult to base the reliability of statistical data on rating and ranking.

> Part of the error is sampling error, where data are obtained by sample survey. Non-sampling errors are less easily quantified and can arise for a variety of reason: Incomplete coverage, failure to collect data, reporting an error, processing error, and error in making adjustments to the data collected. (Atkinson Review, 2005: 54)

Because of these sources of error, it becomes very important to estimate the size of the possible margin of error in calculating national statistics for users of the data. This will allow users more detailed information on the data, for further use and any form of decision making.

This problem exists even in rich countries. In the past, the quality of the data in the UK was ranked by the Central Statistical Office in Britain as A, B or C. Each letter represented the scale of the margin of error in the data. Data classed as A had a margin of error of +/−3%; those classed as B fall within +/−3% to +/−10%; while those classed as C contain a margin of error above +/−10% (Atkinson Review, 2005). These ratings also described the data as good, fair or poor. Those ratings were largely subjective. However, unfortunately, the rating system is no longer used for measuring the reliability of statistical data in the UK by the Office for National Statistics. Some international bodies use versions of this approach and add some sense of the direction of change as shown in Table 4:

Table 4. Examples of classifying reliability and validity

Numerical system	Medal system	Traffic light system	Direction of change
1	Gold	Green	↑
2	Silver	Amber	→
3	Bronze	Red	↓

User error: These are errors that users of statistical data make. They are usually unplanned. User errors are commonly found among statisticians, economists and other users of statistical data. They can easily happen through errors in the transcription of data, errors in computations using the data and errors in the transmission of the data.

In Nigeria, the flaws discovered in the NBS and its published statistical economic data motivated the World Bank to come to its aid by providing the Bank with modern technology to carry out its tasks. It was hoped that the department could move from 'darkness to light' in the words of Ben Kiregyera, a former director of the United Nations Economic Commission for Africa (cited by the World Bank International Development Association, 2010). But this raises the issue whether the staff have the qualifications and skills to handle such technology: at the NBS, fewer than 40% of the staff are qualified statisticians (Ayuba, 2020).

The Implication of Questionable Statistical Data for Economic Planning for Development

In the Table 4 systems Nigeria's statistical data should be carry a red light regarding its reliability and validity for any user. For many decades, Nigerian statistical data have been full of inadequacies despite various agencies being saddled with the responsibility of collecting, publishing and improving it. The Statistics Act 1957 that was been used in Nigeria for five decades dated back to the colonial regime. In 2007 it was finally amended, but even after the amendment the staff strength of the NBS has remained relatively small

considering the huge population of Nigeria. As of 2008 the staff strength was 4,500 and most of them have skills below the tasks assigned to them; many are non-professionals. Only 500 staff of the NBS are said to be professionals (Akinyosoye, 2008).

An empirical study by Ammani (2011) indicated that the statistical data made available for research purposes and planning in Nigeria are of questionable reliability due to the years of neglect of the department by the government. When validity and reliability are questionable, the possibility of recommending a policy based on research findings from such questionable data will be misleading and disastrous for developmental decision making.

Conclusion and Suggestions

As Jerven and Johnston have argued, the uncritical use of data has led to economists getting Africa wrong (Jerven and Johnston, 2015). Here we take the view that it is better to have some data than no data at all. However, these data are better used descriptively and with a detailed understanding of their limitations and their problems rather than making them the basis of spurious hypothesis testing, economic planning and basic economic decisions. The Nigerian Bureau of Statistics should clearly state the degree of the margin of error used in estimating statistical data given to the general public and other users of economic statistics—national and international organisations. All limitations in statistical data should be made public to enable users of Nigerian statistical data to ascertain areas of weakness during usage.

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