KEY POINTS

- Nigeria's inflation rate came in at the high value of 18.6% for June, 2022 while the average price paid by consumers for goods and services has doubled in the last 5 years.

- The inflation rate encountered by a consumer will vary depending on the proportion of expenditure that goes into food relative to other items.

- The survey of quantities used in deriving the items weight in the consumer basket should be conducted at the same time as that of prices.

Nigerian Inflation Figures may not Adequately Capture Consumers' Experience

Nigeria's inflation rate came in at the high value of 18.6% for June, 2022 while the average price paid by consumers for goods and services has doubled in the last 5 years. This has serious implications for citizens' welfare, especially as wages, in most sectors, have not increased substantially over similar period.

Inflation is commonly measured as changes in the Consumer Price Index (CPI) which itself measures the prices of a representative basket of goods and services purchased by a typical household. Based on what is known as the Laspeyres index, CPI is computed by using fixed weights of quantity of goods and services derived from household surveys conducted in some periods in the past while prices are updated more frequently.

Figure 1 shows the trend of the composite, urban and the rural inflation rates. The inflation estimate for June appears as the highest after the 18.72% recorded in January 2017, making the current figure a 65-month high. The trend also shows that the three rates move in a similar direction with the urban inflation rate higher than rural in all the periods.

Despite this high and rising inflation figures, many citizens still doubt if their experience of market prices is adequately captured. While some are of the view that they experience far higher price increase in recent times, others think otherwise.

No doubt, the national statistical authority applies a robust methodology to the measurement of inflation in Nigeria; but the nature and pattern of commodities used in the computation as well as the assumptions inherent in their measurements will always, and everywhere, make inflation figures imprecise.

The objective of this article is to discuss factors that may limit the usefulness of CPI as a true Cost of Living Index and therefore affect inflation figures, especially what consumers feel in reality. This problem is commonly referred to as **CPI Bias** in the literature; coming from substitution, quality change, new items and new outlets. Depending on their relative severity, the cumulative impact of these biases may lead to under- or over-estimation in inflation rate.

1. **Substitution bias:** This problem occurs when consumers switch away from goods that have become relatively more expensive in the basket to cheaper ones, yet the benchmark basket still assumes consumer still behave in the old static manner. For instance, when prices of some forms of fuels increase, consumers will substitute them for alternative and more affordable energy sources, but CPI will typically assume consumers still behave in the current period as they did in the past.

2. **Quality bias:** CPI does not adequately capture changes in the quality of commodities in the consumer basket; the computation continues to assume same quality for such goods many years after they might have changed. There are many items in Nigeria, e.g. groceries, which prices have not changed significantly in the past, but consumers have observed significant changes in their quality, such as tastes, packages, etc.

3. **New products bias:** CPI also fails to capture products newly introduced into the market, as it maintains a constant basket of commodities for a period regardless of the emergence of new products. There are more and new consumer items now than in the past. For instance, products like mobile phones have improved significantly in terms functions and features in the last 10 years far beyond what CPI can easily capture.

4. **New outlets bias:** When consumers change the outlets and locations where they purchase their goods and services, CPI may still be using the old outlets which may not mirror the new reality. In recent years, there are many big supermarkets that have opened outlets all over the country and as Nigerian consumers patronize them, it implies they are gradually moving towards VAT-paying sales outlets. E-commerce and online shopping are also new outlets that CPI may not adequately capture.

Figure 1: Inflation Rates (%)
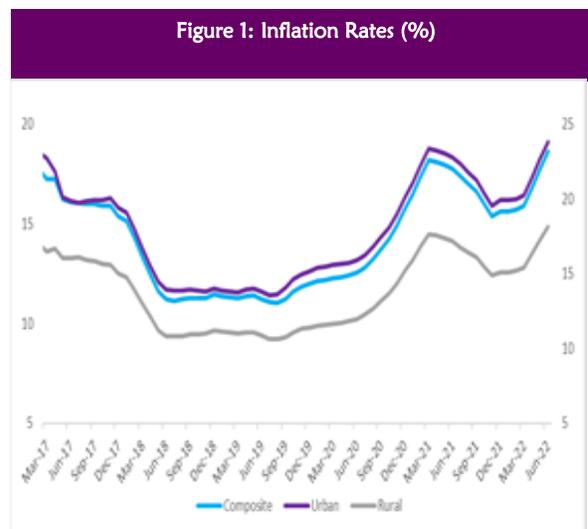
Source: ADSR Research

Certain features of Nigeria's CPI's computation further aggravate the effects of these forms of bias. For instance, the consumer basket being used comprises 740 items which were surveyed since 2003/2004 and re-valued in 2009; with the urban and rural indices weighted with a constant population ratio of 0.455 and 0.545 respectively.

However, many of the 740 items surveyed and weighted since 2009 would definitely have changed in terms of numbers, relative importance to consumer and in quality. Moreover, there are many more new items, or their variants, which consumers spend money on as well as in new shopping outlets, both physical and online.

In addition to these well-established forms of

bias, it is important to note that the CPI and the derived inflation rate are both average numbers, comprising several commodities, many of which are not consumed by the same consumer and also not in the same proportion.

To partly address this, the national statistical authority often presents various forms of inflation rates to support the headline figures. For instance, values are presented for rural and urban areas, food and non-food items as well as for different states in the country. Figure 2 shows the relative weights for each of 12 consumption classifications. As shown in the figure, items under food account for 53.2% of the Nigerian consumer basket weight and others are far less.

Figure 3 further shows that the 5-year average inflation rates vary across these consumption classifications. Specifically, Food and non-alcoholic beverages (16.92%), Clothing and footwear (12.8%), Transport (12.23%), Health (11.81%) and Furnishings and household equipment maintenance (11.7%) top the list of baskets with highest average annual inflation; while Communication (7.59%), Housing water, electricity, gas and other fuel (9.59%), Recreation and culture (10.21%), Restaurants and hotels (10.26%), and Alcoholic beverages, tobacco and kola (11.03%) rank lowest.

Consequently, the inflation rate encountered by a consumer will vary depending on the proportion of expenditure that goes into food relative to other items, the specific food item consumed, locations and many other factors. In other words, different consumers will be exposed to different inflation rates depending on their characteristics; but the inflation rate often reported is an indicative figure averaged over several consumption items and the interaction of consumers and sales outlet distributed over many locations.

For instance, deriving from the popular

Engel's Law that food's budget share is inversely related to household real income, the rich are often seen to spend a lower proportion of their income on food than the poor, which can affect the rate of inflation they may face. This explains a situation where Nigeria allocates over half of the weights in its consumer basket to food and only 16% and 15% are allocated to food in the case of Canada and the US respectively.

To deal with some of these problems, it is ideal that the survey of quantities used in deriving the items weight in the consumer basket is conducted at the same time as that of prices. However, because it is always difficult and costly to get the market baskets and weights reviewed on a monthly basis, the recommended option is to update the baskets used in generating the weights at least once every 4-5 years.

Table 1 shows the frequency and last year of update for selected countries. It is observed that while some developed countries update their baskets almost every 2 years on average, developing countries tend to do so every 5 years.

Going forward for the country's statistical authority and users, it is important to work on the following factors.

=> Nigeria needs to update its consumer basket from what was done in 2009 to more recent years to reflect current realities and also keep to a minimum of a 5-year updating plan going forward.

=> Many countries are now leveraging technology to obtain both quantity and price data from retail outlets. Nigeria needs to do likewise to make consumer basket, especially in certain locations, as dynamic as they should be.

=> The urban (0.455) and rural (0.545)

weights should be continuously updated, especially in the light of rural-urban migration of the country and the impact of insurgency and other crisis on rural activities.

=> Development of new shopping outlets and platforms need to be duly recognised in obtaining prices and expenditure on items. E-commerce and transactions via online platforms have changed consumers' spending patterns in the last 10 years.

=> Some countries also complement their CPI inflation with other indexes and Nigeria can learn from them. In addition to the CPI produced by the Bureau of Labor Statistics in the US, the Bureau of Economic Analysis also produces the Personal Consumption Expenditure (PCE). The PCE has more relevant items and more realistic weights which have made the Federal Reserves to choose it over CPI since 2000.
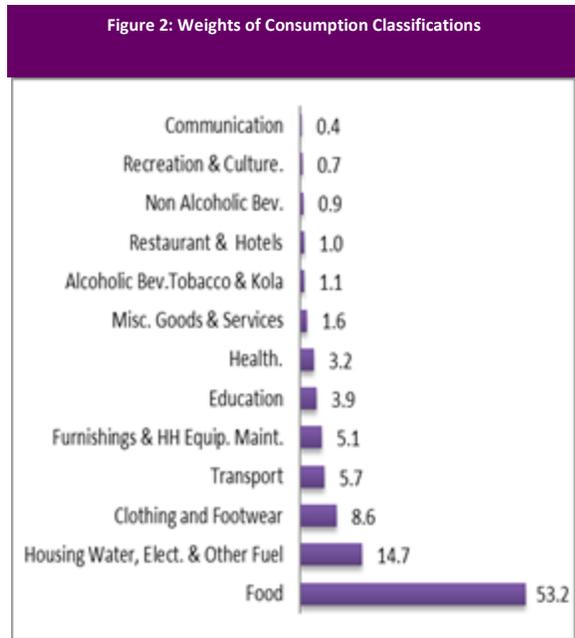
=> Retail Price Index and Wholesale Price Index are other variants produced in countries such as UK, US and India; and Nigeria can learn from their relevance and approaches.

=> Within what is currently available, users of CPI and inflation figures can adopt rates most suitable for their purpose and/or generate their own weights with which appropriate inflation rates can be computed.

Figure 3: 5-Year Average Annual Inflation (%)

Category	%
Food & Non Alcoholic Bev.	15.92
Clothing and Footwear	12.80
Transport	12.23
Health.	11.81
Furnishings & Household Equipment Maintenance.	11.70
Education	11.42
Miscellaneous Goods & Services	11.28
Alcoholic Beverage, Tobacco and Kola	11.03
Restaurant & Hotels	10.26
Recreation & Culture.	10.21
Housing Water, Electricity, Gas and Other Fuel	9.59
Communication	7.59

Source: NBS, ADSR Research

Figure 2: Weights of Consumption Classifications

Source: NBS, ADSR Research

Table 1: Frequency of Updates by Countries

SN	Country	Frequency of Updates
1	Nigeria	2009 (?)
2	Ghana	2017 (every 5 years)
3	South Africa	2022 (every 4-5 years)
4	USA	2019/2020 (every 2 years)
5	UK	2022 (every 2 years)
6	Canada	2021 (annually)
7	Japan	2020 (every 5 years)

Source: ADSR Research

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