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Rebasing Inflation and Gross Domestic Product of An Economy: the Nigerian Experience

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ABSTRACT

Rebasing is an important statistical procedure for updating the base year of indices such as inflation and GDP. This paper examines the implications of rebasing inflation and GDP, with a focus on the Nigerian economy. The paper investigates the methodology, outcomes, and economic impact of Nigeria's 2024 GDP rebasing exercise, providing a thorough examination of the importance, benefits, and challenges of rebasing economic indices. Inflation is the rate at which general prices for goods and services rise, reducing purchasing power. It is commonly measured using the Consumer Price Index (CPI) or the Producer Price Index (PPI). GDP is the monetary or market value of all finished goods and services produced within a country's borders over a given time period. It is a broad indicator of overall economic activity and health. Monetary policy refers to actions taken by a country's central bank to control the money supply and achieve macroeconomic objectives such as inflation, consumption, growth, and liquidity while Fiscal policy refers to the use of government spending and taxes to influence the economy.

Keywords: Rebasing, Inflation, Gross Domestic, Product, Economy, Nigerian Experience.

INTRODUCTION

The Gross Domestic Product (GDP) is an important indicator of economic activity because it represents the total value of goods and services produced within a country. In contrast, inflation is defined as the rate at which the overall level of prices for goods and services rises, reducing purchasing power. The accurate measurement of these indicators is critical for economic planning and policy formulation. Rebasing entails changing the indices' base year to better reflect current economic conditions. Nigeria undertook a significant rebasing exercise in 2014, updating its GDP calculations from a 1990 base year to a 2010 base year, resulting in a significant increase in the country's declared GDP. Gross Domestic Product (GDP) is the total monetary value of all goods and services produced within a country's borders over a given time period, which is usually measured annually or quarterly. It includes the sum of consumption, investment, government spending, and net exports (exports minus imports). GDP is a comprehensive measure of a country's overall economic activity that is commonly used to assess its economic performance and growth.

Inflation can skew economic data over time. Prices and economic structures shift, rendering comparisons to the base year less meaningful. Rebasing helps to provide a more accurate picture by moving the base year to a more recent period that reflects current economic conditions. High inflation makes it difficult to distinguish between nominal and real growth. By rebasing, economists can better isolate real economic growth from inflationary effects, giving a clearer view of an economy's actual performance. Accurate inflation measurement is crucial for effective economic policy. If inflation is not correctly accounted for, policymakers might make decisions based on outdated or misleading data. Rebasing ensures that inflation measures are up to date, which leads to better policy decisions. Accurate economic data, including properly measured inflation, is critical to investors' confidence. Investors rely on this data to make informed decisions. Rebasing can help to maintain or restore confidence by providing more accurate economic indicators. Countries frequently compare their economic performance to that of other nations. Rebasing ensures that these comparisons are more accurate and comparable, as different countries' inflation rates and economic changes can vary over time. Many social and economic programs are indexed to inflation. If inflation is measured incorrectly due to an out-of-date base year, adjustments to these programs may fail to reflect current economic conditions. Rebasing ensures that such adjustments are equitable and appropriate.

The traditional role of central bank is maintaining price stability. Monetary policy as a tool for controlling inflation in Nigeria is severely limited. Some of these limitations are due to the fact that over 30% of Nigerians are unbanked and 80% of the money in circulation are outside the banking sector, notwithstanding counterfeit, dollarization of the economy, hoarding of goods, use of dollar as a store of value, foreign exchange rate volatility. Insecurity, on the other hand poses grave danger because it restricts the flow of investment and has scared away female farmers. According to African union in 2014, 80% of primary food are grown by women, 80% of primary produce are processed by

women and 80% of local retails of primary food are done by women. Insecurity has reduced the food print, the arable land available for cultivation sent many farmers to IDP camps, reduced Nigeria agriculture GDP growth rate in Q1 2024 to 0.18%, this is a far cry from the population growth rate of 3% and urbanization rate of 4.6%, even at that precarious food supply challenge in Nigeria, adverse bad weather, flood etc. the 100 million francophone citizens from neighboring Chad, Niger, Benin republic, Togo, Burkina Faso, Mail are dependent on imported food from Nigeria because Nigeria currency relative to Franc CFA is about 80% devalued.

These imports are informal and largely protected by ECOWAS treaty and protocols on free movement and trade liberalization scheme (ETLS). This represents cross border elastic contingent on currency differentials and forex price volatility. The food insecurity situation is exacerbated by imported inflation of processed food, hence food basket inflation sub index cruises at high attitude of 40%. They are nevertheless other factors fueling inflation in the country mainly around excess liquidity of the local currency partly due to huge injection from ways and means of 23 trillion-naira post-election spending spree, high credit to the private sector which rose about 60% in recent times. These injections are not driven by commensurate increases in productivity and hence inflationary. Stringent inflation targeting by monetary authorities and hike in monetary policy rate from 16% to 26% (may 21 2024), but structural factors such as rising cost of diesel, petrol, transportation cost, electricity price hike, and their knock-on effect on industrial input cost and agitation for increase wages all add to the cost of production and degrade both aggregate output, investment and aggregate demand and hence the GDP growth. The high inflation rate regime which is negative real interest rate, as inflation is at 33.69% way above the MPR rate of 26.25%. Obviously to attract foreign portfolio investment and switch investment to higher yielding Treasury bill bonds, the MPR rate will not come down any time soon. Meanwhile, SMEs and manufacturers have seen banks reprice loans to higher rates, and lending rates in excess of 30% to 35% are unattractive to the real sector.

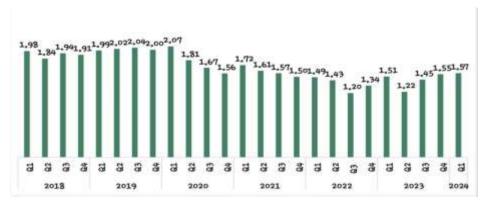
LITERATURE REVIEW

Conceptual Framework

The National Bureau of Statistics (NBS) reports that Nigeria's gross domestic product (GDP) increased by 2.98 percent in the first quarter of 2024. The growth rate, according to the bureau, is higher than the 2.31 percent recorded in the same quarter of 2023 but lower than the 3.46 percent recorded in the fourth quarter Q4 of 2023. According to the bureau, the performance of the GDP in Q1 was primarily driven by the services sector, which recorded a growth of 4.32 percent and contributed 58.04 percent to the aggregate GDP. The National Bureau of Statistics (NBS) reports that Nigeria's GDP increased by 2.98 percent in the first quarter (Q1) of 2024. "The agriculture sector grew by 0.18%, up from -0.90% growth in the first quarter of 2023," the NBS reported. "The growth rate of the industry sector was 2.19%, up from 0.31% in the first quarter of 2023. In terms of share of the GDP, the services sector contributed more to the aggregate GDP in the first quarter of 2024 compared to the corresponding quarter of 2023". The statistics body also stated that in nominal terms, the aggregate GDP was N58.8 trillion during the quarter under review. According to NBS, this is higher than the first quarter of 2023, when aggregate GDP was N51.2 trillion, indicating a nominal growth rate of 14.86 percent year on year.

Oil Production Retains 1.5m Barrels in Q1 2024 - Contributed 6.38% to GDP

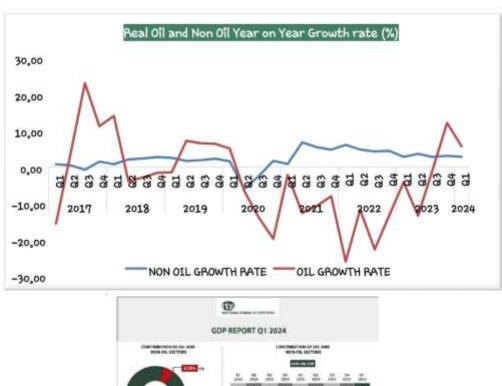
According to the report, the country produced 1.57 million barrels of oil per day (mbpd) on average during the first quarter. This is 0.02 million barrels per day (mbpd) more than the fourth-quarter production volume of 1.55 million barrels per day. Furthermore, the daily average production of 1.57mbpd in Q1 is 0.06mbpd higher than the 1.51mbpd recorded in the same quarter the previous year. "The real growth of the oil sector was 5.70% (year on year) in Q1 2024, indicating an increase of 9.91% points relative to the rate recorded in the corresponding quarter of 2023 (-4.21%)," the bureau stated. "Growth decreased by 6.41% points compared to Q4 2023, which was 12.11%. In Q1 2024, the oil sector experienced a 13.77% quarterly growth rate. The report also revealed that the oil sector contributed 6.38 percent of total real GDP in Q1, compared to 6.21 percent in the same period in 2023 and 4.70 percent in Q4.

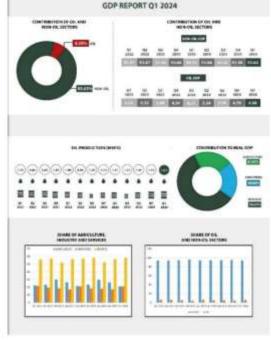


Non-Oil Sector Contributed 93.6% to Q1 2024 GDP

The non-oil sector's share of the economic growth decreased by 1.6% in the first quarter, accounting for 93.62 percent of the growth. The non-oil sector, which is led by the telecommunications sector, information and communication, trade, agriculture (crop production), banking and

insurance (financial institutions), manufacturing (food, beverage, and tobacco), real estate and construction, and accounting, all made positive contributions to the GDP growth. The sector's contribution to the nation's Q1 GDP figure is lower than the 95.30 percent recorded in Q4 2023 and the corresponding quarter of 2023, which was 93.79 percent.





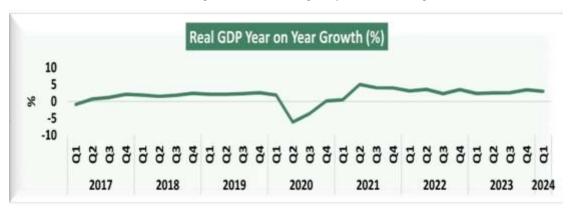
Consumer price index and inflation.

In May 2024, the headline inflation rate rose to 33.95% from 33.69% in April 2024. Upon analyzing the movement, it was observed that the headline inflation rate for May 2024 increased by 0.26% points in comparison to the headline inflation rate for April 2024. The headline inflation rate increased by 11.54% point's year over year to 22.41% in May 2023, the rate that was recorded at that time. This demonstrates that the headline inflation rate (year on year) increased in May 2024 when compared to the same month in the previous year (May 2023). On the contrary, on a month-on-month basis, the headline inflation rate in May 2024 was 2.14%, which was 0.15% lower than the rate recorded in April 2024 (2.29%). This means that the average price level will increase at a slower rate in May 2024 than it did in April 2024.

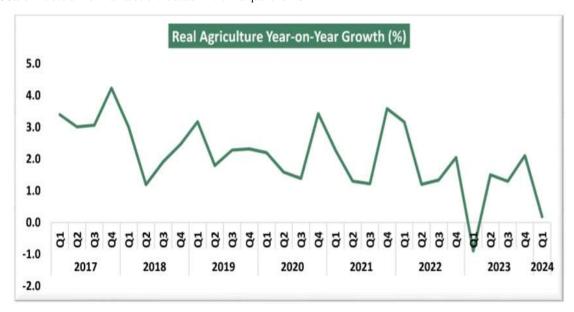
Nigeria's real GDP at basic prices increased by 2.54% year over year in the third quarter of 2023, a higher growth rate than the 2.25% growth rate in the same quarter of 2022. GDP growth in Q4 2023 was positive at 3.46%, although it was less than Q4 2022 growth (3.52%). However, in comparison to the third and fourth quarters of 2022, the performance in 2023 shows a 0.30% increase in the third quarter of 2023 and a

0.05% decrease in the fourth quarter of 2023. The annual growth rate of real GDP at basic prices was 2.74% in 2023, compared to 3.10% in 2022.

Nigeria's GDP increased by 2.98% (year on year) in real terms in the first quarter of 2024. This growth rate is higher than the 2.31% recorded in the first quarter of 2023, but lower than the 3.46% growth rate in the fourth quarter of 2023. The Services sector, which grew by 4.32% and contributed 58.04% to the overall GDP in the first quarter of 2024, was the primary driver of the GDP performance.



The agriculture sector grew by 0.18%, from the growth of -0.90% recorded in the first quarter of 2023. The industry sector grew by 2.19%, which is better than the 0.31% growth seen in the first quarter of 2023. In the first quarter of 2024, the services sector's GDP share of the total GDP was higher than it was in the corresponding quarter of 2023. However, this sector contributed 21.07% to overall GDP in real terms in Q1 2024, contributions were lower in the first quarter of 2023 and lower in the fourth quarter of 2023 which stood at 21.66% and 26.11% respectively. There are four sub-activities that makes up the agricultural sector which are crop production, livestock, fishing, and forestry. This sector year on year nominal terms grew at 0.77% in Q1 2024, in the same quarter 2023 showing a decrease of 4.47% points. Looking at the preceding quarter growth rate of 14.17% points. In this sector crop production remains the major driver, this is evident as it accounts for 87.98% of the overall nominal value of the sector in the first quarter of 2024.



In the first quarter of 2024, quarter-on-quarter stood at -37.60%. Agriculture contributed 17.22% in the first quarter nominal GDP in 2024. This figure was lower than the rate recorded in the first quarter of 2023 and lower than the fourth quarter of 2023 which recorded 19.63% and 24.65% respectively.

Household Consumption Expenditure

Household Consumption Expenditure, in Q3 and Q4 of 2022 grew by -5.83% and -12.47% in real terms, year-on-year. The growth rates in Q3 and Q4 of 2022 were lower than the rates recorded in Q3 and Q4 of 2021. The annual growth rate in 2022 stood at -4.07% compared to 25.65% in 2021. Government Consumption Expenditure recorded growth rates of -9.38% and -13.77% in Q3 and Q4 of 2022 respectively, on a year-on-year basis, higher, compared to -39.51% and -16.76% in Q3 & Q4 of 2021. Overall, government consumption expenditure grew by -9.91% in 2022. Net Exports recorded a growth rate since Q2 of 2022, a departure from a negative growth rate in the first quarter of 2022. In real terms, net exports increased by 74.11% and 161.66% in Q3 and Q4 of 2022, respectively. These rates exceeded the figures for Q3 and Q4

of 2021, which were -38.27% and 1.35%, respectively. On an annual basis, net exports increased by 84.39% in 2022, compared to -55.77% in 2021. National Disposable Income grew by 1.08% and 4.98% in Q3 and Q4 of 2022 respectively, but recorded growth of -1.46% and 2.76% in Q3 and Q4 of 2021 respectively on a year-on-year basis in real terms. National Disposable Income growth has been positive since Q4 of 2021, with better performance in Q3 and Q4 of 2022 compared to Q3 and Q4 of 2021. However, the annual growth rate in 2022 stood at 2.45% relative to -2.54% in 2021. Compensation of Employees in the Q3 and Q4 of 2022 grew by 4.28%, and 3.28% respectively in real terms on a year-on-year basis. These growth rates were lower than the 14.54% and 11.79% recorded in Q3 and Q4 of 2021 respectively. The annual growth rate in 2022 was 4.41% relative to 13.68% in 2021.

Nigerian Inflation Rate Rises to 33.69% in April 2024

According to the Nigeria Bureau of Statistics (NBS), the headline inflation rate increased by 0.49% in April 2024 to 33.69%, up from 33.20% in March 2024. When comparing year-over-year data, the rate of inflation in April 2024 was 11.47% higher than that of April 2023 (22.22%). This indicates that the headline inflation rate has risen significantly over the past year. Additionally, the month-to-month inflation rate for April 2024 was 2.29 percent, a decrease of 0.73% from the 3.02 percent rate recorded in March 2024. This suggests that the rate of price increase in April 2024 was slower than in March 2024.

Food Inflation

In April 2024, food inflation reached 40.53% year on year, a significant increase of 15.92 percentage points from 24.61% in April 2023. This significant increase in food inflation can be attributed to higher prices for several items, including millet flour, garri, bread, prepackaged wheat flour, and semovita, all of which are classified as Bread and Cereals, as well as yam tuber, water yam, and cocoyam, among others. The average annual rate of food inflation for the fiscal year ending April 2024 was 32.74%, up 9.52 percentage points from April 2023's average annual rate of 23.22%.

Core inflation

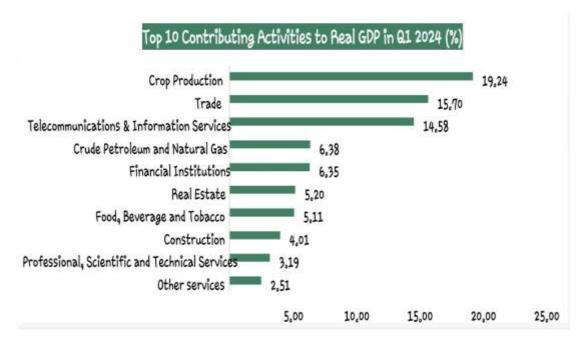
Core inflation, which excludes volatile agricultural products and energy, increased by 6.87% year on year to 26.84% in April 2024, up from 19.96% in April 2023. The most significant price increases were observed in actual and imputed housing rentals, motorcycle trips, bus trips within a city (under Passenger Transport by Road Class), medical consultation fees, X-ray photography (under Medical Services Class), and accommodation services. On a monthly basis, the core inflation rate was 2.20% in April 2024, down from 2.54% in March 2024, a 0.34% decrease. The average annual core inflation rate for the twelve months ending in April 2024 was 22.84%, which is 5.15 percentage points higher than the 17.70% rate in April 2023.

Urban inflation

In April 2024, the urban inflation rate was 36.00% year on year, 12.61 percentage points higher than 23.39% in April 2023. On a month-to-month basis, the urban inflation rate in April 2024 was 2.67%, down 0.50 percentage points from 3.17% in March 2024. The average urban inflation rate over the twelve months ending in April 2024 was 30.02%, up 8.53 percentage points from the 21.50% reported in April 2023

Rural inflation

In April 2024, the rural inflation rate was 31.64% year on year, 10.50 percentage points higher than the 21.14% seen in April 2023. On a monthly basis, rural inflation in April 2024 was 1.92%, a decrease of 0.95 percentage points from 2.87% in March 2024. The average rural inflation rate for the twelve months ending in April 2024 was 26.38%, up 6.20 percentage points from the 20.18% reported in April 2023.



Top 10 contributing activities to real GDP in Q1 2024



EMPIRICAL REVIEW

Chimobi, (2024) found that growth - inflation interaction was strictly concave with some threshold level of inflation. Inflation threshold level is estimated using a non-linear least squares technique, and inference made by applying a bootstrap approach. The main findings were that inflation rate above 8 percent tend to slow down economic growth while below 8 percent promotes economic growth.

Gopakumar et al. (2024) examined threshold effect of inflation on GDP Growth by using a panel data of 165 countries including Oil Exporting Countries and Azerbaijan over the period of 1960-2007. Their study found that for all country groups' threshold level of inflation for GDP

growth was about 10 percent (with the exclusion of industrialized countries where threshold level was much lower). Estimated results suggested that inflation from higher than 13 percent decreases real non-oil GDP by 207 percent per year. Lastly, review of literature on money supply and exchange rate influence on economic growth and inflation.

Odhiambo and Wondafrash, (2024) revealed that money supply had a direct impact on inflation. Mwase, (2006) indicated that currency appreciation is associated with a decrease in inflation rate, with one quarter lag. Ahmed, (2024) employed annual data set on growth rate of real GDP, Consumer Price Index Inflation and growth rate of real Gross Fixed Capital Formation to investigate whether there was any threshold effect of inflation on economic growth over the period of 2001-2009. Estimated threshold model indicated that there was non-linear relationship between inflation and economic growth in the Azerbaijani economy and threshold level of inflation for GDP growth was 13 percent. Inflation rate lower than 13 percent reflected statistically significant positive effect on GDP growth but this positive relationship became negative when inflation exceeded 13 percent. He added that, economic growth was expected to decline by about 3 percent when inflation increased above the 13 percent threshold.

Al-Taeshi, (2023) suggest that all the variables in the unit root model were stationary and the results of causality revealed that GDP caused inflation and not inflation causing GDP. The results also revealed that inflation possessed a positive impact on economic growth through encouraging productivity and output level and on evolution of total factor productivity. Mallik and Chowdhury, (2001) found two results: First, the relationship between inflation and economic growth is positive and statistically significant for Bangladesh, Pakistan, India and Sri Lanka. Second, the sensitivity of growth to changes in inflation rates was smaller than that of inflation to changes in growth rates. The policy implication of these results was the fact that although moderate inflation promotes economic growth, faster economic growth absorbs into inflation by overheating the economy. Frimpong and Oteng-Abayie, (2010) found a threshold effect of inflation on economic growth of 11 percent for Ghana over the period 1960-2008 though failing the test of significance at that level.

Studies such as Aydin (2017), Mamo (2012), Manoel (2010) and Ndoricimpa (2017) on the inflation and economic growth nexus are mainly cross-country. The findings obtained cannot be directly applied to Nigeria because of the differences in their exposure to political, financial, economic structures, and their reactions to external shocks. This study applies a country-specific approach to investigate whether inflation is detrimental to the economic growth of a country with specific inclination to Nigeria. Also, previous studies use different estimation techniques and receive contradictory results. Some studies show that inflation induces the growth prospects of the economy as observed by the structuralists (Anidiobu, Okolie, & Oleka, 2018; D. Chude & N. Chude, 2015; Enejoh & Tsauni, 2017; Umaru & Zubairu, 2012), while others showed that inflation is harmful to economic growth (Al-Taeshi, 2016; Denbel, Ayen, & Regasa, 2016; Idris & Suleiman, 2019; Kasidi & Mwakanemela, 2015; Manoel, 2010; Mkhatshwa, Tijani, & Masuku, 2015).

Apart from this, Anochiwa and Maduka (2015) found no clear convincing evidence, either positive or negative, for the inflation and growth rate of an economy. This implies that the relationship between these two economic variables is far from being empirically settled. Thus, studies in these areas appear inconclusive. The different results obtained by the empirical studies do not permit the researchers to draw an unequivocal conclusion on the subject matter. Anochiwa and Maduka (2015) are of the view that the ability of monetary authorities to maintain single-digit inflation would increase the capacity to accelerate economic growth.

However, the reverse is the case for Nigeria. Available data from the Central Bank of Nigeria Statistical Bulletin (2024) on the trend of inflation indicate that the inflationary situation in the country has become alarming since 1980 until 2024. The inflationary trend shows that Nigeria had only maintained single-digit inflation for fourteen years in the past thirty-eight years. However, the persistent increase in the inflation rate in Nigeria is evidence of the failure of both monetary and fiscal policies.

Al-Taeshi (2016) examines how inflation impacts Malaysian economy from 1970 to 2014 using co-integration and Granger causality test. Evidence from the study suggests that inelastic response was found between economic growth and inflation rate. Using the panel analysis, Ndoricimpa (2017) studies inflation threshold on economic growth in some selected African countries. The result indicates the nonlinear relationship between the two variables, and that low inflation enhances the growth of the economy in the middle-income countries, while it has no effect on the sample put together. The result also shows that inflation beyond the threshold negatively influences the economy in all the countries. In Nigeria, investigating budget deficit and economic growth is causally examined by Ndoricimpa and Akinbobola (2023) using the growth of the economy, inflation rate, budget deficit, and exchange rate. The study shows unidirectional causal relationship between deficit budget and inflation rate and that it runs from the former to the latter. The result also reveals that budget deficit affects inflation rate as a result of frequent fluctuations in the exchange rate.

Umaru and Zubairu (2012), using regression analysis and causality estimation test on data ranging from 1970 to 2010, examine how inflation impacts on the Nigerian economy. The result shows unidirectional relationship between gross domestic product and rate of inflation, while there exist the causal relationships between the former and the latter. The result also indicates that inflation reveals positive influence on the growth of the economy. Inyiama (2013) employs Johansen co-integration and Granger causality test to determine if inflation weakens the growth of Nigerian economy for the period 1979–2010. The result shows that the rate of inflation is inversely related on economic growth, while the exchange rate and interest rate indicate a direct impact on the economy. The causality test indicates no causal relationships between inflation rate and economic growth.

METHODOLOGY

This study made use of descriptive and comparative analytical tools using previous, present and future realities, possibilities and prospects to compare with existing data and figure as presented The data is from the National Bureau of Statistics (NBS), for the rebased exercise. Also, incorporated in the analysis are suggestions on possible way forward as identified by some major players and stakeholders in these sectors.

Data collection was based on secondary data and from Statistical Bulletin of the Central Bank of Nigeria (CBN), Federal Office of Statistics (FOS) and Annual Abstract of Statistic of the National Bureau of Statistic (NBS).

Descriptive Analysis of the rebased Data Nigeria revealed rebased Gross Domestic Product (GDP) figures for 2024 showed an 89 per cent jump in the estimated size of its economy. The rebased data showed that the size of the Nigerian economy is now estimated at N80.3 trillion (\$510 billion) for 2024.

CONCLUSION

The study holistically evaluates the Rebasing inflation and gross domestic product of an economy in the Nigerian experience. The role of the informal sector in the development of the Nigerian economy via the output and employment approach. The Nigerian informal economy contributed immensely to the new rebased GDP of Nigeria, it also employed a whopping 48 million Nigerians and created 13 million ownerships of microenterprises. Despite the support of the informal sector to Nigerian economic growth, the sector is faced with some challenges.

RECOMMENDATIONS

GDP Rebasing is very essential because it is a normal statistical procedure undertaken by the national statistical offices of countries to ensure that national accounts statistics present the most accurate reflection of the economy as possible.

Rebasing exercise should enables policy makers and analysts obtain a more accurate set of economic statistics that is a truer reflection of current realities, for evidence-based decision-making.

Rebasing will give government better tools to tackle the challenges of growing the economy and fighting poverty.

Rebasing will enable government to have a better understanding of the structure of the economy, the sectoral growth drivers, and sectors where investment and resources should be channeled in order to grow the economy, create jobs, improve infrastructure and reduce poverty.

Rebasing will not change the facts of our economy overnight. It will not make poverty and unemployment disappear overnight but it will give us the tools, the policy ability, to tackle these problems in order to reduce poverty and improve the welfare of our people.

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