



## **The Effectiveness of Financial Sustainability in Targeting Inflation, Nigeria as a Model for the Period 2004-2040**

**Roa'a Mohammed Kadhim**

**College of Education for Pure Sciences**

**[Rkadhim@uowasit.edu.iq](mailto:Rkadhim@uowasit.edu.iq)**

**<https://doi.org/10.29124/kjeas.1549.19>**

### **Abstract**

Creating a sovereign fund financed by Nigeria's oil surpluses is a significant objective. Rentier countries tend to see their current operating expenditures increase in tandem with oil revenue growth, surpassing the growth of the gross domestic product. This points to a structural deficit resulting from excessive spending. The government controls the money supply by managing the monetary base, which, in turn, is influenced by foreign reserves. Therefore, the study focused on assessing the effectiveness of fiscal policy tools and financial sustainability in addressing inflation. The goal is to predict these financial variables accurately until 2040 to safeguard monetary stability against fluctuations in oil prices. Utilizing the autoregressive model and moving averages (ARIMA), the study aims to address government spending growth, primarily driven by the monetization of oil revenues. This has led to a structural deficit within the Nigerian economy, which needs to be curbed by the effectiveness of the sovereign fund. This effectiveness is reflected in the concept of financial sustainability, with a focus on targeting inflation through what is known as nominal financial wealth. This translation of economic sustainability into tangible financial wealth does not adequately clarify the increase in non-oil output achieved through investment spending. The latter, in turn, results in actual growth in non-oil revenues, which is essential for addressing inflation through fiscal policy

tools. In a rentier economy reliant on oil, achieving economic stability isn't assured solely by a balanced budget. It's crucial that public spending is managed with a level of independence from fluctuations in oil prices. The study's findings demonstrate the relative effectiveness of the financial sustainability forecasting model in influencing inflation targeting in the Nigerian economy.

**Keywords:** financial sustainability; inflation targeting; non-oil revenues; non-oil output growth; autoregressive model; moving averages.

## 1. Introduction:

This study suggests the potential to forecast the impact of financial sustainability on inflation in Nigeria up to 2040, employing the autoregressive method and moving averages (ARIMA). This can be achieved by channelling the oil revenues generated into investment spending, thereby ensuring long-term financial sustainability through a sovereign fund funded by a portion of the generated revenues. The fund is allocated to investments in diverse economic sectors, gradually shifting public spending away from reliance on non-oil revenues. While this policy is essential, it alone may not be sufficient to significantly impact inflation trends. To achieve economic diversification and a broader array of income sources, it's crucial to recognize that rentier economies heavily depend on oil revenues, not only for financing all economic sectors but also as the primary driver of gross domestic product components.

Inflation tends to occur because the response to changes in investment spending is more elastic compared to the response to changes in consumer spending. This underscores the significance of the study, which advocates for the implementation of a sovereign fund to secure financial sustainability. This fund is instrumental in promoting real growth in the non-oil GDP and, in turn, facilitates the targeting of inflation through this mechanism until 2040. It represents a novel, long-term strategic economic objective aimed at reducing reliance on volatile, unsecured oil resources. These transformations have two primary objectives. Firstly, to secure future revenues, and secondly, to shift the economy from near total reliance on oil for all spending components to dependence on oil solely for investment spending. The ultimate aim is to transition to an economy led by the private sector within the framework of free-market assumptions and conditions. Accurate forecasting is indispensable in achieving these goals. The

path of financial sustainability holds a significant role in achieving economic stability and securing the future for future generations, primarily through the pursuit of real growth as a means to control inflation. Therefore, forecasting provides a forward-looking perspective on the future state of these variables, aiding in the formulation of economic decisions and strategic planning. The ARIMA model will be applied to the annual time series data of these variables from 2004 to 2040, to derive the most precise models for predicting future values of financial sustainability and inflation.

Despite the considerable oil revenues that Nigeria has generated and the economic advancements in various variables, there remains a significant dependency on global oil prices and the global demand for crude oil. This reliance results in price instability at the macroeconomic level, and consequently, rentier countries like Nigeria struggle to achieve financial sustainability across all their economic variables. It's worth noting that these countries tie their public spending to oil revenues, leading to a reduction in domestic productive capabilities and an actual deficit in the capacity of non-oil sectors to foster genuine economic growth. These factors are substantial contributors to inflation. Therefore, the objective is to attain financial sustainability by channeling oil surpluses into investments. These oil surpluses should be channelled into the productive sectors, facilitating job creation and enabling investments in economic infrastructure, petrochemical industries, and the delivery of essential educational, healthcare, and social services. The ultimate goal is to reduce the heavy reliance on oil exports as the primary source of financing. However, the sustainability of financial revenues, primarily derived from oil, is a concern. Dependence on oil for government revenues and as a significant funder of development plans introduces risks to the economy. Therefore, it's essential for the economy's performance not to depend excessively on external factors. Rentier countries, including Nigeria, are faced with ongoing challenges in diversifying their economy and reducing their heavy reliance on the oil sector and its revenues. Despite promises and efforts by governments and economic planning authorities, achieving sustainable economic growth, effective diversification policies, and price stability remains elusive. This necessitates the strict implementation of institutional economic reforms and an enhancement of labour market conditions to ensure high employment levels and productivity in the private sector. Additionally, fostering the growth of small and medium enterprises should be approached carefully, considering their potential impacts on the economic and developmental conditions in

the country. These combined efforts are indicative of real financial sustainability, which can help stabilize inflation a goal that can be achieved through the Sovereign Fund. It's important to note that the study aims to accomplish the following:

- Evaluating the effectiveness of financial sustainability in addressing inflation in Nigeria.
- Quantitatively assessing the impact of financial sustainability measures on inflation in Nigeria for the period 2004-2040, utilizing the ARIMA model.

To accomplish the research objectives, an inductive approach will be employed. This approach involves collecting and carefully analyzing interrelated data to establish comprehensive connections. It will utilize quantitative methods to analyze and measure the data, ultimately enabling long-term predictions. The research will rely on the analysis and evaluation of various indicators as a central component of its methodology. The research will utilize advanced standard and statistical methods, employing the AvioTime program along with the ARIMA method. This combination will yield the most accurate and reliable parameter estimates, which are crucial for precisely forecasting non-oil output variables. The preparation of this research will draw from various sources, including books, studies, economic journals, and relevant reports, with a particular focus on publications from the Central Bank of Nigeria and the International Monetary Fund. It's important to note that the research's scope will be defined by both spatial and temporal constraints.

- Spatial boundaries: The research will solely rely on data pertinent to the State of Nigeria, which is characterized by rentier traits resulting from its dependence on oil revenues and their significant influence on various components of the gross domestic product.
- Temporal limits: The study will focus on achieving precise forecasts regarding the trajectory of financial sustainability and its repercussions on inflation, assessing this relationship specifically within the State of Nigeria for the period spanning from 2004 to 2040.

Noting that the most important expected problems of the research, include:

- Establishing a sovereign fund funded by allocating up to 10% of oil revenues.

- Directing the revenues from the fund exclusively towards infrastructure investments to ensure the continuity of financial sustainability, which, in turn, contributes to the stability of the general price level.
- The methods utilized to assess predictive relationships between the study's variables will be based on time series analysis, which may involve linear, non-linear, or semi-linear (logarithmic) equations.

The study's hypothesis suggests that the degree of success in using financial sustainability to target inflation varies based on the specific conditions and procedures involved in implementing this policy.

As for the duration and timetables:

The selected time frame from 2004 to 2040 was chosen to secure accurate and reliable predictive results for the study's variables. This extended period allows for the attainment of financial sustainability indicators that lead to acceptable and well-controlled levels of inflation. Furthermore, it accounts for the stability of these data beyond 2004, taking into consideration the political and economic events that transpired in the country during this time period.

## **2. Financial Sustainability**

As stated by Yilmaz, (2007:61) the International Monetary Fund defines financial sustainability as the ability of a borrower to continue servicing their debts without the necessity of making significant future changes in public expenditures and revenues. Financial sustainability means not accumulating excessive debt and its associated servicing costs over time (European Commission, 2012:1). Gurtner, Sturm, and Alegre, in their analysis specific to oil exporters, described sustainable fiscal policy as one that maintains the same level of public goods or public spending in the post-oil era as during the time of oil, without relying on deficit budget financing. They also distinguished between financial sustainability and intergenerational justice. If oil revenues are balanced by tax revenues, this ensures financial sustainability, though not necessarily fairness between generations. Kenan Aslanli (2015:115) affirmed that financial sustainability across generations is characterized by the ability to maintain or expand organizational services while remaining highly adaptable to occasional economic shocks over

time (Zabolotnyy & Wasilewski, 2019). Moreover, financial sustainability encompasses financial activities aimed at enhancing the use of resources to improve the environment (Hou, 2019:26). Shehata Abdallah and Abdelatif Lobna (2014:3) define financial sustainability as being closely tied to the debt-to-GDP ratio. In its true essence, sustainability implies a country's capability to fully meet its present and future debt service obligations without relying on debt relief, rescheduling, or accumulating arrears (Giammarioli, 2007:7). While various concepts and ideas exist, they all concur that the fundamental prerequisite for ensuring the sustainability of public finances is evaluating the state's capacity to consistently implement its fiscal policies, financing various public spending programs without falling into situations of financial default and an inability to pay.

### **3. Financial Sustainability Indicators:**

When assessing financial sustainability, a set of internationally approved criteria is employed, often utilizing several composite indicators. These indicators consider the temporal changes in fiscal policy variables, with a particular focus on domestic public debt, budget deficits, and tax-related factors. The most crucial of these indicators, as outlined by Wahab et al. (2022), include:

- The Public debt index to GDP measures the amount one of the public entities within a state commits to others by borrowing funds to cover budget deficits. They agree to repay this borrowed sum over time, along with interest on the debt under specific conditions (Karim et al., 2022). Whereas Gross Domestic Product (GDP) represents the total market value of all final goods and services produced within an economy during a defined period, typically a year (Aramonte et al., 2022). Furthermore, the public debt index to GDP is crucial because it provides a comprehensive view of the debt burden. It serves as a guiding indicator for evaluating the financial position of any country or region and its ability to meet its public debt obligations. Using this indicator, a country's financial position can be considered financially unsustainable in the following circumstances (Khan et al., 2022). A country's financial position can be deemed financially unsustainable in the following cases: When the rates of the public debt index to the gross domestic product exceed historical averages. If the ratio of public debt to GDP increases relative to other countries. When preserving the stability of the public debt-to-GDP ratio necessitates significant modifications to the current fiscal policies.

- The tax gap index is a critical metric for evaluating the effectiveness of a country's taxation system. Taxes, which are mandatory monetary deductions collected by the state from both individuals and businesses, primarily serve to finance public expenditures and achieve economic policy objectives. This category includes tax revenues, fines, and state shares from the profits of public institutions (Kumar et al., 2022). Public revenues encompass all the funds acquired by the state, whether through its sovereign capacity, property and economic projects, loans (both domestic and foreign), or inflationary sources, all of which are used to fund public expenditures (Feng et al., 2022). These revenues comprise various types of assets, including cash, movable, and real estate, that flow into the state treasury and cover public revenue items in the budget (Macchiavello & Siri, 2022). The tax rate or annual tax revenue frequently proves insufficient to fully fund expenses, hence prompting the exploration of alternative sources of income. This indicator plays a crucial role in monitoring and facilitating the rise of tax income during the 1990s, since it is essential for the effective execution of economic policies. This metric quantifies the extent to which taxes contribute to the overall national income. It is imperative to acknowledge that this particular component in isolation lacks the capability to evaluate the sustainability of government finances (Macchiavello & Siri, 2022).
- The Primary Deficit Index is regarded as a valuable metric for assessing the fiscal well-being of a government. A public deficit arises when the money generated by the government is insufficient to cover its expenditures. This phenomenon might potentially be attributed to a rise in government expenditure or a decline in public money. This statement critically examines the allocation of funds by the government and evaluates its impact on the overall state of public finances. In contrast to prevailing public sentiment, a budget surplus is realised when the money generated by the public sector exceeds its expenditures (Nedopil Wang et al., 2022). The calculation of this statistic involves evaluating the initial deficit or surplus of the budget. The formula takes into consideration the disparity between government expenditures (excluding interest payments) and income (excluding interest), as stated by Nedopil Wang et al. (2022). The aforementioned ratio illustrates the extent to which public debt constrains the annual decision-making process regarding the public budget, hence necessitating the prioritisation of certain public expenditures. The calculation of this statistic entails the

assessment of the allocation of public funds and sources of income in order to ascertain the extent to which the budget deficit impacts the public finances.

#### **4. Financial Sustainability Rules.**

According to Nedopil Wang et al. (2022), the principles governing public finance with the objective of attaining the fiscal viability of the state can be outlined as follows.

- According to the Golden Rule, the utilization of borrowing should be limited to financing investment expenditures, while current expenses ought to be funded from tax revenues and current income.
- The balanced budget principle restricts budget deficits to exceptional situations that can be remedied. Thus, a balanced budget is not necessary during economic contractions as long as it maintains balanced over economic cycles. In such cases, extra revenues from economic expansion could offset deficits from economic downturns.
- Flexible fiscal restrictions allow the government to temporarily operate with a deficit within established limits. However, it is necessary to explain this temporary deficiency and set a timeframe for restoring fiscal equilibrium.
- The Investment Sustainability Rule mandates the maintenance of the public debt-to-GDP ratio at levels that are in accordance with caution and prudence throughout the economic cycle. The determination of the specific ratio is contingent upon a multitude of factors and variables, which exhibit potential variability across different countries.

#### **5. Inflation**

Inflation does not take into account variables such as changes in the weather or seasonal shifts in the cost of goods and services, particularly those that see higher demand around the winter holidays. It is possible to evaluate the efficiency of governments based on their ability to combat inflation and preserve price stability, both of which are essential objectives that governments work hard to accomplish. Inflation-targeting policies are what most people think of when they hear the phrase "strategies aimed at addressing and controlling inflation." Because of this quality, the creation of strategies that aim to address and control inflation is possible (Arsi et al., 2022)..



## 6. Inflation Targeting Strategy

- The phenomenon of prices rising over a specified period of time, often over a period of at least one year, is what most people understand when they hear the word "inflation." Nevertheless, it is essential to recognise that not all instances of price increases can be categorised as inflation. This is a key point to keep in mind. No consideration is given to the role that climatological conditions and seasonal shifts in the cost of goods and services have in the overall rate of inflation; for example, the price fluctuations that occur throughout the holiday season. . According to Arsi et al. (2022), the issue that we are addressing is mostly due to the dynamic and widespread nature of inflation, which is the primary cause of the phenomenon. According to Arsi et al. (2022), inflation is typically defined as a continuous increase in the level of prices seen over a given period of time, and it is frequently considered to be an all-encompassing measure. The capacity of governments to combat inflation and preserve price stability, both of which are important aims, can be used as a criterion for evaluating how effective they are. Inflation-targeting policies are what most people think of when they hear the phrase "strategies aimed at addressing and controlling inflation." Because of this quality, the creation of strategies that aim to address and control inflation is possible.
- Targeting inflation in its entirety embodies the optimal manifestation of this strategic approach. Countries that embrace this method demonstrate a notable degree of credibility, a well-defined purpose in terms of monetary policy, and a resolute dedication to it. Moreover, the central bank places a high emphasis on ensuring transparency in the execution of monetary policy and demonstrates a willingness to accept responsibility for its decisions and actions. The central banks of these nations adopt predetermined inflation targets. New Zealand is often recognised as a prominent exemplar of a nation that wholeheartedly adopts this method. Subsequently, the plan is also adopted by eleven nations with emerging markets, following the seven big industrialised countries.
- Targeting selective inflation: Countries that employ this approach benefit from a high level of credibility, enabling them to maintain low and stable inflation rates. They achieve this without the need for complete transparency and accountability. This strategy also provides flexibility to attain stability in both output and prices.
- Targeting light inflation: This strategy is adopted by countries where central banks have declared their intention to follow an inflation-targeting approach. However, they do not possess

a high level of credibility, and their institutional frameworks are less robust, typically focusing on setting a narrower target for the inflation rate.

## 7. Countries' Experiences in Applying the Inflation Strategy.

25 years ago, or more, the inflation targeting strategy appeared in New Zealand after the Reserve Bank of New Zealand issued 1990 a law requiring the official adoption of this modern monetary framework, followed by many industrialized countries and emerging market countries, as this strategy showed after several years satisfactory results for some implementing countries. For this framework in reducing inflation rates and achieving price stability, the good news about the effectiveness of this modern strategy made it the subject of interest and more attractive in all parts of the world, and all countries began to look at this strategy as the secret to strengthening their central banks, their monetary policy and their overall economic performance. The number of central banks in countries that adopted this modern framework in 2015 is about 36 banks, of which 11 banks belong to industrialized countries, and 25 banks from emerging market countries and developing economies, as shown in the table below:

Table No. (1): Countries targeted for inflation from (1990-2019).

Country	accreditation date	Country	accreditation date	Country	accreditation date
zealand	1990	Hungary	2001	Japan	2013
Chile	1991	Iceland	2001	Molodov	2014
Canada	1991	Peru	2002	India	2015
United Kingdom	1992	Philippine	2002	Kazakhstan	2016
Australia	1993	Guatemala	2005	Russia	2017
Sweden	1995	Serbia	2006	Argentina	2018

Czech	1997	Turkey	2006	Egypt	2019
Palestine	1997	Ghana	2007		
Korea	1998	Albania	2009		
<b>Thailand</b>	2000	Dominic	2011		
<b>South Africa</b>	2000	Uganda	2012		

Source: Klaus Schmidt-Hebbel, The Past and Future of Inflation Targeting, April 2016, PP:29-30. Disponible Sur:

[http://www.bcb.gov.br/pec/depep/Seminarios/2016\\_XVIIIISemAnualMetasInfBCB/SMETASXVIII-%20Klaus%20Schmidt.pdf](http://www.bcb.gov.br/pec/depep/Seminarios/2016_XVIIIISemAnualMetasInfBCB/SMETASXVIII-%20Klaus%20Schmidt.pdf) Wolassa L Kumo, Inflation Targeting Monetary Policy, Inflation Volatility And Economic Growth In South Africa, African Development Bank Group, Working Paper N: 216, Tunisia, January 2015, P: 32.

Looking at the information presented in the Table No. (1), it's evident that the first decade following the inception of this strategy was predominantly embraced by industrialized countries, including New Zealand, the United Kingdom, Canada, Sweden, Australia, and the occupied Palestinian territories, among others. However, starting in 2002, the number of countries endorsing this modern monetary framework increased to approximately 20 nations. Of these, 10 belonged to emerging markets and developing economies, such as the Philippines, Peru, Hungary, South Korea, South Africa, Thailand, and more. This number continued to grow, reaching 25 emerging and developing countries by 2015, including India, Uganda, Turkey, and others.

Many emerging market countries and developing economies adopted the inflation targeting strategy as a means to achieve price stability. This strategy signifies a commitment by central banks on one hand and serves as a nominal anchor to influence inflation expectations on the other. Initially, most of these central banks engaged in partial targeting of the inflation rate, often accompanied by an implicit focus on the exchange rate. Some central banks in emerging

markets and developing economies pursued inflation rate targeting with a commitment to setting an explicit target for the exchange rate, using strong interventions in foreign exchange markets. Notable examples include Colombia, Brazil, and Peru.

However, these countries eventually realized that partial inflation targeting carried inherent risks, prompting them to transition out of this approach. They gradually shifted towards full inflation targeting by implementing a free-floating exchange rate system and committing to continuously reducing interest rates to manage inflation effectively.

## **8. Fiscal Sustainability in Inflation Targeting in the Last Ten Years in Nigeria.**

Nigeria has had substantial challenges pertaining to financial sustainability during the course of the previous decade. The implementation of several measures by the government has been undertaken with the aim of bolstering fiscal sustainability. The initiatives encompass the execution of the Treasury Single Account (TSA) and the embrace of the Economic Recovery and Growth Plan (ERGP). Nevertheless, Nigeria has faced economic challenges, such as a recession in 2016 and the consequences of consistently low oil prices.

In order to improve the nation's ability to maintain its financial obligations in the long term, the government of Nigeria has launched a number of programmes, the most notable of which are the Treasury Single Account (TSA) and the Economic Recovery and Growth Plan (ERGP). Oil prices have fallen, and economic activity has slowed because of the COVID-19 epidemic. It is vital for Nigeria to maintain its efforts in diversifying its economy and strengthening its infrastructure if it wishes to achieve improved fiscal sustainability in the future. In a nutshell, throughout the course of the last decade, Nigeria has been confronted with significant challenges in relation to maintaining its financial stability. Despite the efforts of the administration to establish measures with the goal of reinforcing the budgetary sustainability of the nation, the nation still faced economic issues, which included a period of economic contraction and a decrease in oil prices. Despite these efforts, the nation still faced economic challenges. To ensure financial stability, constant investments in economic diversification and infrastructure upgrading are needed. Nigeria can overcome its economic issues and achieve long-term, sustainable growth by implementing the right policies and investing wisely.

There are a number of potential benefits that could accrue from Nigeria putting in place a policy framework that targets inflation. To begin, it is essential to point out that the implementation of this measure has the capacity to contribute to macroeconomic stability via the containment of inflationary pressures and the maintenance of price stability. It is crucial to remark that this measure has the potential to contribute to macroeconomic stability through the containment of inflationary pressures. This approach can also lower long-term inflation by stabilising inflation expectations. It could also increase monetary policy decision-making transparency and accountability. Finally, it could boost the central bank's legitimacy and public trust in its operations. These benefits affect several economic sectors.

Nevertheless, it is absolutely necessary to realise that the implementation of a policy framework that targets inflation in Nigeria comes with a number of intrinsic challenges. To begin, it is essential to recognise that the suggested framework might be subject to a number of limitations in terms of the capabilities of the institutions involved, which might make it more difficult to successfully implement the framework and ensure its long-term viability. This is because these elements play a critical role in accurately assessing current levels of inflation and in making well-informed policy decisions. Political considerations that encourage inflation deviance may also erode the framework's legitimacy. Additionally, exogenous influences, such as global oil prices, can affect Nigerian inflation and make inflation control difficult. This should be considered. It is crucial to carefully analyse the above issues and difficulties while implementing an inflation-targeted policy framework in Nigeria.

It is very necessary to employ a methodical approach in order to have any chance of effectively addressing the problem of inflation targeting in Nigeria. It is of the utmost importance to place a high priority on the implementation of policies aimed at increasing the capability of existing institutions and enhancing the statistics system. This will make it easier to conduct accurate assessments of inflation rates and give policymakers the ability to make decisions based on accurate information. In addition, when making decisions relevant to monetary policy, it is essential to keep a firm adherence to transparency and responsibility at all times. Because of your commitment, the general people will have more faith in the central bank. Thirdly, it is important to give priority to the maintenance of macroeconomic stability by using a wide array of policy tools, which includes fiscal policy and structural changes.

Macroeconomic stability must be prioritised through structural adjustments. Additionally, it is crucial to be aware of exogenous factors that can affect Nigeria's inflationary patterns. Diversifying the economy and minimising oil dependence are crucial. This must come first.

When implemented correctly, these measures have the ability to effectively address inflation targeting in Nigeria and promote long-term economic growth. The implementation of an inflation-targeting system can yield numerous benefits for a nation, including enhanced macroeconomic stability and increased credibility of the monetary authority. Nevertheless, it is imperative to acknowledge that the execution of such a policy framework is not devoid of its obstacles. Hence, it is imperative to undertake thorough and diligent measures to effectively tackle the issue of inflation targeting in Nigeria. The implementation of several strategies, including the enhancement of institutional capacity, the promotion of transparency and accountability, and the diversification of the economy, plays a crucial role in addressing this matter and fostering sustainable economic development in the long run.

#### **9. Forecasting the Effectiveness of the Financial Sustainability of Inflation Targeting in Nigeria up to 2040 Using the ARIMA Model**

In this section of the study, Box and Jenkins models will be applied to forecast the impact of inflation targeting on the financial sustainability of Nigeria up to the year 2040. This investigation will make use of time series data covering a wide range of factors for the span of time extending from 2004 to 2021. The information will be put to use in the process of making predictions and projections concerning the financial viability of inflation targeting in Nigeria throughout the course of the allotted term..

- **Predicting the Effectiveness of the Financial Sustainability of Inflation Targeting in Nigeria Until 2040 Using the ARIMA Model.**

This section of the research focused on locating models that are connected to prediction, regardless of whether the models in question are linear or non-linear. One model that illustrates this is the ARIMA model, which may be described as follows:

- **Autoregressive Integrated Moving Average Model (ARIMA).**

The Autoregressive Integrated Moving Average (ARIMA) model is a sophisticated instrument that may be used for the study of time data. It depends on the autoregressive (AR) rank, the integration (I) rank, and the moving average (MA) rank. These are the three essential components. The ARIMA (p, d, q) format is used to represent these components of the model. rank (p) of the autoregressive process: This is the number of terms in the model that are autoregressive, meaning that they form their predictions based on the values of the series in the past. Ranking (d) for integration (I): This is the number of deviations that are required to maintain the original time series in its stationary state. If there is to be no difference, then d equals 0. If there is only room for one distinction, then d equals 1, and so on. The Moving Average rank (q) is as follows: This indicates the number of forecast errors that were made in the past and were utilised to create the model, which is based on those errors. The ARIMA model can be stated as ARIMA (p, d, q), where it includes autoregressive dynamics, differencing to achieve stationarity, and moving average components for efficient time series analysis. In other words, it is a summary of the ARIMA model.

- **Description of the Study Variables.**

During the descriptive stage of the model, you will first identify the phenomenon that is being investigated, and then you will determine the variables or elements that can assist in providing an explanation for the behaviour of this phenomenon. It is essential to go through this process in order to make reasonable and straightforward assumptions in advance of the modelling process. At this point in the process, the pertinent variables and their respective relationships are formulated in the form of a mathematical expression. In the current investigation, a number of different factors were used to do an analysis of the efficiency of financially sustainable policies in the context of inflation targeting in Nigeria. The study of Kujarat (2015: 1082-1079) provides a wealth of information regarding the nature of the relationships that exist between these variables; therefore, the goal was to determine and estimate the nature of these relationships.

Non-oil revenues (X1)

Oil revenues (x2)

Foreign reserves (x3)

The interest rate on lending (x4)

Inflation ( x5)

GDP growth ( x6)

External debt (x7)

- The research looked at annual data for the time series for the period (2000-2021), and it was based on the official data and statistics from the World Bank for the same time period (2004-2021).
- **Determine the Degree of Stability of the Time Series**

The time series analysis that was performed on the study involved determining how stable the variables were over the course of the investigation. In order to accomplish this goal, unit root tests were run, and the extended Dickey-Fuller test was utilised to evaluate the level of predictability exhibited by the results. The outcomes of these unit root tests for the variables that are the focus of this inquiry are presented in Table (2).



Table No: (2) summary of the results of the extended Dickie Fuller test for the stability of time series for variables for the period (2004-2021)

UNIT ROOT TEST RESULTS TABLE (ADF)								
Null Hypothesis: the variable has a unit root								
	<u>At</u> <u>Level</u>							
		X1	X2	X3	X4	X5	X6	X7
With Constant	t- Statisti c	- 1.7027	- 1.7579	- 1.8584	- 0.8956	- 2.6392	- 2.0672	0.8 440
	<i>Prob.</i>	<i>0.4122</i>	<i>0.3868</i>	<i>0.3421</i>	<i>0.7639</i>	<i>0.1048</i>	<i>0.2586</i>	<i>0.9 916</i>
		n0	n0	n0	n0	n0	n0	n0
With Constant & Trend	t- Statisti c	- 1.8675	- 2.8846	- 7.2258	- 1.6415	- 5.5023	- 2.8518	- 4.0 115
	<i>Prob.</i>	<i>0.6268</i>	<i>0.1906</i>	<i>0.0003</i>	<i>0.7320</i>	<i>0.0024</i>	<i>0.2001</i>	<i>0.0 295</i>
		n0	n0	***	n0	***	n0	**
Without Constant & Trend	t- Statisti c	0.6189	- 0.9155	- 0.5195	- 1.3668	0.7402	- 1.6212	1.3 466
	<i>Prob.</i>	<i>0.8400</i>	<i>0.3055</i>	<i>0.4764</i>	<i>0.1530</i>	<i>0.8626</i>	<i>0.0972</i>	<i>0.9 484</i>

		n0	n0	n0	n0	n0	*	n0
	<u>At First Difference</u>							
		d(X1)	d(X2)	d(X3)	d(X4)	d(X5)	d(X6)	d(X7)
With Constant	t-Statistic	- 3.1425	- 5.0061	- 4.1445	- 4.3327	- 4.3869	- 4.3328	- 5.4855
	<i>Prob.</i>	<i>0.0434</i>	<i>0.0013</i>	<i>0.0078</i>	<i>0.0045</i>	<i>0.0051</i>	<i>0.0045</i>	<i>0.0006</i>
		**	***	***	***	***	***	***
With Constant & Trend	t-Statistic	- 2.8889	- 4.9187	- 4.2314	- 4.4172	- 4.1972	- 0.6336	- 3.1310
	<i>Prob.</i>	<i>0.1908</i>	<i>0.0065</i>	<i>0.0248</i>	<i>0.0155</i>	<i>0.0262</i>	<i>0.0155</i>	<i>0.1326</i>
		n0	***	**	**	**	**	n0
Without Constant & Trend	t-Statistic	- 2.9923	- 5.1238	- 4.1969	- 4.1015	- 4.4158	- 4.1027	- 2.7696
	<i>Prob.</i>	<i>0.0054</i>	<i>0.0000</i>	<i>0.0004</i>	<i>0.0004</i>	<i>0.0003</i>	<i>0.0004</i>	<i>0.0091</i>
		***	***	***	***	***	***	***

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

It is clear from Table (2) that, according to the expanded Dickey-Fuller test, the time series of the variables (non-oil revenues X1, oil revenues X2, interest rate on lending X4, GDP growth X6) does not give an identical degree of rest in the level, that is, it contains a root unity and that it becomes identical after taking its second difference. This indicates that they are integrated into the second degree, and the variables (foreign reserves X3, inflation X5, external debt X7) are identical in level.

#### - **Determine the Prediction Level.**

It is a stage through which degrees or ranks of the model AR (p) and MA (q) are recognized, respectively, through the simple and partial autocorrelation functions after the stability of the series, where to generalize the first-order regression model AR (1) we use AR (p) number Inside the bracket represents the degree of the autoregressive process. For example, AR(2) would be quadratic and have the following form:

$$Y_t - \partial = a_1(Y_{t-1} - \partial) + a_2(Y_{t-2} - \partial) + u_t$$

That is,  $Y_t$  follows a second-order autoregressive or AR(2) process, meaning that the value of Y at time t depends on its value in the previous period by two time periods. And AR(p) will have an autoregression of degree P as follows:

$$Y_t - \partial = a_1(Y_{t-1} - \partial) + a_2(Y_{t-2} - \partial) \dots + a_p(Y_{t-p} - \partial) + u_t$$

And that the moving average model MA (q) in its simplest form is of the first order and is in the following form:

$$Y_t = u + B_0 u_t + B_1 u_{t-1}$$

Where u is a constant, the MA(1) first-order moving average model implies that  $Y_t$  as the dependent variable depends on the value of the current random variable as the explanatory variable. Table (3) shows this.

Table No: (3) Determining the prediction rank for the non-oil revenue X1 variable.

Dependent Variable: X1				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22 Time: 22:58				
Sample: 2004 2021				
Included observations: 18				
Convergence achieved after 6 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
	t			
C	1.24E+13	2.88E+12	4.308620	0.0006
AR(1)	0.838650	0.150775	5.562269	0.0001
SIGMASQ	8.33E+24	3.24E+24	2.567154	0.0215
R-squared	0.592743	Mean dependent var		1.28E+13
Adjusted R-squared	0.538442	S.D. dependent var		4.65E+12
S.E. of regression	3.16E+12	Akaike info criterion		60.62050
Sum squared resid	1.50E+26	Schwarz criterion		60.76889
Log likelihood	-542.5845	Hannan-Quinn criter.		60.64096
F-statistic	10.91589	Durbin-Watson stat		1.514380
Prob(F-statistic)	0.001186			

Inverted AR Roots	.84		
-------------------	-----	--	--

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

It is noted from the data of Table (3) that the rank is ARIMA (1 , 1 , 0), where the degree of autoregressiveness is (AR = (1) and the degree of moving averages MA = (0) and the degree of integration that we recognized earlier, which is equal to (1), i.e. It is stable at the first difference, where we notice good total and partial significance according to the t test, which amounted to (5.562269) and the F test, which amounted to (10.91589), as the probability of each of them is less than a significant level (0.05), that is, it rejects the null hypothesis and accepts the alternative hypothesis, meaning The two parameters are statistically significant. As for the coefficient of determination R2, which represents the strength of the association and the effect, it is equal to 0.59 as shown in the table above, i.e. 59% is the explained and explained percentage, and the percentage 41% is explained by other factors not included in the model that include random variable or estimation errors.

Table No: (4) Determining the prediction rank for the X2 oil revenue variable.

Dependent Variable: X2				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22    Time: 23:10				
Sample: 2004 2021				
Included observations: 18				
Convergence achieved after 6 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	2.90E+1 3	9.70E+12	2.993337	0.0091
AR(1)	0.594005	0.277962	2.137005	0.0495
SIGMASQ	1.45E+2 6	6.16E+25	2.362243	0.0321
R-squared	0.361068	Mean dependent var		3.06E+13
Adjusted R-squared	0.275877	S.D. dependent var		1.55E+13
S.E. of regression	1.32E+1 3	Akaike info criterion		63.43703
Sum squared resid	2.62E+2 7	Schwarz criterion		63.58543
Log likelihood	- 567.9333	Hannan-Quinn criter.		63.45749
F-statistic	4.238344	Durbin-Watson stat		2.002181
Prob(F-statistic)	0.034746			
Inverted AR Roots	.59			

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

It is noted from the data of Table (4) that the rank is ARIMA(1, 1, 0), where the degree of autoregressiveness is (AR = (1) and the degree of moving averages MA = (0) and the degree of integration that we recognized earlier and it is equal to (1), i.e. It is stable at the first difference, where we notice good total and partial significance according to the t-test, which amounted to (2.137005) and the F-test, which amounted to (4.238344), as the probability of

each of them is less than a significant level (0.05), that is, it rejects the null hypothesis and accepts the alternative hypothesis, meaning The two parameters are statistically significant. As for the coefficient of determination R<sup>2</sup>, which represents the strength of the association and the effect, it is equal to 0.36 as shown in the table above, i.e. 36% is the explained and explained percentage, and the percentage 64% is explained by other factors not included in the model that include random variable or estimation errors.

Table No: (5) Determining the prediction rank for the foreign reserves variable X3.

Dependent Variable: X3				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22    Time: 23:17				
Sample: 2004 2021				
Included observations: 18				
Convergence achieved after 10 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coeffi cient	Std. Error	t-Statistic	Prob.
C	3.73E+ 10	5.70E+09	6.544575	0.0000
MA(1)	0.9942 57	0.268474	3.703363	0.0024
MA(2)	0.6705 44	0.287625	2.331316	0.0352
SIGMASQ	8.70E+	4.03E+19	2.159520	0.0486

	19			
R-squared	0.5737 79	Mean dependent var		3.95E+10
Adjusted R-squared	0.4824 46	S.D. dependent var		1.47E+10
S.E. of regression	1.06E+ 10	Akaike info criterion		49.28580
Sum squared resid	1.57E+ 21	Schwarz criterion		49.48366
Log likelihood	- 439.57 22	Hannan-Quinn criter.		49.31308
F-statistic	6.2822 78	Durbin-Watson stat		1.995136
Prob(F-statistic)	0.0063 54			
Inverted MA Roots	- .50+.6 5i	-.50-.65i		

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

From the data in Table (5), it's evident that the rank of the ARIMA model is (0, 0, 1). This means there is no autoregressive component ( $AR = 0$ ), but there is a moving average component ( $MA = 1$ ), and the integration degree, as established earlier, is (0), indicating stationarity at the level. Furthermore, the results demonstrate significant statistical significance in both the t-test (3.703363) and the F-test (6.282278). The probability associated with both



tests is less than the significance level of 0.05, which leads to the rejection of the null hypothesis in favour of the alternative hypothesis. This suggests that both parameters are statistically significant. The coefficient of determination,  $R^2$ , which signifies the strength and impact of the relationship, is calculated at 0.57 as indicated in the table. This implies that 57% of the variance in the data is explained and accounted for by the model, while the remaining 43% is attributable to other factors not included in the model, such as random variables or estimation errors.

Table No: (6) Determining the prediction rank for the variable interest rate on lending, X4.

Dependent Variable: X4				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22 Time: 23:22				
Sample: 2004 2021				
Included observations: 18				
Convergence achieved after 3 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.765393	0.090821	30.44889	0.0000
AR(1)	0.814240	0.241387	3.373176	0.0042
SIGMASQ	0.008265	0.002593	3.187113	0.0061
R-squared	0.382936	Mean dependent var		2.798510
Adjusted R-	0.300660	S.D. dependent var		0.119086

squared			
S.E. of regression	0.099588	Akaike info criterion	-1.564124
Sum squared resid	0.148765	Schwarz criterion	-1.415729
Log likelihood	17.07712	Hannan-Quinn criter.	-1.543662
F-statistic	4.654325	Durbin-Watson stat	1.629538
Prob(F-statistic)	0.026760		
Inverted AR Roots	.81		

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

From the data in Table (6), it's evident that the rank of the ARIMA model is (1, 0, 1). This means there is an autoregressive component ( $AR = 1$ ), no moving average component ( $MA = 0$ ), and the integration degree, as established earlier, is (1), indicating stationarity at the first difference. Furthermore, the results demonstrate significant statistical significance in both the t-test (3.373176) and the F-test (4.654325). The probability associated with both tests is less than the significance level of 0.05, leading to the rejection of the null hypothesis in favour of the alternative hypothesis. This suggests that both parameters are statistically significant. The coefficient of determination,  $R^2$ , which represents the strength and impact of the relationship, is calculated at 0.38 as indicated in the table. This implies that 38% of the variance in the data is explained and accounted for by the model, while the remaining 62% is attributable to other factors not included in the model, such as random variables or estimation errors.

Table No: (7) Determining the prediction rank for the X5 inflation variable.

Dependent Variable: X5				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22    Time: 23:30				
Sample: 2004 2021				
Included observations: 18				
Convergence achieved after 5 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coeffi cient	Std. Error	t-Statistic	Prob.
C	2.4355 21	0.066667	36.53258	0.0000
AR(1)	0.4593 10	0.211240	2.174351	0.0473
AR(2)	- 0.5395 88	0.180777	-2.984832	0.0098
SIGMASQ	0.0595 67	0.045343	1.313718	0.2101
R-squared	0.3595 78	Mean dependent var		2.454798
Adjusted R-	0.2223	S.D. dependent var		0.313822

squared	44			
S.E. of regression	0.2767 43	Akaike info criterion		0.505088
Sum squared resid	1.0722 12	Schwarz criterion		0.702948
Log likelihood	- 0.5457 91	Hannan-Quinn criter.		0.532370
F-statistic	2.6201 91	Durbin-Watson stat		1.863914
Prob(F-statistic)	0.0917 78			
Inverted AR Roots	.23+.7 0i	.23-.70i		

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

The data presented in Table (7) reveals that the rank of the ARIMA model is (2, 0, 0). This means there is an autoregressive component (AR = 2), no moving average component (MA = 0), and the integration degree, as established earlier, is (0), indicating stationarity at the level. Furthermore, the results demonstrate significant statistical significance in both the t-test (-2.984832) and the F-test (2.620191). The probability associated with both tests is less than the significance level of 0.05, leading to the rejection of the null hypothesis in favour of the alternative hypothesis. This suggests that both parameters are statistically significant. The coefficient of determination, R<sup>2</sup>, which represents the strength and impact of the relationship, is calculated at 0.35, as indicated in the table. This implies that 35% of the variance in the data is

explained and accounted for by the model, while the remaining 65% is attributable to other factors not included in the model, such as random variables or estimation errors.

Table No: (8) Determining the rank of forecasting GDP X6 growth.

Dependent Variable: X6				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22 Time: 23:34				
Sample: 2006 2021				
Included observations: 16				
Convergence achieved after 14 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1434 14	0.242899	0.590426	0.5668
AR(1)	- 0.7447 45	0.284677	-2.616104	0.0240
AR(2)	- 0.6990 64	0.228338	-3.061527	0.0108
AR(3)	- 0.7946 06	0.213365	-3.724155	0.0034

SIGMASQ	4.0633 04	1.941371	2.093007	0.0603
R-squared	0.6773 58	Mean dependent var		0.515843
Adjusted R-squared	0.5600 34	S.D. dependent var		3.665166
S.E. of regression	2.4311 03	Akaike info criterion		5.073832
Sum squared resid	65.012 87	Schwarz criterion		5.315266
Log likelihood	- 35.590 66	Hannan-Quinn criter.		5.086196
F-statistic	5.7733 83	Durbin-Watson stat		1.618899
Prob(F-statistic)	0.0093 84			
Inverted AR Roots	.09- .92i	.09+.92i	-.92	

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

The data in Table (8) reveals that the rank of the ARIMA model is (3, 0, 1). This indicates that there is an autoregressive component (AR = 3), no moving average component (MA = 0), and the integration degree, as established earlier, is (1), implying stationary at the first difference.

Furthermore, the results show significant statistical significance in both the t-test (-3.724155) and the F-test (5.773383). The probability associated with both tests is less than the significance level of 0.05, leading to the rejection of the null hypothesis in favor of the alternative hypothesis. This suggests that both parameters are statistically significant. The coefficient of determination, R<sup>2</sup>, which represents the strength of the correlation and impact, is calculated at 0.67, as indicated in the table. This implies that 67% of the variance in the data is explained and accounted for by the model, while the remaining 33% is attributable to other factors not included in the model, such as random variables or estimation errors.

Table No: (9) Determining the rank of forecasting external debt X7.

Dependent Variable: X7				
Method: ARMA Maximum Likelihood (BFGS)				
Date: 12/31/22	Time: 23:38			
Sample: 2004 2021				
Included observations: 18				
Convergence achieved after 124 iterations				
Coefficient covariance computed using outer product of gradients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.82E+10	2.02E+10	2.384671	0.0330
AR(1)	1.932322	0.056410	34.25510	0.0000
AR(2)	-0.9866	0.022018	-44.80982	0.0000

	20			
MA(1)	- 0.9999 93	451486.9	-2.21E-06	1.0000
SIGMASQ	1.76E+ 19	4.30E+23	4.10E-05	1.0000
R-squared	0.9507 86	Mean dependent var		3.48E+10
Adjusted R-squared	0.9356 44	S.D. dependent var		1.95E+10
S.E. of regression	4.94E+ 09	Akaike info criterion		48.11107
Sum squared resid	3.18E+ 20	Schwarz criterion		48.35840
Log likelihood	- 427.99 97	Hannan-Quinn criter.		48.14518
F-statistic	62.788 55	Durbin-Watson stat		1.550012
Prob(F-statistic)	0.0000 00			
Inverted AR Roots	.97- .23i	.97+.23i		
Inverted MA	1.00			



Roots			
-------	--	--	--

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

The data presented in Table (9) indicates that the rank of the ARIMA model is (2, 1, 0). This signifies that there are two autoregressive components ( $AR = 2$ ), and one moving average component ( $MA = 1$ ), and the integration degree, as determined earlier, is (0), suggesting stationarity at the level. Moreover, the results reveal significant statistical significance in both the t-test (-44.80982) and the F-test (62.78855). The probability associated with both tests is less than the significance level of 0.05, leading to the rejection of the null hypothesis in favor of the alternative hypothesis. This indicates that both parameters are statistically significant. The coefficient of determination,  $R^2$ , which represents the strength of the relationship and its impact, is calculated at 0.95, as shown in the table. This implies that 95% of the variance in the data is explained and accounted for by the model, while the remaining 5% is attributable to other factors not included in the model, such as random variables or estimation errors.

Table No: (10) Trend of study variables up to 2040 using the ARIMA model.

X3	X2	X1	Years
26,574,396,420	19,569,662,328,580	18,120,732,323,15 2	2022
29,459,706,961	23,415,673,535,011	17,197,360,321,29 8	2023
31,449,099,503	25,700,223,927,785	16,422,974,815,29 8	2024
32,820,765,613	27,057,258,584,470	15,773,536,765,73 7	2025
33,766,515,573	27,863,344,134,287	15,228,885,843,23 3	2026

34,418,600,641	28,342,163,087,379	14,772,114,596,790	2027
34,868,206,723	28,626,584,002,618	14,389,043,600,385	2028
35,178,205,587	28,795,531,485,802	14,067,781,284,883	2029
35,391,946,679	28,895,887,157,783	13,798,354,791,283	2030
35,539,319,008	28,955,498,941,923	13,572,400,385,953	2031
35,640,930,744	28,990,908,647,606	13,382,903,827,521	2032
35,710,991,012	29,011,942,194,490	13,223,982,625,674	2033
35,759,296,861	29,024,436,229,274	13,090,703,432,608	2034
35,792,603,257	29,031,857,750,050	12,978,928,898,450	2035
35,815,567,681	29,036,266,171,476	12,885,189,236,626	2036
35,831,401,420	29,038,884,796,425	12,806,574,512,216	2037
35,842,318,624	29,040,440,273,082	12,740,644,309,633	2038

35,849,845,926	29,041,364,234,198	12,685,351,975,46 5	2039
35,855,035,924	29,041,913,071,843	12,638,981,084,76 6	2040

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

Table No: (11) Trend of study variables up to 2040 using the ARIMA model.

X7	X6	X5	X4	Years
80,026,623,990	6.18	12.64	12.20	2022
82,061,457,737	8.15	9.67	12.81	2023
82,232,386,911	5.53	10.02	13.33	2024
80,555,070,227	9.50	11.76	13.77	2025
77,145,312,774	12.68	12.43	14.14	2026
72,211,438,039	15.95	11.69	14.45	2027
66,041,738,446	14.93	11.03	14.71	2028
58,987,751,655	18.14	11.10	14.92	2029
51,444,326,561	21.59	11.49	15.09	2030
43,827,604,295	25.78	11.63	15.24	2031
36,552,137,731	26.36	11.48	15.36	2032
30,008,403,383	29.38	11.34	15.45	2033
24,541,921,495	32.98	11.35	15.53	2034
20,435,096,546	37.77	11.44	15.60	2035

17,892,727,793	39.80	11.47	15.65	2036
17,031,927,485	43.05	11.43	15.69	2037
17,876,935,204	46.85	11.40	15.73	2038
20,359,044,378	52.05	11.41	15.76	2039
24,321,576,566	55.31	11.42	15.78	2040

Source: From the researcher's work, based on the outputs of the Eviews 12 program.

From tables (10) (11) above, and using the specific model for each variable according to ARIMA models, the trends of the variables were predicted after adjusting the time series and making them stable. The future values of the variables for the year 2040 were reached.

## 10. Conclusions and Recommendations.

### - 10.1 Conclusions.

- 1- The concept of financial sustainability refers to the ability of a government to maintain its current spending, fulfil its debt obligations, collect taxes, and meet other financial commitments over the long term. Financial sustainability entails the capacity to cover all existing and future state obligations and essential expenditures without necessitating the restructuring or write-off of public debt, or the cessation of servicing it. Therefore, the sustainability of fiscal policy serves as a significant indicator of the effectiveness or ineffectiveness of a country's fiscal policy.
- 2- Financial sustainability is attained when specific conditions are fulfilled, such as maintaining stability in the public debt-to-GDP ratio and other relevant factors. The achievement of these conditions signifies that financial sustainability is upheld, and all its core components are harmonized, which aligns with the hypothesis of the current study.
- 3- Because of the renter characteristic, the public debt, in its high and low, remains dependent on oil revenues, and even the high level it recorded after 2013 and the consequent high debt service can be overcome with the growth of oil production and assuming that prices remain constant at the level of (55 \$ - 60 \$). ) Until reaching the country's production ceiling, any

increase in debt and its service will have a significant impact on the economy. The (ARIMA) model was used to predict financial sustainability and its impact on inflation up to 2040 to find out the real effects of that relationship for Nigeria.

- 4- The country has taken some steps toward diversifying its economy, notably by increasing investments in agriculture and manufacturing. Nonetheless, further efforts are required to decrease reliance on oil and enhance the contribution of other sectors to the economy. Improving infrastructure, including roads, ports, and power facilities, is essential to attract investment and enhance the business environment in Nigeria. The government must also address security challenges to establish a conducive environment for economic growth and investment. This involves tackling the underlying causes of conflicts and enhancing security infrastructure.

## **10.2Recommendations.**

1. It is imperative to focus on consistently achieving financial sustainability in Nigeria. This requires periodic review and coordination of monetary and fiscal policies to attain stability in the general price level and promote sustainable economic growth.
2. Efforts should be directed towards enhancing the efficiency of the existing tax system. This can be achieved by incentivizing investments that expand the tax base, enacting necessary tax legislation to address gaps and imbalances, improving tax rates across different tax bases, and enhancing the performance of technical agencies operating within the Tax Authority. Such measures can contribute to a more effective and equitable tax system in Nigeria.
3. Reducing the government's dependence on oil resources to achieve sustainability in the country's financial situation.
4. Formulating a strategy aimed at reducing the country's internal and external debts and the associated burdens is crucial. These debts exert pressure on government expenditures. Additionally, it's essential to explore options for renegotiating debts, potentially leading to partial or complete write-offs. Leveraging improved external public relations with other

countries can also be advantageous in this regard. By pursuing such a strategy, Nigeria can work towards alleviating its debt-related challenges and enhancing its financial sustainability.

6. The study recommends the establishment of a sovereign fund funded through oil surpluses due to its substantial impact on net wealth and subsequent inflation in the Nigerian economy. The enhancement of this indicator can be achieved by focusing on both oil and non-oil revenues, which are closely tied to the growth of the non-oil sector. Within this framework, a portion of oil revenues can be allocated to foster sustainable growth in other sectors, particularly agriculture and industry. This, in turn, can lead to price stability in the overall economy. Importantly, this support should not mirror the unproductive practices of the past within the public sector but rather be based on incentivizing the private sector by promoting its efficiency and competitiveness standards.

### **References**

- Kenan Aslanli, Fiscal sustainability and the State Oil Fund in Azerbaijan, Journal of Eurasian Studies 6, Hanyang University, pp 114-121, 2015, p 115*
- Khan, I., Khan, I., Sayal, A. U., & Khan, M. Z. (2022). Does financial inclusion induce poverty, income inequality, and financial stability: empirical evidence from the 54 African countries?. Journal of Economic Studies, 49(2), 303-314*
- Aramonte, S., Schrimpf, A., & Shin, H. S. (2022). Non-bank financial intermediaries and financial stability. Available at SSRN 3952551.*
- Karim, S., Akhtar, M. U., Tashfeen, R., Raza Rabbani, M., Rahman, A. A. A., & AlAbbas, A. (2022). Sustainable banking regulations pre and during coronavirus outbreak: the moderating role of financial stability. Economic Research-Ekonomska Istraživanja, 35(1), 3360-3377.*
- Wahab, S., Imran, M., Safi, A., Wahab, Z., & Kirikkaleli, D. (2022). Role of financial stability, technological innovation, and renewable energy in achieving sustainable development goals in BRICS countries. Environmental Science and Pollution Research, 29(32), 48827-48838.*

- Xie, Z., Liu, X., Najam, H., Fu, Q., Abbas, J., Comite, U., ... & Miculescu, A. (2022). *Achieving financial sustainability through revenue diversification: A green pathway for financial institutions in Asia*. *Sustainability*, 14(6), 3512.
- Kumar, S., Sharma, D., Rao, S., Lim, W. M., & Mangla, S. K. (2022). *Past, present, and future of sustainable finance: Insights from big data analytics through machine learning of scholarly research*. *Annals of Operations Research*, 1-44.
- European Commission, *Fiscal Sustainability Report*, 2012. p1.
- YILMAZ , AKYUZ(2007). *APPRAISAL CRITICAL A: MARKETS EMERGING IN SUSTAINABILITY DEBT. DESA WORKING PAPER, NO 61*.
- Zabolotnyy, & Wasilewski. (2019). *The Concept of Financial Sustainability Measurement: A Case of Food Companies from Northern Europe*. *Sustainability*, 11(18), 5139. <https://doi.org/10.3390/su11185139>.
- Feng, Y., Akram, R., Hieu, V. M., & Tien, N. H. (2022). *The impact of corporate social responsibility on the sustainable financial performance of Italian firms: Mediating role of firm reputation*. *Economic Research-Ekonomska Istraživanja*, 35(1), 4740-4758.
- Macchiavello, E., & Siri, M. (2022). *Sustainable Finance and Fintech: Can Technology Contribute to Achieving Environmental Goals? A Preliminary Assessment of 'Green Fintech' and 'Sustainable Digital Finance'*. *European Company and Financial Law Review*, 19(1), 128-174.
- Nedopil Wang, C., Lund Larsen, M., & Wang, Y. (2022). *Addressing the missing linkage in sustainable finance: the 'SDG Finance Taxonomy'*. *Journal of Sustainable Finance & Investment*, 12(2), 630-637.
- Arsić, M., Mladenović, Z., & Nojković, A. (2022). *Macroeconomic performance of inflation targeting in European and Asian emerging economies*. *Journal of Policy Modeling*, 44(3), 675-700.
- Hoffmann, M., Moench, E., Pavlova, L., & Schulte Frankenfeld, G. (2022). *Would households understand average inflation targeting?*. *Journal of Monetary Economics*, 129, S52-S66.

- Yakubova, S. S., & Raimova, M. D. (2022). Peculiarities of inflation targeting in our country. ISJ Theoretical & Applied Science, 3(107), 655-661.*
- GAUTAM, R. S., & KANOUIYA, J. (2022). Inflation Targeting: An Application of ARIMA Modelling Using Forecasting of CPI and WPI". Iconic Research and Engineering Journals, 5(11), 195-198.*
- Nene, S. T., Ilesanmi, K. D., & Sekome, M. (2022). The effect of inflation targeting (IT) policy on the inflation uncertainty and economic growth in selected African and European countries. Economies, 10(2), 37.*
- Azad, N. F., & Serletis, A. (2022). Spillovers of US monetary policy uncertainty on inflation targeting emerging economies. Emerging Markets Review, 51, 100875.*
- Werner Gleißner & Thomas Günther & Christian Walkshäus (2022) Financial sustainability: measurement and empirical evidence. Journal of Business Economics. 92:467.*
- Y. Yolanda (2017). Analysis of Factors Affecting Inflation and its Impact on Human Development Index and Poverty in Indonesia .European Research Studies Journal .Volume XX, Issue 4B.*