Original Article

Macroeconomic Performance and Economic Wellbeing in Nigeria: Evidence from Hanke's Misery Index

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Abstract - *Since late 2000 when Prof. Hanke of John Hopkin University began publishing misery index for most countries of the world, Nigeria has hardly fared well. In 2017 and 2018, the published index which measures the state of misery or wellbeing of the people in a country indicates that ranked the 6th most miserable country. This characterization imposed on the nation by Hanke's misery index has been further corroborated by recent World Bank reports on poverty and inequality in Africa. Thus, there is renewed concern on how to reverse this ugly trend in Nigeria. In this study, we examined the role of macroeconomic performance in improving the well-being of people. Using economic growth, debts, fiscal policy stance, monetary policy stance, and efficiency of governance as measures of macroeconomic performance, we estimated a K-Class model with monthly time series from 1990 to 2017. The result obtained indicates economic growth, through allocative and distributive efficiency, engenders wellbeing improvement. Second, contractionary monetary policy that raises interest rate and the unemployment rate has a dampening effect on wellbeing. The result obtained also indicates that excessive domestic borrowing that characterizes the Nigerian economy undermines the wellbeing of the Nigerian population. We, therefore, recommended that the monetary authority reconsiders its current stance on maintaining a very high rediscount rate (or MPC in the Nigerian parlance).*

Keywords - *Misery, Wellbeing, Macroeconomic Performance*
JEL Classification: D63, E02

I. INTRODUCTION

It was Thomas Jefferson who said that *"the care of human life and happiness ... is the only legitimate object of good government"* (Jefferson, 1809). Governments worldwide (whether socialists or capitalists) are concerned about the individual well-being of their citizens. Intrinsically, government policies targeted at improving macroeconomic performance are ultimately aimed at improving the wellbeing of the state or its citizens. However, as Paim (1995) observed, evaluating the wellbeing improvement of an individual is more difficult to measure than that of the state. Economic measures such as GDP and other measures of national wealth can be used to measure the wellness of the economy, with little or no controversy. However, there are controversies on how to measure individual economic well-being.

In economic literature, a number of *contentious* measures of wellbeing have been developed. One of such measures is the *"livability index"* developed by Veenhoven (1995). According to Veenhoven (1995), livability is not a quality of individuals but environments or societies, and thus refers to the extent that these allow the satisfaction of human needs and hence well-being. Other environmental or resource-based indices of wellbeing utilize GDP per person, job security, mean years of schooling, and life expectancy. A good example is the UNDP's *Human Development Index* (HDI), established in 1990. It was devised with the purpose of shifting the discussion of development from a focus on GDP to people-centered criteria. Another type of index makes use of Sen's (1980, 1993) and Nussbaum's (2005) work in capability theory. Capability indices emphasize that individual well-being is dependent on the development of major

human capabilities such as the capability to read, to feed oneself, and to participate in political processes. Other measures of wellbeing include The Economist Intelligence Unit's *quality-of-life index (The Economist, 2011), Mercer's Quality of Living Survey* (Mercer 2010), Gallup's *global wellbeing survey* (Gallup, 2010), and OECD *Better Life Index.*

In recent times, some countries have started using happiness indices to evaluate the performance of national policies. For example, counties like Bhutan, Australia, Canada, France, and the United Kingdom use the sophisticated survey to compute the *gross national happiness* (GNH) index, which measures the population's level of well-being. Critics of the GNH contend that governments can manipulate such surveys. It is also argued that such subjective surveys will make an international comparison of wellbeing difficult. Another criticism of most indexes of happiness is that they hardly capture the impact of key economic indicators of national economic wellness on individual wellbeing. This makes it difficult to compare national economic progress with individual wellbeing. In an attempt to aptly use macroeconomic indicators to measure individual economic wellbeing, Professor Arthur Okon invented the misery index or economic discomfort index in 1966. Prof. Arthur, who was serving as a member of President Lyndon B. Johnson's Council of Economic Advisers, created the misery index in order to measure how people are faring economically. The Index dubbed Okun misery index, which was an unweighted sum of unemployment and inflation, was popularized in the 1970s while Okun was scholarly at Brookings Institution. The timing of the invention was not accidental: there is the incidence of high inflation and unemployment in the 1970s, both in the United States and, indeed, much of the rest of the world. Okun misery index was primarily applied to the United States.

In the views of Di Tella, MacCulloch, and Oswald (2001), Okun's misery index was at the risk of been rejected for being so simple. However, Okun painstaking contended that his index could be perceived as a crude utility or just disutility function in an economy. In a move to modify the index, Harvard Economist Robert Barro developed what he called Barro Misery Index (BMI) in 1999. Barro Misery Index (BMI) is the unweighted sum of inflation, unemployment rates, and interest rate, plus (minus) the shortfall (surplus) between the actual and trend rate of GDP growth. Later in the late 2000s, Professor Steve Hanke of John Hopkin's university modified the Barro misery index and began applying it to countries beyond the United States. Hanke Misery index (HMI) is the sum of the bank lending rate, inflation, and unemployment rates, minus the percentage change in real GDP per capita. High values of unemployment, inflation, and bank lending increase misery, while a higher percentage change in per capita income reduces misery. Since 2016, prof. Hanke has been publishing his index for most countries of the world.

There is a limited empirical investigation of the impact of macroeconomic performance on economic wellbeing using the misery index as a major of wellbeing. Although the misery index has been criticized by Di Tella *et al.* (2001) for assigning equal weight to unemployment (which they believe affects happiness more than inflation) and inflation, it has this attribute of giving the snapshot of the state of wellbeing of the people. For example, most countries that toped Hanke Misery Index in 2017 and 2018 are the poorest countries in the world. As economic wellbeing has continued to worsen in Nigeria and the misery index has remained high (Nigeria was ranked the 6th most miserable country in the world in 2017 and 2018), it is expedient to examine the impact of macroeconomic performance on the economic wellbeing of Nigerians. It is against this backdrop that

we investigated the effect of economic performance on economic wellbeing using the misery index.

II. Macroeconomic Performance in Nigeria: a Look at the stylized Facts

A. Economic Growth: The Nigerian macroeconomy has experienced significant swings over the past three decades. It has had its share of the boom and bust character of the business cycle. For example, economic growth was average of 4.23% between 1967 and 1978. This high growth rate was attributed to the favorable oil price. Crude oil prices increased from $2 per barrel in 1973 to $14.33 in 1978. In 1979, crude oil price rose to $29.27 per barrel, and by July 1980, it had risen to $37 per barrel. It peaked at $40 per barrel in January 1981 before experiencing a devastating slump. This sky-rocketing oil price of crude oil was initially propelled by the Arab-Israeli war during the period 1973-75.

growth. The GDP growth rate was 13.1% in 191 and 10.8% by the end of the crisis in 1987. The crisis was believed to have been fuelled by the oil glut that started in mid-1981. The oil glut led to a fall in oil prices and government revenue. The posted oil price experienced a dramatic tumbling down that by 1985 it has tumbled to $10 per barrel. The collapse of the crude-oil market, resulting from oil-glut, and the subsequent reduction in the production quota of the OPEC member countries, was adjudged a major cause of the 1980s economic crisis. Nigeria's crude-oil OPEC quota, which was some 2.3 million barrels per day in the 1970s, was reduced to about 1.3 million barrels per day in the early 1980s. Figure 2.1 also shows that the misery index was also high within this period. The misery index rose from 41 in 1981 to 50 in 1983 and 85 in 1989.
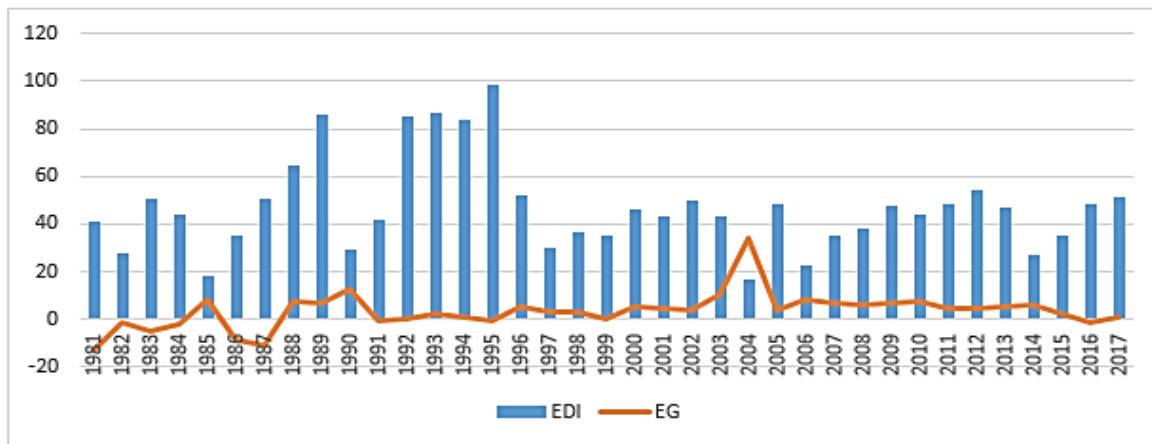

Figure 2.1 Trend of Economic Growth and Misery (or Economic Discomfort Index)

Through the period, the economy posted high growth rates such as 14.2% in 1971, 11.2% in 1974, and 6.8% in 1979. However, the occurrence of the oil glut that started in 1981 led to a growing crisis of great proportion.

As shown in Figure 2.1, the economy slumped into recession in 1981, and this lasted till 1987 except in 1985 when Nigeria recorded positive

However, in 1985 when the economy recorded positive growth, the misery index went down to as low as 18.4. The economy picked up in 1988, recording a growth rate of 7.5%. According to Akinkunmi (2017), this boom was initiated by the structural adjustment program. The boom lasted till 1990, when the economy posted a growth rate of 12.8%. In that year,

the misery index was 28.98. The economy experienced another downturn in 1991 when it recorded a recessionary growth rate of -0.61%. The deceleration continued till 1995, when the economy recorded an annual growth rate of -0.3%. Again, the discomfort or misery index was rising as the growth rate of the GDP declines. It rose from 28.98 in 1990 to its all-time high value of 98.07 in 1995. Between 1996 and 2014, the growth rate of the economy has moderated, posting an average of 6.8% growth for the period. Although the relative stability enjoyed by the Nigerian economy from the late 1990s till 2014 has been attributed to its flourishing democracy (Akinkunmi, 2017), there is no doubt that the stability of oil price through that period could be a major factor. The events of 2015 and 2016 could be an eloquent example. As oil prices slumped significantly in 2015, economic growth slumped sharply from 6.3% in 2014 to 2.7% and -1.6% in 2015 and 2016, respectively. It is also worthy of that in 2004, when Nigeria recorded its highest growth of 33.3%; the misery index recorded its lowest value of 16.4%. In others, low growth escalates misery and deteriorates the economic and social well-being of the citizens.

B. Debt Profile and Balance of Payments

Nigeria has also recorded an ever-expanding debt profile. While the Keynesian theorists argue that a large debt profile could boost economic activities, the classical adherents are skeptical about the desirability of public debt. Ricardian equivalence emphasis the neutrality of public debt. This theoretical orientation posits that although current debt could boost economic activities in the short-run, its long-run cost (which includes high debt servicing and high taxes) could offset the initial output gains. Nigerian has been borrowing to finance its development programs since independence. According to Udoka (2010), Nigeria embarked on four different development plans/programs between 1960 and 1986. These programs include the first National Development Programme (1962 – 1968), second National Development Programme (1970 – 1974), third National Development program (1975 – 1980), and fourth National Development program (1980 – 1985). Most of these programs were financed with the non-debt fund. As noted by Udoka (2010), the Nigerian government enjoyed windfall revenue from oil in the 70s. Trouble, however, started in the 80s following the oil glut. In 1986, Nigeria initiated the structural adjustment program, which was a precondition for assessing World Bank loans. From a total debt profile of N13.5 billion and N45.3 billion in 1981 and 1985, respectively, the Nigerian loan profile rose to N137.6 billion in 1987. This represents a dramatic rise in the debt profile between 1985 and 1987: the debt profile rose by 204%, with a deteriorating balance of payments and rising debt servicing obligation in the 1990s, the debt profile quadrupled by the end of 1994, hitting N1.1 trillion. Consequently, the Nigerian government placed a ban on external borrowing as a way of solving the spiraling debt problem. It was generally agreed that the government should only take up more loans if it is given on concessionary grounds, and these should be used only for export – increasing or import – decreasing activities that can pay their ways back (CBN, 1999). Thus, by 1998, Nigerian total debt outstanding had only increased by 13% compared to its value in 1994.

With the advent of democracy, the borrowing spree resumed as the debt profile almost tripled: it rose from N1.2 trillion in 1998 to N3.4 trillion in 1999. By 2004, the debt profile had doubled its 1999 value with a record of N6.3 trillion. Since 1999, Nigeria had engaged in debt relief negotiations with her foreign creditors, especially the Paris Club Creditor Countries.
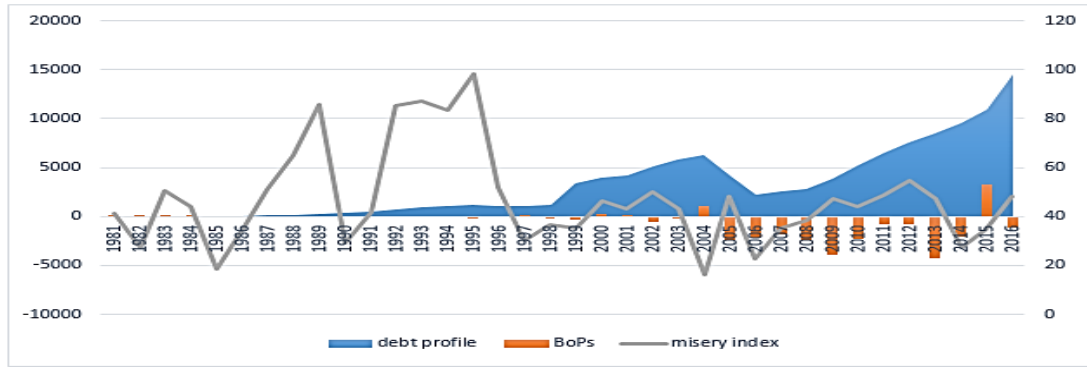
Figure 2.2 Profile of Debt, BoPs and Misery Index in Nigeria

The president of Nigeria, Chief M.O.A. Obasanjo, and the Finance Minister embarked on a relentless campaign for debt relief. The major concern was that Nigeria spends more on debt service payments than it does on healthcare and education, and as such, with the high level of debt servicing, it cannot achieve the millennium development goals. The campaign efforts finally paid off in 2005 when the Paris Club group of creditors agreed to cancel 60% (US$18 billion) of the US$30.85 billion owed to it by Nigeria. This debt

(N345 billion) debt service burden. Thus, the total debt stock declined to N2.2 trillion by 2006. In 2007, 2008, and 2009, the debt profile only had a marginal annual increase of 18%, 9%, and 34%, respectively. In subsequent years, the debt profile began to rise, hitting N5.2 trillion in 2010, N8.5 trillion in 2013, and 10.9 trillion in 2015. By 2016, the Federal Government's total debt outstanding was N14.5 trillion. In the same manner, state government debts were also rising.

Source: DMO (2017)

**The values in the figures are in thousands

Fig. 2.3 Domestic and Foreign Debts of the States and Federal Governments of Nigeria

Astronomically. Figure 1.2 shows that combined external loan stock (both FG and states) stood at N4.6 trillion as of 30 June 2017. The combined domestic debt stock was N15 trillion. Similarly, available evidence from DMO (2017) shows that public debt service payments by the Nigerian federal government rose by 22.9% in 2013, to N1.36 trillion, from N679.3billion in 2012. The debt-service outlay gulped 23.8% of the Federal Government's N3.5trn (US$22.6billion) total revenue in 2013. The large chunk of income used to service public debt is of concern, especially as the ratio of debt servicing to revenue inflow has risen steadily from 9.5% in 2009, indicating a worrying trend. Although Nigeria's total public debt stock, at US$64.51billion at the end-2013, was only 12.6% of GDP, what is more, important in determining debt sustainability in Africa's biggest economy, but with a low tax-collection rate, is the level of funds available to the government to meet its obligations. The bulk of the debt-service payment in 2016 stemmed from Nigeria's fast-growing domestic debt, which rose to US$55.7billion in 2016 from US$42bn in 2013.

On the other hand, the balance of payments disequilibrium remains substantial in Nigeria, creating the risks of financial vulnerabilities and substantial internal imbalances. For example, the overall BoPs stood at -N5.8 trillion in 1990. It further worsened to -N101.4 trillion in 1992. The BoPs improved marginally thereafter, hitting N314 billion in 2000. It deteriorated further in subsequent periods, hitting -N2.4 trillion and -N2.3 trillion in 2005 and 2010. The BoPs deficit dominated the Nigerian Bop's position throughout the period. Again, marginal improvement was recorded in periods following 2010, with the BoPs recording surplus of N3. 3 trillion in 2015 after recording deficits in 2011, 2012, 2013, and 2014. However, the deficit regime resumed in 2016 as the BoPs stood at -N2.3 trillion. Similarly, the capital and current account also show divergence in pattern and trend. For example, when the current account balance stood at a surplus of N4, 891, the capital account stood at a deficit of -N2, 496 billion. In 2015, the current account recorded a deficit of -N3,033 billion, while the capital account recorded a deficit of only -N201 billion.

C. Unemployment, Inflation and Lending Rate

The Nigerian government initiated series of policies designed to create jobs and reduce unemployment. These include Operation Feed the Nation (OFN) and the Directorate of Food, Road, and Rural Infrastructure (DIFRRI), which provided immediate and direct jobs to participants interested in agriculture. The government also established the National Directorate of Employment (NDE) and tasked it with the responsibility of training and assisting the unemployed to start up a small business. It also initiated a number of funding programs for small businesses. In 2011, the Jonathan-led FGN launched the YouWin program. YouWin is a youth development program aimed at financing outstanding business plans for aspiring entrepreneurs. Before the program was truncated in 2015, it has empowered about 4000 youths. The concern about unemployment is that it does not only escalate an individual's misery but also has a deleterious spillover effect on both the economy and society. It leads to output loss, thereby complicating the cyclical conditions of the economy. It also fuels social unrest. In fact, the rising insecurity problem in Nigeria (which manifests itself in banditry, kidnapping, militancy, and terrorism) has been attributed to rising unemployment in the country.

In Nigeria, inflation control has remained a major concern for the CBN. This is because the inflation rate has largely remained in the double-digit since the 90s. As shown in Figure 1.1, Nigeria had its worst inflationary experience in 1995, when it recorded an inflation rate of 72.8%. The inflation rate, however,

showed a stable rate of 7.4% in both 1985 and 1990. According to CBN (2014), the inflation rate was over 57% in the year preceding 1995.

Although the Nigerian central bank (CBN) has consistently targeted lower inflation rates, Table 2.1 shows that it only met its target in 2011 and 2013,
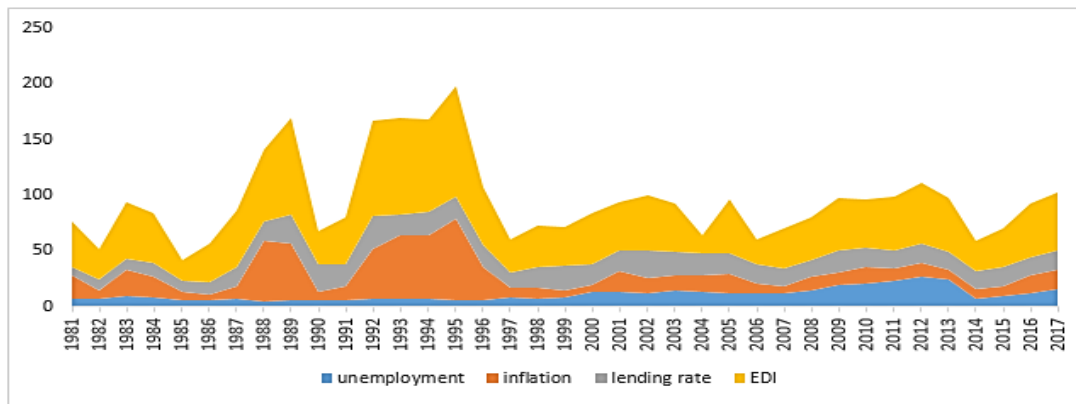

Figure 2.4 Pattern of Unemployment, Inflation, Lending Rate and Economic Discomfort Index

The inflation rate, however, slumped to 6.9% in 2000 and sharply rose to 17.9% in 2005. It, however, declined to 13.7% and 10.8% in 2010 and 2011, respectively. In 2012, the inflation rate slightly increased to 12.2% and slightly declined to 8.5 and 8.1 in 2013 and 2014. This decline was not sustained as the inflation rate rose to 9.0% and 18.6% in 2015 and 2016, respectively. In 2017, it declined mildly to 15.4%.

Table 2.1 Inflation Targets from 1990 to 2017

Years	Actual	Target	Differential (%)
1990	3.6	***	
1995	51.6	15.00	243.94
2000	14.5	9.0	61.41
2005	11.6	10.0	15.65
2010	11.8	11.2	5.36
2011	10.3	12.0	-14.31
2012	12.0	9.5	26.12
2013	7.96	9.87	-19.38
2014	7.98	7.50	6.38
2015	9.55	8.00	19.38
2016	18.55	11.90	55.88
2017	15.37	10.71	43.53

***Policy statement is specified as significantly reduce/moderate the rate of inflation
Source: CBN (2017)

(2016) observed that the Monetary Policy Committee (MPC) of the CBN has been more concerned about inflation than unemployment. In fact, the MPC appears to be monetary hawks than doves. Even in recessionary times, the MPC has continued to uphold a high bank rate, usually known as monetary policy rate in Nigeria. Raising the bank rate, even in a recessionary period, was due to the fear that a lower bank rate would lead to an increase in liquidity and a rise in inflation.

The major implication of a high bank rate is a high lending rate. A high lending rate could even complicate unemployment and inflation in poor countries. Figure 2.5 shows that the lending rate is relatively high in most miserable countries than in less miserable countries. For example, the lending rate in Venezuela, which is the most miserable country in the world, is 24%. This implies that the lending rate in Venezuela is 452% higher than what is obtained in China, which is the least miserable country in the world. Argentina, with a lending rate of 60.2%, is the third most miserable country in the World. Nigeria is

the 6th most miserable country in the world, and it has its lending rate at 16.2%.

decreases in their happiness). The emergence of ordinal utilitarianism, which argued that satisfaction or
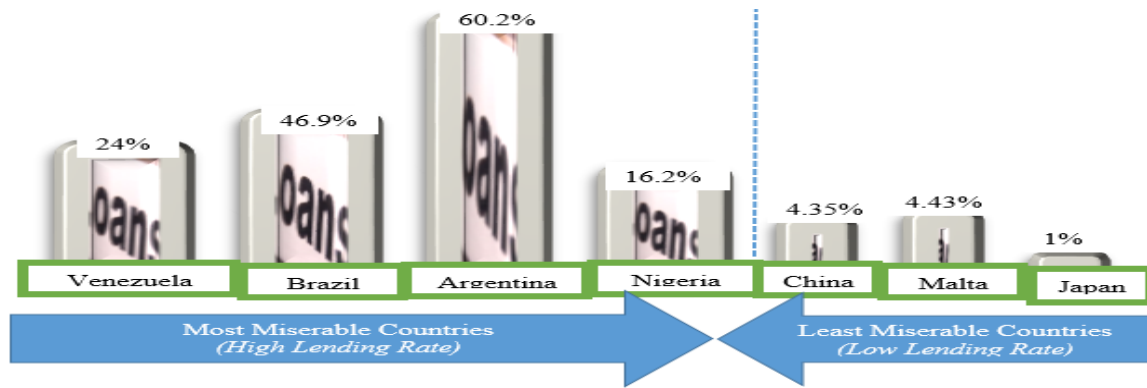

Fig. 2.5 Lending Rates in Most and Least Miserable Countries

III. LITERATURE REVIEW

In economic literature, the evolution of the theory of economic wellbeing can be traced to Adam Smith. In his *Wealth of Nations,* Adam Smith observes that people engage in economic activities for pure self-interest and not for the gain of society. However, while they pursue their self-interest, they inadvertently advance the interest of society. The neoclassical and welfare economics that emerged after Adam Smith advanced the theory of economic wellbeing through the theory of utility. According to Lykken and Tellegen (1996), neoclassical economics has been influenced by utilitarianism, and 18th and 19th-century doctrine championed by Jeremy Bentham and John Stuart Mill, in which happiness is conceptualized as utility, a quantitative measure of pleasure or satisfaction, and which prescribes that only those actions should be undertaken that maximize utility. Early neoclassical economists assumed that utility could be cardinally measured (that is, commodities could be given numerical values that indicate the quantity of satisfaction that individuals would receive from them, which corresponds with increases or

raised many contentions of whether economic theories can indeed provide understanding for the dynamics of welfare or wellbeing. As Frey and Stutzer (2002) further noted, the neoclassical concept of utility is mostly used to explain economic behavior and not necessarily a normative notion that prescribes how one should act.

However, Cooter and Rappoport (1984) had earlier observed that the normative notion of wellbeing is purely in the domain of welfare economics. Pareto (1909), Lerner (1934), Bergson (1938), Arrow (1951), among others, developed various criteria for assessing welfare improvement in an economy. Welfare theory is popularly applied in evaluating economic solutions that aim to improve social welfare by generating outcomes that maximize overall utility. In welfare economics, social welfare is the overall welfare of society and is a function of the individual welfare or well-being of all individuals in society. The theory of economic wellbeing took a dramatic turn with the emergency of Happiness Economics in the late 20th century. The debate that

gave birth to the movement started with the publications of Richard Easterlin in 1974 and Tibor Scitovsky in 1976. Easterlin (1974) found on the basis of surveys that people in high-income countries were not significantly happier than people in low-income countries. He also contended that that rises of income above a certain threshold within countries did not seem to yield significant increases in happiness. Scitovsky (1976) also argued against the proposition of utility theorists, stating that people's individual preferences in capitalist consumer societies would not necessarily generate happiness for them and that more wealth, income, and consumer products did not necessarily equal more happiness. In Happiness Economics, it is argued that the value of economic activity lies in its contribution to individual happiness. In other words, the end of economic processes is the economic well-being of individuals. It is therefore considered that the central focus of the economic inquiry is understanding how economic factors like wealth, income, unemployment, and social security, as well as social and institutional factors like good governance, freedom, and relationships, affect individual wellbeing. According to Frey and Stutzer (2002), some economists even went further to argue that happiness should become the new metric of economics, replacing monetary value or ordinal utility as the values that economics aims to optimize. In this regard, the goal of economic and public policies should not be to maximize GDP but to maximize gross national happiness, as measured through some happiness index.

While theories of economic wellbeing are still evolving, there is hardly any consensus on how to measure economic wellbeing. Consequently, there are limited empirical studies on economic wellbeing. Clark et al. (2017) studied key determinants of happiness and misery from the standpoint of subjective wellbeing. Using survey data from the United States, Britain, and Indonesia, they argued that

the things that matter most are people's social relationships and their mental and physical health. This psychological approach to understanding determinants of individual inter-temporal misery focuses on the individual psycho-motive environment. However, Burchi and Gnesi (2013) had earlier argued that although wellbeing is a multidimensional phenomenon, distilling away the economic view of wellbeing creates in itself a fundamental problem of measurement. In this regard, some economists have used the misery index as an objective measurement of wellbeing. Welch (2007) presented evidence that European citizens care very much about the growth of the economy, unemployment, and inflation. In other words, the life satisfaction of European citizens is contingent on economic growth, unemployment, and macroeconomic stability. Beja (2014), however, showed that economic growth in the Philippines does not appear to reduce ill-being in the country. Dadgar and Nazari (2018) examined the impact of economic growth and good governance on the misery index in Iran. Using Vector Autoregressive procedure, they found that economic growth has had a negative relation with the misery index in Iran. Their result also shows that poor governance reinforces misery in Iran.

IV. ESTIMATION PROCEDURE

A. Econometric Procedure

As noted earlier, the optimal macroeconomic outcome is expected to engender improved citizens' welfare and reduced misery and discomfort. Economic progress, *inter alia,* includes welfare improvement of the citizens. Thus, both monetary and fiscal policies are expected to generate outcomes that would improve the well-being of the citizens. In addition, economic growth, national debt profile, and external balances could have wellbeing effects. To ascertain the effect of macroeconomic outcomes on individual wellbeing, we estimated a K-class model in which Hanke's misery

index (MI) entered as a dependent variable. The K-class model is specified as follows:

$$y_{i,t} = \Pi_i + \sum_{\substack{p=0 \\ i=1}}^{P} \Psi_{i,k} X_{i,k,t} + \sum_{\substack{n=1 \\ i=1}}^{N} Z_{i,n,t} + \varepsilon_{i,t}$$

$$i = 1,...,I \quad t = \tau + 1,...,T \qquad \qquad 4.1$$

Where $_{it}$ is the Hanke's misery index, it is the response variable in the model which is used to capture wellbeing. $X_{i,k}$ is a 1 x N vector of explanatory variables. Also, $Z_{i,n}$ is a 1 x N vector of instrumental variables. $\Pi_{i,}$ And $\psi_{i,k}$ are intercept and slope coefficients, respectively.

The explanatory variables in X vector include government monetary policy stance (MPS), government fiscal policy stance (FPS), economic growth (ECO), domestic debt (DOD), external debt (EDE), debts servicing (DES), the balance of payments (BoP), regime type (REG) and efficiency of governance (EoG)

In estimating K-class models, the researcher must choose an optimal k and covariance matrix. This is because the choice of k and covariance matrix affect the unbiasedness of the estimates. The k-class estimator ψ_k is defined as :

$$\psi_k = (X'(I - kM_z)X)^{-1} X'(I - kM_z)y$$

$$4.2$$

Where $Mz = I - Z(Z'Z)^{-1}Z'$,

$k = \lambda - \alpha(n - K)$ and λ is the root that minimizes the variance-covariance matrix such that $|Q_1 - \rho Q| = 0$. Q_1 is the variance-covariance matrix of the residuals from the regressions of y_i on X_i, and Q is the variance-covariance matrix of the residuals from the regressions of $X._i$ on Z. The covariance matrix estimator is defined as:

$$\hat{\sum}_k = s^2(X'(I - kM_z)X)^{-1}$$

$$4.3$$

B. Data description and source

The dependent or response variable for this study is individual wellbeing. This variable was proxied using the Hanke misery index. Hanke misery index was computed as the arithmetic sum of inflation, unemployment rates, and lending rate minus the year-over-year percent change in per-capita GDP growth. CPI inflation rate, unemployment, and per capita GDP were sourced from World Development Indicator, WDI (2018), while the lending rate was obtained from the Central Bank of Nigeria, CBN (2017). Government fiscal policy (FPS) stance was proxied using government spending-GDP ratio. Both government spending and GDP were obtained from CBN (2017). Also, following Igbanugo and Eze (2017), we measured monetary policy stance (MPS) as the fraction of savings in the total money supply. According to Aliyu (2011), the fraction of savings in the total money supply in the economy is a good measure of the success of the monetary policy. Economic growth (ECO) was measured using annualized growth of the real GDP. The data was obtained from WDI (2018). Domestic debt (DOD), external debt (EDE), debts servicing (DES) data were obtained from CBN (2017) and Debt Management Office (2019). Balance of payments (BoP) data was also obtained from the CBN (2017), while the efficiency of governance (EoG) was obtained from the Global Competitiveness Report. Regime type (REG) was measured as a dummy, taking 0 for a military regime and 1 for a democratic regime.

V. Presentation and Discussion of Results

A. Stationarity Test

Before estimating the research model, we investigated the presence of unit roots in the data. Ever since Haavelmo's work (see Haavelmo, 1943), it has been standard practice to view economic time series as realizations of stochastic processes. One of such stochastic processes that is critical to time series research is the stationarity process. According to Gujarati (2004), a stochastic process is said to be weakly stationary. It has constant mean and variance. Another attribute of a stationary process is that the value of the covariance between the two time periods depends only on the lag between the two time periods and not the actual time at which the covariance is computed. To ascertain whether a time series is

Nonstationary process, a number of procedures (such as ADF test, Phillip-Perron, Vogelsang-Perron, etc.) can be applied. Notice that we included a regime variable in the estimation. Thus, we employed Vogelsang and Perron (1998) unit root test. The Vogelsang and Perron (1998) unit root test was specified as follows:

$$y_t = y_{t-1} + \theta DT_t(T_b) + \gamma DU_t(T_b) + \Psi(L)\varepsilon_t$$
5.1

Where y_{t-i} is the time series, T_b is a specified breakpoint date (we assumed 1999 to be the break date. It was in 1999 that Nigeria switched to democratic

Table 5.1 Summary of Perron (1989) and Vogelsang and Perron (1998) Breakpoint Unit Root Test

Series	Trend specification	Break specification	Break type	Lag Selection criteria	Statistics @ level	Statistics @ difference	Remark
Economic Growth (ECO)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-1.90	-8.13***	I(1)
Monetary Policy Stance (MPS)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-2.59	-9.68***	I(1)
Fiscal Policy Stance (FPS)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-1.80	-7.75***	I(1)
The efficiency of governance (EOG)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-2.48	-7.94***	I(1)
Regime type (REG)	Trend and Intercept	Intercept	Innovative Outlier	Modified Hannan-Quinn	-3.46	-9.36***	I(1)
External Debt Stock (EDE)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-2.77	-9.00***	I(1)
Domestic Debt Stock (DOD)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-2.56	-8.42***	I(1)
Debt Servicing (DES)	Trend and Intercept	Trend	Innovative Outlier	Schwarz	-2.33	-11.71***	I(1)
Hanke Misery Index (MI)	Trend and Intercept	Trend and Intercept	Innovative Outlier	Modified Hannan-Quinn	-1.89	-9.67***	I(1)

*,**, and *** indicates significance at 10%, 5% and 1% level of significance

Governance), $DU_t(T_b)$ intercepts break variable, $DT_t(T_b)$ is trend break variable, ε_t is *i.i.d.* innovations, $\Psi(L)$ is a lag polynomial representing the dynamics of the stationary and invertible ARMA error process.

Table 5.2 Summary of Levin, Lin & Chu Common Unit Test

Method	Statistic	Prob.**
@ level	-0.73954	0.2298
@first difference	-5.39357	0.0000

Table 4.1 indicates that all the variables are integrated into order one. This result was also corroborated by Levin, Lin & Chu common unit root test, as shown in Table 4.2. Levin, Lin & Chu common unit process tests the time series against the null hypothesis of no unit root with the assumption that the series is a panel and, as such, assigns common root to the series. The test indicates that the series are collectively integrated of order one. This further corroborates Igbanugo and Eze's (2017) conclusion that macroeconomic time series is the realization of stochastic processes.

B. Cointegration Test

Given that the time series are different stationery, we proceed to test for cointegration among the time series. If the time series are cointegrated, then regression of any of the time series on others may not be spurious and thus could be reliable for inferences. We employed Hansen (1992) and Park (1992) tests. Both Hansen's (1992) and Park's (1992) tests were implemented under the null hypothesis that there is cointegration among the variables. The result shown in table 4.5 suggests that the null hypothesis cannot be rejected at a 5% significance level since the p-values of Lc statistic (0.1494) and chi-square statistic (0.1330) for Hansen and Park tests respectively are less than 0.05.

Table 5.3 Summary of Hansen (1992) and Park (1992) Test

	Hansen Instability Test of Cointegration		Park Test of Cointegration	
	Lc statistic	Decision	Chi-square statistics	Decision
Statistics	0.691866	Variables are cointegrated	2.256682	Variables are cointegrated
Probability	0.1494		0.1330	

C. Impact of Macroeconomic performance on Economic Wellbeing

The regression result shows that economic growth is inversely related to the misery index. This result is quite intuitive. It suggests that economic growth is critical for reducing misery and improving the wellbeing of the people. Economic growth implies that there is an increase in economic activities or aggregate national output. It also implies that there is a concomitant increase in aggregate demand. Invariably, a decrease in economic growth would lead to an increase in misery. Although economic is expected to be positively related to unemployment and negatively related to inflation, the result suggests that the unemployment effect of growth may have a greater impact on misery than the inflation effect. This deduction is, however, in tandem with Di Tella *et al.* (2001), who argued that unemployment imposes greater misery on the people than inflation.

The result also suggests that while external debt entered with a negative coefficient (-0.204), domestic debt and debt servicing entered the model with positive coefficients (0.74 and 0.14, respectively). This suggests that although external debt borrowing could engender a decline in the misery level of the people, subsequent payment of the debt and the accompanying cost of borrowing could impose welfare loss on the people. The net effect could be dependent on the utilization of the borrowed fund. If the borrowed fund is channeled into productive investment, its positive returns may more than offset the cost imposed by debt servicing. Domestic

borrowing imposes welfare loss on the people. The neoclassical theory of investment predicts that public borrowing could crowd out private sector borrowing, and this led to a decline in investment and loss of welfare for the people. In addition, an increase in domestic borrowing may drive up bank lending rates, thereby worsening the wellbeing of the people.

CBN is to control inflation through liquidity control, the effect of high MPC could be a high lending rate and high unemployment. The result also suggests that the high level of inefficiency in governance in Nigeria reinforces misery.

Table 5.4

Variable	Coefficient	Std. Error	t-Statistic
Economic Growth (ECO)	-0.1324**	0.641804	-2.062794
Monetary Policy Stance (MPS)	0.4092**	0.189832	2.155716
Fiscal Policy Stance (FPS)	-0.6148***	0.062713	-9.803720
The efficiency of governance (EOG)	0.3191	0.367481	0.868354
Regime type (REG)	-0.3471	40.04332	-0.858494
External Debt Stock (EDE)	-0.2036***	0.04705470	-4.3279
Domestic Debt Stock (DOD)	0.7380**	0.3407373	0.216589
Debt Servicing (DES)	0.1412904***	0.04738074	2.98202
Intercept	46.69240	15.71872	2.970496
R-squared		0.615032	
Durbin-Watson stat		0.832606	
K	0.5		
Covariance Matrix	K-class		

The result also shows that monetary and fiscal policies in Nigeria are positively and negatively related to economic wellbeing, respectively. Although we expect the monetary policy to exert a negative effect on misery, the result obtained is in contrast. This may not be unconnected with the high Monetary Policy Rate, MPC (*this is the equivalence of federal fund rate in the United States)* that characterize the monetary policy process in Nigeria. The Monetary Policy Committee of the CBN appears to be constantly concerned about inflation rather than unemployment. Thus, it has maintained a high bank (or discount) rate for almost one decade: MPC has remained double-digit since 2011, ranging from 12% in 2012 to 14% in 2017 and 13.5% in 2019. Although the concern of the

VI. CONCLUSION AND POLICY IMPLICATION

The primary macroeconomic goals include maintaining unemployment at the NAIRU, maintaining stable prices, and ensuring sustainable long-term growth. This is no doubt in tandem with the overall goal of government: improved wellbeing of the people. In this study, we investigated the effect of macroeconomic performance on the overall wellbeing of the people using the Hanke misery index. From the results obtained, we conclude as follows. First, economic growth*, through allocative and distributive efficiency*, engenders wellbeing improvement. Second, contractionary monetary policy that raises interest rate and the unemployment rate has a dampening effect on

wellbeing. Finally, rising domestic debt, through its effect on the interest rate and investment, is anti-wellbeing. Consequently, we recommend that the Nigerian government should focus concertedly on growing the economy through the reengineering of the industrial revolution. We also recommend that the CBN reconsiders its stance on high MPC as this has proven to be a suboptimal policy choice. Government should prioritize raising output through the removal of supply-side impediments such as high lending rates.

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