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Do macroeconomic Policies Mitigate Citizens' Misery in a Developing Economy? Empirical Evidence from Nigeria

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Abstract

Arising from the ranking of Nigeria as the 6th most miserable country in the World, by the Hanke's 2018 annual misery index, the paper investigated the economic well-being of the average Nigerian and by extension the overall health of the Nigerian economy via the misery index, in the face of economic policies formulated and implemented in the country. The essence of this is to ascertain the veracity or otherwise of Hanke's ranking and draw implications for economic development in Nigeria. The paper adopted both descriptive and econometric methods in its analysis. The econometric method employed the Auto-regressive Distributed Lag (ARDL) model. The findings showed that real GDP (proxy for economic growth) and fiscal policy, failed to mitigate citizens' misery in Nigeria; thus overweighing the significant impact of monetary and trade policies in alleviating the misery of the Nigerian citizens. The descriptive analysis which compares the standard of living in Nigeria with that of Malaysia and Singapore also indicated that while the standard of living in Malaysia and Singapore witnessed remarkable improvement, the one for Nigeria deteriorated especially from 2015 to 2018, thus confirming Hanke's ranking. The paper therefore concluded by proffering recommendations geared towards enhancing citizens' welfare and happiness in Nigeria.

Key words: Misery index, Well-being, Macroeconomic policies, Economic Development, and Nigeria
Jel Classification Codes:E24, E31, E51, E52, E62, F13 and I31.

1. Introduction

Citizens' misery in a country, to a large extent is traceable to macroeconomic instability, characterized by the prevalence of high unemployment and inflation. The misery of the average citizen in the economy is measured by the misery index, an economic indicator arrived at, by adding the annual unemployment rate to the inflation rate. This index was first developed by economist Arthur Okun in the early 1970s, and has since witnessed some modifications by other economists over time. It provides easily digestible snapshot of the economy and shows how happy or sad (miserable) the citizens of a country are. The higher the misery index score, the more miserable the citizens of a country and vice versa. How miserable or otherwise the citizens are, has serious implications for the overall development of an economy. The pioneering effort of Arthur Okun was probably the "first attempt to develop a single statistic to measure the level of a population's economic malaise". To ascertain citizens' happiness or otherwise, countries are ranked annually in the misery index ranking.

Economic theory, as contained in the Philips curve, establishes a trade-off between inflation and unemployment. In other words, the Phillips curve maintains that there exists a stable inverse relationship between inflation and unemployment rate. While this notion was beginning to gain popularity in economic literature in the 1960s, after the seminal work of Phillips (1957), a new phenomenon tagged "stagflation", which is the simultaneous prevalence of high rate of inflation and unemployment with stunted growth rate emerged in the mid-1970s. The emergence of stagflation and the progressive breakdown of the Phillips curve shows that there is no stable inverse relationship between inflation and unemployment rate in the long run. The concurrent persistence of high rate of unemployment and inflation has thus presented mainstream macroeconomics with the most serious challenge since the Second World War (Nitzan, 1990).

These twin evils - inflation and unemployment, pose serious economic and social costs to the average income earner and the unemployed. An increase in the misery index is triggered by an increase in either, or both inflation and unemployment, and this indicates economic discomfort and negative consumer sentiment. A rise in the misery index implies declining economic activity and reduced consumption. This is because the unemployed are under-utilized and rising prices have the tendency to discourage rational consumers from spending. The overall implication is that there will be a slowdown or contraction of the economy, causing citizens' unhappiness.

In all ramifications, economic (misery) discomfort is undesirable. This necessitates the formulation and implementation of economic policies by the government geared towards promoting growth and development with a view to engendering citizens' happiness. In the light of the foregoing, the fundamental question this paper will seek to answer is: Do economic policies mitigate citizens' misery in a developing country like Nigeria? Arising from this research question, the primary objective of this paper is to examine whether economic policies mitigate citizens' misery in Nigeria. To achieve the paper's objective, what follows in section two is literature review and theoretical issues. Section three presents the methodology employed in the study. Section four focuses on empirical results and discussion of findings while section five summarizes and concludes the paper with recommendations.

2. Literature Review and Theoretical Issues

2.1. Conceptual Issues

Misery Index: Misery index, an economic indicator employed in measuring economic discomfort or misery is conceptualized as the unweighted sum of the unemployment and inflation rates. It was originally developed by economist Arthur Okun in the early 1970s. This was probably the "first attempt to develop a single statistic to measure the level of a population's economic malaise". It is an index used to ascertain the health of the macro economy. An increase in either of these variables - unemployment and inflation brings adverse consequences on economic welfare. To this end, it is perceived as a reverse measure of economic well-being. In this paper, the misery index has been modified following Hanke (2019), by adding banks' lending rate to unemployment and inflation, and subtracting changes in the annual growth rate of GDP per capita. The misery index is also known as economic discomfort index.

Economic Policies: Economic policies refer to the deliberate framework of actions of the government designed to achieve specific objectives which affect the economy of a country as a whole. These objectives include: achievement of high and sustainable economic growth, full employment, stability in the general price level, equilibrium in the balance of payments, stability in the exchange rate, and equity in income distribution. Economic policies are geared towards reducing uncertainty and risk in economic decision making as well as ensuring stability in the macro economy. A stable macroeconomic environment enhances prospects for growth and improved living standard. Economic policies refer to monetary, fiscal, trade, and income policies. In this paper, the scope of economic policies is limited to monetary, fiscal and trade policies. This is because the efficacy of these policies,

determines the effectiveness of the income policy. These policies are formulated and implemented in Nigeria from time to time with a view to achieving the aforementioned broad national objectives.

Monetary Policy: Monetary policy is concerned with measures designed by the monetary authority to regulate and control the volume, cost, availability and direction of money and credit in an economy to achieve some specified macroeconomic policy objectives (Anyanwu, 1993). It has to do with the management of money supply, interest rate and exchange rate, although some economists treat changes in exchange rate as a separate policy.

Fiscal Policy: Fiscal policy deals with government actions regarding taxation, budget and quotas that will influence government revenue and expenditure with a view to achieving specified macroeconomic objectives. It involves the use of public finance and expenditure, taxes, borrowing and financial administration to achieve the aforementioned macroeconomic objectives. Prominent among these is to smooth out the fluctuation in economic activity that often cause unemployment and/or inflation.

Trade Policy: Trade policy is concerned with measures specifically designed to increase aggregate supply and hence increase productive potential. Such policy measures seek to increase the quantity and quality of resources and raise the efficiency of the market. They also seek to bring about market oriented reforms, trade openness (abolition of restrictive trade), streamlining import and export procedures, and general reforms in the domestic and foreign trade for the purpose of achieving overall economic growth and development.

2.2. Empirical Literature

The standard of living in an economy is of paramount importance as it indicates the well-being of its citizens in particular and the overall development of the economy in general. The state of living standards determine how happy or miserable the citizens of a country are. To this end, researchers have conducted studies in different countries to determine citizens' happiness or misery via the misery index. While vast literature on the subject matter exists in other countries, very few studies exist in Nigeria.

For example, Welsch (2007), using data from surveys of life satisfaction, documented that European citizens' subjective wellbeing is inversely related to inflation and unemployment. Adopting regression analysis, and motivated by "Barro Misery Index", the findings showed that people care about growth and employment on the one hand and stability on the other, where stability might alternatively be captured by the inflation rate or the long-term interest rate. The author concluded that, stability, measured in whichever of these ways does not seem to be less important to European citizens than growth and employment.

Di Tella, MacCulloch and Oswald (2001), examined the relationship between European citizens' reported life satisfaction and unemployment and inflation. They found out a statistically significant inverse relationship between European citizens' life satisfaction and these two variables. Di Tella et al however concluded that unemployment affects life satisfaction more strongly than inflation. Using a different econometric methodology, Di Tella et al (2003) obtained similar results.

Dadgar and Nazari (2018), investigated the impact of economic growth and good governance on misery index in the Iranian economy, using vector autoregressive model. The findings showed that economic growth had a negative relationship with misery index. A significant relationship was also established between type of governance and misery index. Several other studies have shown that misery index is inversely related with the suicide rate (Lovell and Tien, 2000; Yang and Lester, 1992).

Wang, Shah, Ali, Abbas and Ullah (2019), analyzed the impact of financial structure and misery index on economic growth in Pakistan. They adopted autoregressive distributed lag (ARDL) model in their analysis. The findings showed that financial development index, misery index, interest rate, trade openness and remittances were the main variables affecting GDP (Proxy for economic growth) in the long run.

Cohen, Ferretti and Mcintosh (2014), developed a dynamic approach to decompose the misery index using two basic relation of modern macroeconomics: the expectation augmented Phillips curve and Okun's law. Cohen et al (2014) made slight improvement to the original Okun's idea by focusing on output and unemployment. Specifically, their version of misery index measures the level of economic discomfort as a function of three key variables, namely, the misery index in the previous period, the output gap in growth rate terms, and cyclical unemployment. They however, down played on the inflation variable.

Munir, Asghar and Rehman (2017), investigated the impact of misery, institutional quality, human capital, population density and GDP per capita on crime in Pakistan over the period 1984 to 2015. They employed Johansen and Juselious co-integration test to determine the long run relationship among the variables. VECM was used to explore short run and long run dynamics while Toda Yamamoto causality test was used to test for casual relationship. The results indicated that there was a significant causal relationship among crime and its determinants in Pakistan. Two channels of bidirectional causality were found active with human capital from GDP per capita and governance. Unidirectional causality runs from crime to misery and from misery to institutional quality. The conclusion drawn was that misery and poor quality of institution contributed significantly to higher crime statistics in Pakistan within the period under review.

In Nigeria, Tule, Egbuna, Dada and Ebuh (2017), adopted a dynamic approach to compute the level of economic distress. Using quarterly data from $2002Q_1$ to $2016Q_4$ and leveraging on the expectations-augmented Phillips curve and Okun's law, the results obtained, indicated a minimum misery index value of 16.92% in $2007Q_3$ and maximum value of 53.42% in $2016Q_4$ respectively, with an average value of 31.49% over the study period.

In a related study, Edet (2015) examined the abnormalities associated with growth and development in Nigeria. Analyzing some stylized facts of the Nigerian economy, he maintained that despite the economic growth of Nigeria on paper, it has failed to generate decent jobs and poverty is widespread. Social indicators in health, education and other sectors remained relatively weak, thus increasing the misery of the citizenry.

From the foregoing, while vast empirical literature on citizens' misery/and or misery index exists in other countries especially Europe, the United States and the Middle East, only the pioneering work of Tule et al (2017) and the related study of Edet (2015) exist in Nigeria to the best of my knowledge. Specifically, in Nigeria no study has attempted to investigate the impact of economic policies on citizens' misery. The rationale behind the paucity of literature on the subject matter in Nigeria is quite uncertain. This has thus created a lacuna in the literature. Cognizance of the high level of economic discomfort in Nigeria in contemporary times, as reported by Hanke (2019), this paper attempts to fill the gap by contributing to the available scanty literature on the subject matter in Nigeria.

2.3. Theoretical Issues

The theoretical framework relevant to explain economic discomfort is the Okun's law of misery index. Arthur Okun was the first economist who developed a misery index in 1966, used to measure the level of misery or economic discomfort among the citizens in an economy. According to this index, the loss in general welfare and level of objective economic malaise was specified as the unweighted sum of the annual inflation and unemployment rates. That is,

$$MI = \pi + U \quad (1)$$

Where: MI = Misery Index
π =Annual Inflation rate
U =Total unemployment rate

In recent times however, the Okun's misery index has been subjected to series of criticisms on the basis of oversimplification. To this end, the original Okun's misery index was slightly modified by Robert Barro in 1999 and Steve Hanke in 2019. Barro (1999), modified the Okun's misery index by

adding two explanatory variables - real GDP growth rate and long term interest rate. He also went further to use changes in the values of these variables instead of their levels. The modified approach of equation (1) is specified as follows:

$$MI = \Delta\pi + \Delta U - \Delta Y + \Delta i \quad (2)$$

Where: $\Delta\pi = \pi_t - \pi_{t-1}$, $\Delta U = Ut - U_{t-1}$,
$\Delta Y = Y_t - Y_{t-1}$, and $\Delta i = i_t - i_{t-1}$,
Y = Annual GDP growth rate
i = Annual long term interest rate
MI, π, and U are as previously defined in equation (1).

Hanke (2019), modified the Okun's misery index by taking the sum of the inflation, unemployment and bank lending rates, minus the percentage change in real GDP per capita. This is expressed symbolically as:

$$MI = \pi + U + R - \Delta Y \quad (3)$$

Where: MI, π and U, are as defined in equation (1)
R = Bank lending rate
ΔY = Percentage change in real GDP per capita.

Higher readings on the first three variables in equation (3) in his words, are "bad" and make people miserable. On the other hand, higher readings on the fourth variable (GDP per capita growth) are "good" and are thus subtracted from the sum of the "bads", to offset the misery index.

3. Methodology

The paper adopts both descriptive and econometric approaches in its analysis. The descriptive analysis focuses on stylized facts of selected economic indicators with a view to ascertaining the level of stability or otherwise of the Nigerian economy, which in turn determines the state of happiness or misery of the people. The econometric technique is based on Auto-regressive distributed lag (ARDL) co-integration and error correction modelling. The essence of co-integration is to determine whether there is the existence of a long run equilibrium relationship in the series. The co-integration test is preceded by unit root test to ascertain the stationarity properties of the data, using augmented Dickey-Fuller technique.

3.1. The Model

Following Okun's law of misery index as modified by Hanke (2019), which specifies the sum of annual inflation, unemployment and bank lending rates, minus the percentage change in real GDP per capita, in which increase in the first three variables are indicative of instability in the economy, resulting in unhappiness or misery of the people. To assuage this, economic policies are formulated and implemented by government to drive the economy to stability with a view to achieving development and citizens' happiness. To this end, the following model is specified:

$$MIX = f(GEX, MSS, OPN, GDP) \quad (4)$$

The econometric form of equation (4) is specified as follows:

$$MIX = a_0 + a_1GEX + a_2MSS + a_3OPN + a_4GDP + U - - - \quad (5)$$

Where: MIX= Misery index (the sum of unemployment, inflation and bank lending rates, minus GDP per capita growth rate)
GEX = Government expenditure (proxy for fiscal policy)
MSS = Broad money supply (proxy for monetary policy)

OPN = Trade openness. Calculated as the ratio of the sum of imports and exports to GDP (proxy for trade policy)

GDP = Real GDP (proxy for the economy used as control variable).

U = Stochastic error term

$a_0 - a_4$ = Coefficients of the model with the following a priori expectation: a_1, a_3 and $a_4 < 0$; $a_2 > < 0$.

4. Presentation of Stylized Facts, Empirical Results and Discussion of Findings

4.1. Stylized Facts

On March 28, 2019 Steve Hanke published the 2018 annual misery index which was an update of his 2017 annual misery index. The index was composed of 95 countries (developed and developing). This misery index indicated the world's saddest and happiest countries. It ranked countries from worst to best. Table 4.1 presents the Hanke's annual misery index-2018. The table indicated that Thailand was the least miserable country in the world in 2018. Nigeria was ranked the 6th most miserable country in the world, with unemployment as the major contributing factor. Nigeria had a misery index score of 43.0 while Malaysia and Singapore that were at the same pace of development with Nigeria at independence in the 1960s, scored 5.1 and 5.2 respectively and ranked 86th and 84th happiest countries in the world.

Table 4.1: Hanke's Annual Misery Index-2018

Hanke's Annual Misery Index - 2018

Rank (Worst to Best)	Country	Misery Index	Major Contributing Factor	Rank (Worst to Best)	Country	Misery Index	Major Contributing Factor
1	Venezuela	1746439.1	Consumer Prices	49	Philippines	11.8	Lending Rates
2	Argentina	105.6	Consumer Prices	50	Cyprus	11.7	Unemployment
3	Iran	75.7	Consumer Prices	51	Croatia	10.9	Unemployment
4	Brazil	53.6	Lending Rates	52	Bolivia	10.8	Lending Rates
5	Turkey	53.3	Lending Rates	53	Canada	10.8	Unemployment
6	Nigeria	43.0	Unemployment	54	Panama	10.7	Lending Rates
7	South Africa	42.0	Unemployment	55	France	10.7	Unemployment
8	Bosnia and Herzegovina	38.2	Unemployment	56	Australia	10.6	Unemployment
9	Egypt	36.8	Lending Rates	57	Kuwait	10.5	Lending Rates
10	Ukraine	34.3	Lending Rates	58	Chile	10.3	Unemployment
11	Nicaragua	31.2	Unemployment	59	Estonia	10.3	Unemployment
12	Jordan	30.9	Unemployment	60	Romania	10.3	Lending Rates
13	Uruguay	27.1	Lending Rates	61	Iceland	9.7	Lending Rates
14	Honduras	26.8	Lending Rates	62	United Kingdom	9.6	Lending Rates
15	Macedonia	26.4	Unemployment	63	Belgium	9.3	Unemployment
16	Armenia	25.1	Unemployment	64	Norway	9.3	Unemployment
17	Jamaica	24.9	Lending Rates	65	Sweden	8.8	Unemployment
18	Saudi Arabia	23.5	Unemployment	66	Moldova	8.8	Lending Rates
19	Colombia	23.2	Lending Rates	67	Vietnam	8.7	Lending Rates
20	Paraguay	22.9	Lending Rates	68	United States	8.7	Lending Rates
21	Greece	22.5	Unemployment	69	Bulgaria	8.6	Unemployment
22	Algeria	21.9	Unemployment	70	Finland	8.3	Unemployment
23	Costa Rica	21.7	Lending Rates	71	Hong Kong	8.3	Lending Rates
24	Peru	21.2	Lending Rates	72	Portugal	8.2	Unemployment
25	Azerbaijan	21.0	Lending Rates	73	Lithuania	7.3	Unemployment
26	Dominican Republic	20.3	Lending Rates & Unemployment	74	Slovenia	7.2	Unemployment
27	Kazakhstan	20.1	Lending Rates	75	Latvia	7.0	Unemployment
28	Barbados	19.7	Unemployment	76	Israel	6.8	Unemployment
29	Papua New Guinea	19.2	Lending Rates	77	Denmark	6.8	Unemployment
30	Georgia	18.8	Unemployment	78	South Korea	6.5	Unemployment
31	Mauritius	17.9	Lending Rates	79	Poland	6.5	Unemployment
32	Serbia	17.4	Unemployment	80	Qatar	5.8	Lending Rates
33	Guatemala	17.2	Lending Rates	81	Slovakia	5.7	Unemployment
34	Pakistan	16.7	Lending Rates	82	Germany	5.6	Unemployment
35	Sri Lanka	16.0	Lending Rates	83	Malta	5.3	Unemployment
36	Spain	15.9	Unemployment	84	Singapore	5.2	Lending Rates
37	Russia	15.7	Lending Rates	85	Ireland	5.1	Unemployment
38	Mexico	15.4	Lending Rates	86	Malaysia	5.1	Lending Rates
39	Indonesia	15.2	Lending Rates	87	Czech Republic	5.0	Lending Rates
40	Trinidad and Tobago	14.7	Lending Rates	88	Netherlands	4.7	Unemployment
41	New Zealand	14.4	Lending Rates	89	Taiwan	4.4	Unemployment
42	Italy	13.7	Unemployment	90	Switzerland	4.2	Lending Rates
43	Mali	13.6	Unemployment	91	China	4.2	Lending Rates
44	India	13.2	Lending Rates	92	Austria	3.9	Unemployment
45	Bangladesh	12.6	Lending Rates	93	Japan	3.3	Unemployment
46	Albania	12.2	Lending Rates	94	Hungary	2.6	Unemployment
47	Ecuador	12.2	Lending Rates	95	Thailand	1.7	Lending Rates
48	El Salvador	12.0	Unemployment				

Sources: Economist Intelligence Unit (including estimates), International Monetary Fund World Economic Outlook, and National Bureau of Statistics, Nigeria, Calculations by Professor Steve H. Hanke, The Johns Hopkins University.

Note: The misery index score is the sum of the unemployment rate, the lending rate, and the inflation rate (consumer prices; end-of-period) minus the percent change in real GDP per capita.

Countries where all four data series were available from the Economist Intelligence Unit were included, and IMF WEO data was used to find change in real GDP growth per capita for Bosnia and Herzegovina, Nicaragua, Uruguay, Honduras, Macedonia, Armenia, Jamaica, Paraguay, Barbados, Papua New Guinea, Georgia, Mauritius, Guatemala, Mali, Albania, Bolivia, Panama, Iceland, Moldova, and Malta. IMF WEO data was also used to find inflation (end-period) for Malta, Iceland, Mali, Mauritius, and Bosnia and Herzegovina.

National Bureau of Statistics, Nigeria was used to obtain Nigeria's unemployment rate, which is Nigeria's 2018 Q3 rate.

The median value of the 2018 Misery Index is 12.0.

The standard of living in Nigeria has tremendously fallen over the years, especially from 2015 to 2018. Table 4.2 compares the standard of living in Nigeria with that of Malaysia and Singapore between 2009 and 2018, the two Asian countries that were at the same level of development with Nigeria at independence in the 1960s. The table showed that the annual growth rate of GDP per capita of Nigeria was not impressive vis-à-vis that of Malaysia and Singapore. For example, in 2009, the GDP per capita growth rate of Nigeria stood at 5.2% but by 2011, it dropped drastically, recording a negative growth rate of -2.7%. Within the same period, the GDP per capita of Malaysia and Singapore in 2009, recorded negative growth rates of -3.3% and -2.9% respectively. But by 2011 it grew to 3.7% and 4.1%. The GDP per capita growth rate of Nigeria improved significantly in 2012 with an annual growth rate of 8.98% and by 2013 it fell to 1.97%. For the four year period of 2015 to 2018, the Nigeria's GDP per capita recorded negative growth rates, indicative of deteriorating standard of living and increase in misery for the average Nigeria citizen.

On the other hand, the GDP per capita growth rate of Malaysia and Singapore, for the same four year period of 2015 to 2018 remained positive, though fluctuating. Table 4.2 clearly shows that Nigeria, with a deteriorating standard of living is the most miserable country compared with Malaysia and Singapore. Little wonder Hanke's 2018 annual misery index ranked Nigeria as the 6th most miserable country in the world while Malaysia and Singapore were ranked 86th and 84th most happiest countries of the world (ranking from worst to best).

Table 4.2: GDP per capita growth (Annual %) for Nigeria, Malaysia and Singapore 2009-2018

YEAR	NIGERIA	MALAYSIA	SINGAPORE
2009	5.198	-3.286	-2.854
2010	5.159	5.624	12.514
2011	-2.681	3.666	4.07
2012	8.975	1.918	1.918
2013	1.974	3.131	3.131
2014	3.514	4.595	2.56
2015	-0.029	3.688	1.679
2016	-4.168	2.818	1.635
2017	-1.789	4.466	3.608
2018	-0.666	3.317	2.656

Source: The World Bank (2018). World Development Indicators

4.2. Empirical Results

4.2.1. Unit Root Test Result

The pre-estimation unit root test result is presented in table 4.3. The Augmented Dickey-Fuller (ADF) technique was employed in the unit root analysis.

Table 4.3: ADF Unit Root Test Result

Variable	t-statistic at level	t-statistic at first Diff.	Critical value at 5%		Remarks
			Level	First Diff	
MIX	-3.315751	-	-2.941145	-	I(0)
GEX	1.537979	-4.825840	-3.552973	-3.552973	I(1)
MSS	7.639382	-4.707696	-2.941145	-3.536601	I(1)
OPN	-2.012487	-5.438828	-3.533083	-3.554284	I(1)
GDP	3.001381	-4.334583	-2.943427	-3.536601	I(1)

Source: Computed by the author

From the unit root result, only the dependent variable, misery index (MIX) was found to be stationary at level while the rest of the other variables were stationary at their first difference (table 4.3). Since all the variables were not integrated of the same order, while MIX was integrated of order

zero, that is I(0) and the rest of the other variables were integrated of order one, that is I(1), auto-regressive distributed lag (ARDL) method was adopted in testing for long run relationship among the variables in the series. The ARDL method is the most appropriate technique in testing for the existence or otherwise of a long run relationship among the variables in the series when the order of integration is I(0) and I(1) Nkoro and Uko (2016). The ARDL co-integration result is presented in table 4.4. The result indicated that a long run relationship exists among the variables, therefore, they are co-integrated. This is because the calculated F-statistic value of 20.16351 is greater than both the lower bound and the upper bound critical values of 3.47 and 4.57 at 5% level of significance. This implies that the null hypothesis of no co-integration is rejected while the alternative hypothesis of existence of co-integration is accepted.

Table 4.4: ARDL bound test co-integration result

F-Bounds Test		**Null Hypothesis: No levels relationship**		
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	20.16351	10%	3.03	4.06
K	4	5%	3.47	4.57
		2.5%	3.89	5.07
		1%	4.4	5.72

Lower Bound at 5% = 3.47
Upper Bound at 5% = 4.57
Source: Computed by the author using Eviews 10

Having certified that a long run relationship exists among the variables in the series, the paper proceeded to estimate the ARDL long run and short run models. The result of the long run model is presented in table 4.5 while the short run result is presented in table 4.6. In the long run, one year lag of misery index itself (MIX) turned out with a negative sign and is statistically significant. Real GDP variable was negatively correlated with misery index after one year and was not statistically significant. But at second difference, it became positively correlated with misery index and was statistically significant. This implies that if real GDP increases by 1 percent, misery index (MIX) will increase by 76.14424 percent. This however is not consistent with a priori expectation. Increase in real GDP is expected to reduce the misery of the citizens. This result corroborates the findings of Edet (2015), who maintained that positive economic growth in Nigeria has not translated into economic development but has rather increased the misery of the citizens.

Government expenditure (GEX) turned out with a positive sign in one year and two years lags, hence not consistent with a priori expectation. Government expenditure is expected to stimulate growth and reduce the misery index. While it was not statistically significant at one year lag, it was statistically significant after two years. Money Supply (MSS) and trade openness (OPN) both conform to theoretical expectation and are statistically significant variables influencing misery index (MIX) in Nigeria. An increase in trade openness by 1 percent for example, will cause a decrease in misery index by 21.76327 percent in Nigeria.

Table 4.5: ARDL long run estimation result

Dependent Variable: D(MIX, 2) Included observations: 35 Conditional Error Correction Regression				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-4.766097	8.488943	-0.561448	0.5802
@TREND	0.031832	0.225161	0.141376	0.8889
D(MIX(-1))*	-1.390734	0.190349	-7.306240	0.0000
DLOG(GDP(-1))	-44.29891	36.45712	-1.215096	0.2372
DLOG(GEX(-1))	8.010524	30.09155	0.266205	0.7926
D(LOG(MSS))**	55.77604	21.99897	2.535394	0.0188

D(LOG(OPN))**	-21.76327	8.287349	-2.626084	0.0154
D(MIX(-1), 2)	0.300053	0.131357	2.284260	0.0324
DLOG(GDP, 2)	72.80834	36.35390	2.002766	0.0577
DLOG(GDP(-1), 2)	76.14424	27.55340	2.763515	0.0113
DLOG(GEX, 2)	-3.992849	13.47673	-0.296277	0.7698
DLOG(GEX(-1), 2)	7.206593	22.61374	0.318682	0.7530
DLOG(GEX(-2), 2)	29.38300	13.37290	2.197204	0.0388

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

In the short run, the error correction term turned out with the correct sign, fractional and statistically significant. The result further showed that the speed of adjustment to the long run equilibrium path is slow, as only about 22.2 percent of the disequilibrium errors which occurred in the previous period were corrected in the current period. Real GDP also turned out with a positive sign and was statistically significant in the short run. The same thing applied to government expenditure which was positive and statistically significant. The positive relationship between Government Expenditure (GEX) and Misery Index (MIX), contrary to the theoretical a priori expectation, may reflect the high rate of corruption in Nigeria which more often than not prevent budgeted revenue for public expenditure from producing corresponding outcomes. As the revenue may be diverted for personal use by government officials, instead of producing public goods which it was meant for. To this end, rather than reducing the misery index, government expenditure increases it.

The adjusted R-squared showed that about 83.9% of total variation in the dependent variable (MIX) is explained by the explanatory or independent variables. This indicates that the model has a good fit. The F-statistic further revealed that the overall model is statistically significant with a value of 23.29438. Finally, the Durbin-Watson statistic with a value of 1.962341 showed that there is no existence of serial or auto-correlation, as the calculated value falls within the "no auto-correlation region". To this end, the findings of this paper are reliable can be used for policy formulation.

Table 4.6: ARDL short run error correction result

Dependent Variable: D(MIX, 2) Included observations: 35 ECM Regression Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-4.766097	4.319045	-1.103507	0.2817
@TREND	0.031832	0.185331	0.171760	0.8652
D(MIX(-1), 2)	0.300053	0.103616	2.895824	0.0084
DLOG(GDP, 2)	72.80834	23.58547	3.087000	0.0054
DLOG(GDP(-1), 2)	76.14424	21.97572	3.464925	0.0022
DLOG(GEX, 2)	-3.992849	10.18653	-0.391973	0.6988
DLOG(GEX(-1), 2)	7.206593	13.39665	0.537940	0.5960
DLOG(GEX(-2), 2)	29.38300	9.703635	3.028041	0.0062
CointEq(-1)*	-0.221781	0.027409	-8.091550	0.0000
R-squared	0.877564	Mean dependent var		-0.740571
Adjusted R-squared	0.839891	S.D. dependent var		26.36512
S.E. of regression	10.54965	Akaike info criterion		7.767096
Sum squared resid	2893.671	Schwarz criterion		8.167043
Log likelihood	-126.9242	Hannan-Quinn criter.		7.905158
F-statistic	23.29438	Durbin-Watson stat		1.962341
Prob(F-statistic)	0.000000			

Furthermore, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMQ) tests in figures 4.1a and 4.1b were applied to examine the stability of the parameters after the ECM model was estimated. The result indicated that the coefficients of the estimated model are stable in the long

run as the CUSUM and CUSUMQ statistics fall within the critical bound of ± 5 percent level of significance. This further confirms the long run relationship between misery index and the explanatory variables in Nigeria.

Figure 4.1a: Stability test: Cumulative sum (CUSUM)

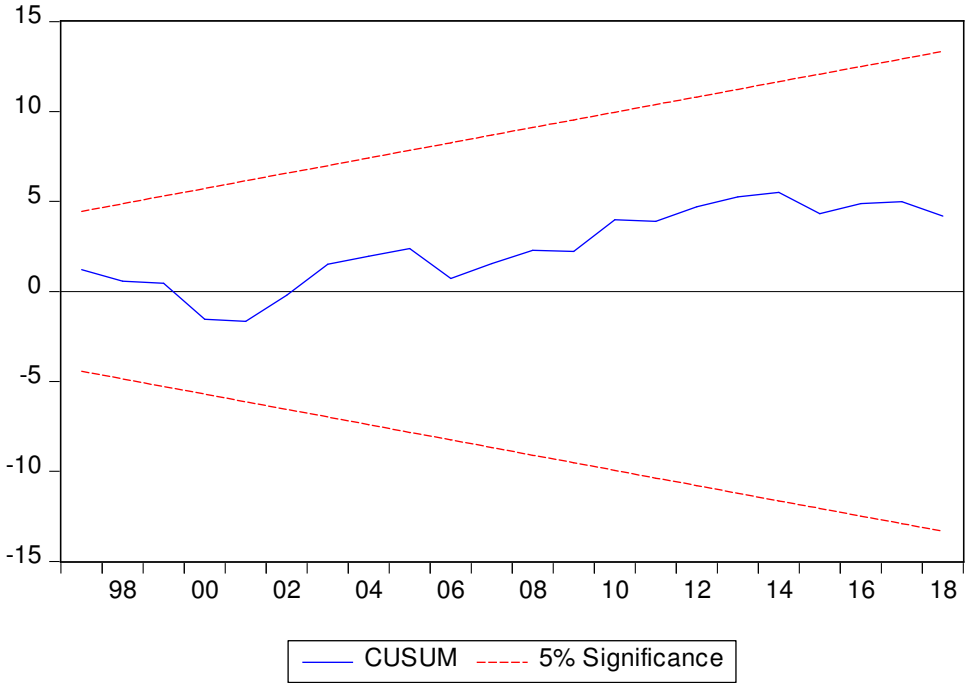
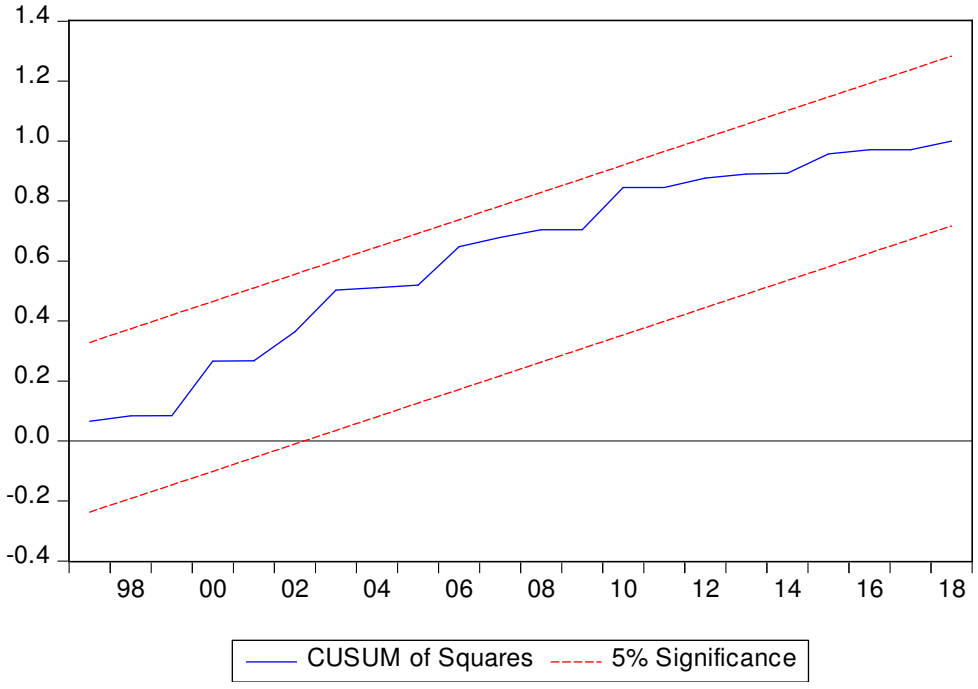


Figure 4.1b: Stability test: Cumulative sum of squares (CUSUMSQ)



4.3. Economic Implications of Results

The analyzed stylized facts and the econometric results have far-reaching implications on the economic discomfort or misery of the citizens in particular and the Nigerian economy in general, viz.

1. Economic policies have not substantially reduced the misery index in Nigeria. While monetary and trade policies exerted significant impact on reducing the misery index, this impact was neutralized by the overwhelming effects of real GDP and fiscal policy which increased the misery index rather than reducing it, and by implication, increase the economic discomfort of the Nigerian citizens.
2. Unemployment which is a key component of misery index is the most contributing factor in the misery index of Nigeria (Hanke, 2019). The unemployed and the underemployed are idled and underutilized. As the saying goes, "the idle mind is the devil's workshop". Little wonder the crime rate in Nigeria in recent times has assumed an alarming proportion. Crimes like armed banditry, kidnapping and hostage taking, terrorism and general insecurity occur on a daily basis in Nigeria. This obviously has adverse consequences on the economic development of Nigeria.
3. A high misery index for Nigeria as shown by table 4.1 and corroborated by the econometric results contributes to increase in the debt profile of the country, as money is borrowed to enhance social support schemes. In recent times in Nigeria, government's attempt to mitigate the misery of the people has resulted in floating some social support schemes like, N-Power, TraderMoni, School feeding programme etc. It is therefore not surprising as Nigeria's total debt rose from $73.21 billion at the end of June 2018 to $83.88 billion (₦ 25.70 trillion) as at the end of June 2019, representing 12.72 percent increase year-on-year (Debt Management Office, 2019).
4. Increase in citizen's protests against the ruling government thus making the serving administration unpopular. In Nigeria, the protest by members of the Shiite Islamic Movement in Abuja on the 22nd and 23rd July, 2019 which turned violent and led to the death of about 13 persons including police officers (Premium Times 2019, July 23); the "Revolution Now" Protest on August 5, 2019 led by Omoyele Sowore, seeking revolution in Nigeria, are some of the cases in point of citizens' expression of dissatisfaction against the government as a result of the economic discomfort they are experiencing.
5. Insecurity caused by citizens' misery, discourages inflow of foreign direct investment (FDI) and encourage capital flight. This engenders negative impact on economic development of Nigeria.

5. Summary and Conclusion

The paper has attempted to investigate whether macroeconomic policies mitigate the citizens' misery in Nigeria. A comparative analysis was carried out between Nigeria and her two contemporaries-Malaysia and Singapore who were at the same level of development, at independence in the 1960s. While the standard of living in Malaysia and Singapore witnessed remarkable improvement, the standard of living in Nigeria deteriorated especially from 2015 to 2018. This thus confirms the ranking of Nigeria as the 6th most miserable country in the world while Malaysia and Singapore were ranked 86th and 84th happiest countries in the world by the 2018 Hanke's misery index ranking (ranking from worst to best).

As shown by the empirical results, real GDP (proxy for economic growth) and fiscal policy, failed to mitigate citizens' misery in Nigeria; thus overweighing the significant impact of monetary and trade policies in alleviating the misery of the Nigerian citizens. To this end, the paper concludes with the following recommendations:

(i) The Nigerian government should strive hard to achieve inclusive growth that will reduce the misery of the citizenry rather than increasing it. As increase in real GDP the proxy for economic growth was found to be contributing to increase in the misery index rather than reducing it, in the empirical result.

(ii) The fight against corruption in Nigeria should be intensified to forestall the diversion of public funds for personal gain by corrupt public officials. From the empirical results, government expenditure contributed to increase in misery index instead of reducing it both in the short run and long run.

(iii) Trade liberalization and policies that favour trade openness should be pursued with vigour, as trade openness was found to be a significant variable mitigating misery index in Nigeria. This is why the recent signing of the agreement establishing the African continental free trade area on the 7th July, 2019, by the Nigerian president, Mohammadu Buhari, is seen as a step in the right direction.

(iv) Finally, efforts should be intensified by the monetary authority to ensure that money supply in Nigeria does not exceed the threshold beyond which it becomes inflationary. From the empirical results, money supply is a significant monetary policy variable influencing misery index in Nigeria.

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