Persistent Poverty, Unemployment and Social Exclusion in Nigeria: Challenges and Policy Options

by

Mashhud Adeurele Paysola
Ngozi Mary Nwaloze
Matthew Babatope Ogunniyi
Department of Economics, University of Lagos,

Abstract
Despite the abundance of wealth endowed in Nigeria, the country is still bedevilled by the triangular milieu of poverty, unemployment and social exclusion. Social exclusion has become so apparent that Nigerians are facing a combination of linked problems that are mutually reinforcing such as unemployment, poor skills and education, low incomes, poor housing and high level of insecurity. This paper therefore investigates in comprehensive terms the role played by employment and social exclusion in determining the persistent poverty in Nigeria. It identified veritable indicators of social exclusion; it further shows the interactions of these indicators with unemployment and poverty. Data used for this study were drawn from publications on Nigeria by World Bank; World Development Indicators and Global Development Finance (2012). The outcome of our study indicates that social exclusion has cumulated into poverty, lack of education and unemployment in the country. Interestingly the findings revealed that high unemployment rates in Nigeria may not necessary translate into a reduction in poverty levels and the rationale for such an occurrence is contained in the rising level of underemployment. Monetary policies may have some positive impact with regards to reducing poverty but it has not done enough as the monetary policies are yet to trickle down to the poor masses that constitute over 60% of the Nigerian population. Access to financial services and educational attainment variables suggests a rather poor connection between poverty and social exclusion as well. It is recommended that a more focused developmental programme by the government towards youth empowerment would reduce the prevailing level of insecurity in the country.

Keywords: Social Exclusion, Poverty, Unemployment

Introduction
In the last two decades, social exclusion has become one of the most frequently discussed topics in the social sciences as it permeates itself in the developed and developing countries of the world. Social exclusion as an emerging concept has the potential to envelope concepts like poverty, unemployment. However, little research has been conducted in the direction
of how this concept evolves and relates with long standing concepts like poverty and unemployment in many a developing and/or less developed countries.

With the increasing incidence of poverty in Nigeria and its growing level of unemployment the need to investigate the case of social exclusion comes to the fore and this is due to the tendency for more groups of persons to lack access to those things that constitute a standard state of well being. The battle against poverty in Nigeria is one that has been on for quite some time and has witnessed a flurry of policies aimed at ameliorating its devastating incidence. Since the discovery of oil in commercial quantities and the consequent decline in the non-oil sector, as Aligbokhan (2000) rightly noted, coupled with a growing state along with corrupt tendencies within it, poverty increasingly became an issue to be given serious consideration (Omonona, 2010). The northern part of the country, which is largely rural, were the most hit by the incidence of poverty as noted by Omonona (2010) compared to the south and this has not been without attendant increases in the level of unemployment in the country and this is not unconnected to the specific socio-cultural circumstances prevalent in that location. Von Hauff and Kruse (1994) infers that the one major consequence of poverty is the rise in urban agglomerations and with the country increasingly depending on the proceeds of oil exports, coupled with the corruption of the state's public machinery, subsistence and commercial agriculture declined and as rural dweller migrated to urban areas in search of a better life, unemployment becomes the almost natural consequence giving way to the growth of slums, stretching of social infrastructure and the predatory exploitation of land for residential and commercial purposes - this is the case in many cities in Nigeria - crime and insecurity (Obadan & Odusola, 2000; Alakanna, 2003; Uche, 2010).

However in contemporary times the combined forces of poverty and unemployment are repeatedly being held responsible for the rise in the spate of violence and insecurity with commentators asserting the divisive nature of poverty and unemployment in socially excluding certain groups of persons from the larger society (Ijaiya, 2005; Apatag, et al., 2010).

Hence some pertinent questions arise: What role do poverty and unemployment play in generating tendencies for the exclusion of certain groups? What indicators can veritably represent social exclusion on the aggregate aside poverty and unemployment? And how does poverty and unemployment interact with these indicators of social exclusion in the Nigeria context? These questions are investigated bearing in mind the prevalent hardship, violence and insurgeny in certain parts of the country and how social exclusion can be very instrumental in explaining these occurrences in the Nigerian society.
However, there is the herculean task of determining what defines social exclusion and which aggregate variables are suitable measures of social exclusion and even more challenging is the fact that both poverty and unemployment which have been around in the Nigerian society for sometime have determining factors that may be involved in the determination of the extent of social exclusion. In this paper the focus is on the manner in which poverty and unemployment interacts with components of social exclusion and what implication this may have for the Nigerian society. The rest of this paper is divided into four sections: Literature Review and Theory, Method of Analysis, Data Presentation and Analysis and Discussion and Conclusion.

**Literature Framework and Theory**

The term 'social exclusion' emerged as an attempt to explain comprehensively the consequences of the loss or 'disappearance' of work in the society, but social exclusion still appears to be a concept that lacks one universal definition and as a result has been termed an umbrella word which is capable of different definitions depending on the socio-political and economic climate (UNDP, 2000, 2006). Nevertheless some attempts have been made towards defining social exclusion and measuring it.

Lynn (2010) maintains that, 'social exclusion refers to processes in which individuals and entire communities of people are systematically denied their rights, opportunities and resources that are key to social integration like housing, employment, healthcare, civic engagement, democratic participation and due process, that are normally available to all or some members of society.' In broader terms Silver (2007) posits that 'social exclusion is a multidimensional process of progressive social rupture, detaching groups and individuals from social relations and institutions and preventing them from full participation in the normal and normatively prescribed activities of the society in which they live.' UNDP (2006) notes that 'social exclusion should be understood as the relatively permanent, multiple conditioned and multidimensional state of deprivation of an individual.' This definition was further clarified as they maintain that social exclusion involves deprivation or lack of access to social resources and this situation is relatively permanent with little or no connection to the natural defects or capabilities of the subjects but rather emanating from the structural features of the institutions in the society and this situation tends be the effect of multiple 'life misfortunes'.

While the definition of Lynn (2010) appears to enumerate some aspects of the society from which the socially excluded could be detached from, UNDP (2006); Silver (2007); Popay et al. (2008) bring to the fore the fact that social exclusion is largely a function of the socio-political and economic realities
of the society under consideration and this explains the diversity in the different indicators adopted different authors studying different societies. We consider some of these indicators in a brief summary below:

<table>
<thead>
<tr>
<th>At risk of poverty</th>
<th>Economic status</th>
<th>Financial difficulties in the household</th>
</tr>
</thead>
<tbody>
<tr>
<td>At risk of poverty threshold</td>
<td>Persons with religions, ethnic, sexual, racial and alternative lifestyles affiliations</td>
<td>Unaffordable of some basic needs</td>
</tr>
<tr>
<td>S80/520 income quintile share ratio</td>
<td>Persons classified as dependents</td>
<td>Unaffordable of consumer durables</td>
</tr>
<tr>
<td>Persistent at risk of poverty ratio</td>
<td>Persons convicted of crimes at any time in the life time</td>
<td>Disadvantageous housing conditions</td>
</tr>
<tr>
<td>Relative median at risk of poverty gap</td>
<td>Persons with low or no level of education</td>
<td>Poor health expectancy; self perceived health status</td>
</tr>
<tr>
<td>Regional cohesion</td>
<td></td>
<td>In frequent contracts with family and relatives</td>
</tr>
<tr>
<td>Long term unemployment rate</td>
<td>Persons with special Health concerns</td>
<td>Dissatisfaction with work or main activity</td>
</tr>
<tr>
<td>Persons living in jobless households</td>
<td>Persons with Physical and mental disabilities</td>
<td></td>
</tr>
<tr>
<td>Early school leavers not in education or training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self defined health status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispersion around the at risk of poverty threshold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At risk of poverty rate anchored at one moment in time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At risk of poverty rate before cash social transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gini coefficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In work at risk of poverty rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In work at risk of poverty rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term unemployment share</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very long run unemployment rate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2.1 Social exclusion indicators from literature**

Some of the studies reviewed, i.e. Atkinson et al (2004); Mathieson et al. (2008); Popey et al. (2008); Eurostat (2010), reveal that the indicators used in the study of social exclusion are predominantly based on the research efforts conducted in the EU and from these indicators we notice that there are some dimensions of social exclusion that emanates. Kronauer (1997) notes that central to the definition of social exclusion are the dimensions: exclusion from the labour market, economic exclusion, cultural exclusion, exclusion by social isolation, spatial exclusion and institutional exclusion. The EU Lacken indicators suggest broader dimensions: financial poverty (income), employment (labour market), health and education (UNDP 2006). Gordon et al (2000) in their conduct of a new poverty and social exclusion survey consider the following dimensions: income poverty and material deprivation, exclusion from the labour market, exclusion from public services and exclusion from social relations. Barnes (2005) considers: financial situation, ownership of durable goods, the quality of housing, neighbourhood perception, personal social relationships, physical health and psychological well-being to be dimensions of social exclusion. From these we notice that despite the peculiarities of the dimensions specified by each author converge to the much broader dimensions prescribed by UNDP (2006) and this shall form the basis of our analysis in the analysis section.

At this juncture, we consider theories on how poverty and unemployment form integral component of social exclusion and given some conjecture on how they will interact with social exclusion. Employment as noted in UNDP (2006) plays a fundamental role in every society as people are frequently defined by what they do for a living and this makes the problem of unemployment one that is quite pivotal in development studies. Unemployment exists as explained and explanatory variables as it is caused by some variables and it causes several other variables. Emphasized in UNDP (2006), unemployability is a fundamental cause of unemployment as the paucity of high quality education, training, know-how skills and competencies to enable a person to find and keep a job, to advance professionally, to find another job if dismissed or find a job different periods of his or her work and life cycle. However there are other reasons aside the more institutional factors mentioned above. UNDP (2006) continues by asserting that some unemployed persons are usually struggling with a number of different and complex obstacles to employment, including physical disability/incapacitation, psychological problems, domestic violence, learning difficulties, alcoholism or drug addiction and they mostly have a background of poor educational achievement, they live in areas with poor transportation connections, are of poor health and/or have difficulties with socialization... and these underscore the effect of factors that are specific to individuals but yet impact on the unemployment and
unemployment in turn, as noted by Omtzigt (2009), impacts on social exclusion as it engenders 'loss of skill, self esteem, material deprivation and loss of freedom'.

The role of unemployment in social exclusion is further expanded, beyond the effects specified by Omtzigt (2009), by Sen (2000) as he maintains that unemployment could also result in long run damages, psychological harm and misery, ill health and mortality, loss of human relations, motivational loss and future work, gender and racial inequality and weakening of social values. These effects that emanate from unemployment as noted by Sen (2000) also have the potential to generate even greater social problem and this underscores the interconnectedness of the variables that constitutes social exclusion.

Poverty on the other is one concept that has been investigated extensively with different methods used in the analysis of poverty. Sen (2000) considers the issue of poverty from the perspective of the capability deprivation and Eurostat (2010) emphasizes the components of social exclusion, as noted in the seven of the eighteen Laeken indicators, that are attributed solely to poverty. In both works we noticed that poverty also play a major role in the determination of social exclusion. Consequently we notice that poverty, unemployment and the dimensions of social exclusion are related somewhat in some degree which may be in varying degrees depending on the specificity of the society being studied.

Graph 2.1 Poverty and unemployment interact in the manner described by the diagram culled from UNDP (2006)


Note: Arrows with solid lines indicate a relationship of a tighter nature while arrows with dashed lines indicate weaker and variable relationships.
While poverty and unemployment have a strong connection, both poverty and social isolation combine to impact significantly on unemployment and then there is role of access to education, which is an another dimension of social exclusion, and the effect of poor access to education on unemployment also strengthens the connectedness between poverty and unemployment. This interaction is further re-considered in Figure 2.2.

Figure 2.2: The intersections of poverty, unemployment and social exclusion
Legend:
Poverty
Unemployment
Social Exclusion (with components other than poverty and unemployment)

Figure 2.2 gives us a hint as to the crux of the matter in this paper. Social exclusion has the financial, health and education dimensions if we extract poverty and unemployment from these while literature recognizes that poverty and unemployment are significant contributors to social exclusion, the extent to which they interact with the other components of social exclusion is still in the dark. More often than not the A, B, C...G sections of the diagram constructed above are determined via enumeration methods as evident in: UNDP (2006); Eurostat (2010); ONS (2013); while the German Survey Results (1998) discussed by Bohnke (2001) use of regression based methods. The enumeration based methods may provide information on the magnitudes of impact but the direction of impact is lacking while the regression based methods provide information on both the magnitude and direction of impact as in the German Survey regression results and from these works we note that for different societies the categories A, B, C,...,G in the diagram above would be marked different but there may be some convergence on the overall (invol...
overall connection between poverty, unemployment and social exclusion (involving components other than poverty and unemployment).

For the purpose of our study, the proxies representing poverty, unemployment and social exclusion (capturing dimensions other than poverty and unemployment) and their sources are presented in Table 2.2

Table 2.2 Poverty, Unemployment and Social Exclusion Indicators, Proxies and Source Literature

<table>
<thead>
<tr>
<th>Variable</th>
<th>Proxy</th>
<th>Source Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty</td>
<td>Poverty headcount ratio (% of population living with less than $1 PPP/day)</td>
<td>UNDP (2006); Eurostat (2010)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Ratio of employed persons to the gross domestic product</td>
<td>UNDP (2006); Eurostat (2010)</td>
</tr>
<tr>
<td>Social Exclusion Variable</td>
<td>Dimension</td>
<td>Proxy</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>Health</td>
<td>Source Literature</td>
</tr>
<tr>
<td>Access to social infrastructure</td>
<td>Social</td>
<td>UNDP (2006)</td>
</tr>
</tbody>
</table>

In the next section we discuss the method of analysis involved and how we seek to determine the categories A, B, C,...,G in the diagram above.

Methodology

Our method of research borders on stationarity and causality testing and on the basis of these we provide some elucidation of these and provide information on the procedure of studying the interaction between poverty, unemployment and social exclusion.

Stationarity testing: Comparing the Augmented Dickey Fuller and Kwiatkowski et al. tests

In this study we apply the combined results of the Augmented Dickey Fuller test and the Kwiatkowski, Phillip, Schmidt and Shin (KPSS) test in determining the order of integration of the variables used. The Dickey and Fuller (1976) test in the general sense considers the null hypothesis that the variable $Y$, has a trend and a unit root and the test equation involved is
defined as: \( Y_t = \alpha + \beta t + \rho Y_{t-1} + \varepsilon \), where \( \alpha, \beta, \rho \) real unknowns and \( \varepsilon \sim \text{NID} (0, \sigma^2) \). On rewriting the equation we have: \( Y_t = \alpha + \beta t + (\rho - 1) Y_{t-1} + \varepsilon \), and the null hypothesis asserts: \( \rho - 1 = 0 \) and the alternative asserts: \( \rho - 1 < 0 \). If we augment the test equation with lag values of the first difference of \( Y \), to account for higher orders autoregressive schemes then the test equations becomes: \( \Delta Y_t = \alpha + \beta t + (\rho - 1) Y_{t-1} + \Sigma_{\Delta Y_{t-1}} + \varepsilon \) (where the lag length \( k \) can be determined with the aid of information criteria like the Akaike, Schwarz, Hannan-Quinn information criteria and the finite prediction error (FPE)) and the null hypothesis and alternative hypothesis remain the same.

However due to the criticism levelled against the Dickey Fuller test as lacking power and hence reporting marginally stationary variables as having unit roots, the Kwiatkowski et al. (1992) (KPSS) test was invented to circumvent that problem and this it does by designing a test statistic that reverts the hypotheses. The test equation for the KPSS test is given as: \( Y_t = \alpha + \beta t + \rho \Sigma_{\varepsilon} + \varepsilon \), where \( \mu \sim \text{NID} (0, 1) \) and \( \varepsilon \) is the residual from the regression model. If we define \( S = \Sigma_{\varepsilon} \) and \( KPSS = \frac{\Sigma_{\varepsilon}}{\sigma_{\varepsilon}^2} \), where \( \sigma_{\varepsilon}^2 \) is the heteroscedasticity and autocorrelation consistent estimator of the variance of \( \varepsilon \), then the KPSS statistic can be used to test the null hypothesis that: \( \rho = 0 \) against the null hypothesis \( \rho < 0 \). It can be noticed that under the null \( \varepsilon \) is statistically significant and hence the KPSS statistic will not be statistically significant. With the combination of these tests we shall determine the order of integration of the variables involved in this study which shall be of utmost importance in the determination of the nexus between poverty, unemployment and social exclusion in Nigeria.

**Causality analysis: Dolado-Lutkepohl and Toda and Yamamoto tests**

In tracing the connection between poverty, unemployment and social exclusion we avail the use of causality analysis. The popular technique for measuring causality is the granger causality as inferred from Gujarati (2005) stipulates that: \( X \), does not granger causes \( Y \), if given the information sets \( \Omega \), \( \Omega' \), defined such that \( \Omega' \subseteq \Omega \), and \( \Omega = \Omega' \), \( (Y_t | \Omega) = F (Y_t | \Omega') \). This form of causality is based on view that \( X \) causes \( Y \), if the former precedes the later and this form of causality is bound by conditions stated in Gujarati (2005) one of which is that the two variables \( X \) and \( Y \), must be stationary and hence cointegrated and/or stationary. This automatically rules out the use of this test for variables that are either not stationary or a mix of variables with different orders of integration. Further criticizing the granger causality method Kayhan et al. (2010) notes that the existence of first order integrated variables in the mix of variables could result in non-standard asymptotic distribution of the test statistics used in determining the existence of causality — test statistics such as the Chi-square, \( F \) and \( t \) statistics — and this...
could in turn be due to the singularity of the asymptotic distributions of the estimators (Lutkepohl and Kratzig, 2004).

To remedy the problem of having a mix of variables with different orders of integration and also the problem of non-standard asymptotic distributions of the test statistics involved in testing the zero restrictions required, we adopt two measures that seek to adjust the Granger causality method and these are the Dolado and Lutkepohl (1996) and Toda and Yamamoto (1995) methods.

The Toda and Yamamoto (1995) adjustment of the Granger causality test involves specifying a vector autoregressive model: \( A(L)Y_t = \varepsilon_t \), where \( A(L) = 1 + \sum_{l=1}^{\rho} \alpha_l L^l \) and \( A(L) \) is the matrix of lag operators and \( \alpha_l \) is the matrix of coefficients which are defined such that the root of the polynomials resulting from the matrix \( A(L) \) is inside the unit circle and the test augments the optimal lag length \( \rho \) with the maximum order of integration \( d_{\max} \) recorded in the mix of variables under consideration and hence the vector autoregressive specification used in carrying the causality analysis becomes: \( B(L)Y_t = \varepsilon_t \), where \( B(L) = 1 + \sum_{l=1}^{d_{\max}} \alpha_l L^l \). This adjustment makes the causality analysis suitable for a set of variables with varying non-negative orders of integration provided the condition: \( \rho \geq d_{\max} \).

The Dolado and Lutkepohl (1996) test corrects the problem of non-standard asymptotic distribution of the test statistics involved in the zero restrictions by increasing the number of lags, given that the optimal lag length has been discovered, by unity such that the vector autoregressive model involved in the causality analysis becomes: \( C(L)Y_t = \varepsilon_t \), where \( C(L) = 1 + \sum_{l=1}^{\rho+1} \alpha_l L^l \). We notice interestingly that in the event that the set of variables under consideration have a maximum order of integration of unity then the matrix of lag operators would be such that: \( B(L) = C(L) \) and hence the result of both adjustments would converge to solve the two problems discussed above.

The vector autoregressive specification that results from the above adjustments suggested by Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) can be used to trace the impulse response of the poverty headcount ratio and the ratio of employment to the GDP to social exclusion indicators found to have some form of causality relationship with the aforementioned – the relationship could be uni-directional or bi-causal giving evidence of a feedback between the variables involved.
Empirical analysis

Exploration of components of social exclusion

We begin with a descriptive consideration of the time series involved in this study by first looking at a graphical depiction of these variables. CO2 emissions per capita captures the exclusion to access to a healthy environment and in the Nigerian case we note that aside oil prospecting and exploration installations in oil rich areas in the Niger Delta which are largely impoverished another veritable source of CO2 emissions can be found in large cities like Lagos, Kano, Oyo, Rivers and Katsina which have populations greater than 5 million persons (going by the 2006 census) with Lagos having the highest population density of all of 1207 persons per sq km (NPC, 2010) and hence in these areas we may find large groups of persons that are excluded from access to clean and low impurity breathable air. CO2 per capita appears to decline between 1980 and the early 1990s with spikes recorded in 1983, 1987 and 1990 but with the increasing rural-urban migration and the increased exploratory activities in the Niger Delta amongst other activities the volume of CO2 emissions rose in relation to the rising population and this led to further spikes in 2000 and a new higher average of about 0.65 CO2 emissions per capita in the following years.

Inflation rate measures the denial of access to goods and services, of which land and energy form an integral component. While members of the high class may circumvent the problem of inflation by transferring their cash holdings to near money assets and hence earn income and capital gains that act as a buffer, the poor on the other hand and the socially excluded are left to lose consumer surplus and have their standard of living depleted as wages from salaries and wages do not necessarily evolve with the inflation rate. In the 1986 - 1989 and 1990 - 1996 period the inflationary impact of oil proceeds and the so called structural adjustment programme found as noticed from the graph and this has the effect of excluding certain groups of the society from a meaningful standard of living as they are left to contend with high and accelerating prices of food stuff, housing and other necessary goods and services and though in the 2000s inflation rate is comparatively lower than those of the 1980s we notice that inflation rate is in the double digit category between 2001 and 2006 and period after 2008 and it is at this point that the rising energy prices due deregulation of the downstream oil sector plays a pivotal role as the fuel prices is expected to have a significant impact on the cost of sustenance.
Graph Set 4.1: Variables Capturing Different Aspects of Social Exclusion

- CO2 emissions per capita
- Lending rate (%)
- Persons per telephone line
Unit Root/Stationarity Testing of the Variables in our Model

We subject the variables in this study to unit root/stationarity testing using the augmented Dickey Fuller test for unit root and the Kwiatkowski et al test for stationarity and these results are presented in the tables below.

The two tests agree on the order of integration of all variables except the CO2PC, LENRATE, DRATE and EMPLGDP and it is suspected that the detection of a unit root by the ADF test is due to its low power and hence inability to reject the null when there is no evidence in support of it and this is why the KPSS test rejects that null by redefining the test statistic such that variables that are marginally stationary are not reported as non-stationary. In addition considering the case of EMPLGDP we find that the ADF erroneously fails to detect the presence of a unit root. A close inspection of the graph on EMPLGDP reveals the tendency for varying mean and variance but the ADF tests fails to detect this but the KPSS succeeds in detecting the presence of a unit root and reveals that the variable is first order integrated. Hence we shall adopt the findings of the KPSS tests in further analysis.

Table 4.1 Augmented Dickey Fuller test for unit root

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF at level</th>
<th>ADF at first Difference</th>
<th>ADF at Second Difference</th>
<th>Order of Integration</th>
<th>Test equation</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2PC</td>
<td>-2.187439</td>
<td>-6.196588</td>
<td>-6.967767</td>
<td>(1)</td>
<td>Intercept alone</td>
<td></td>
</tr>
<tr>
<td>INF RATE</td>
<td>-3.12694</td>
<td>-6.967767</td>
<td></td>
<td>(0)</td>
<td>Intercept alone</td>
<td></td>
</tr>
<tr>
<td>LNRATE</td>
<td>-2.145629</td>
<td>-6.004470</td>
<td>-6.967767</td>
<td>(1)</td>
<td>Intercept alone</td>
<td></td>
</tr>
<tr>
<td>PPI</td>
<td>-4.43382</td>
<td>-3.622033</td>
<td></td>
<td>(0)</td>
<td>Intercept and trend</td>
<td></td>
</tr>
<tr>
<td>DRATE</td>
<td>-3.247435</td>
<td>-3.587527</td>
<td>-3.587527</td>
<td>(2)</td>
<td>Intercept and trend</td>
<td></td>
</tr>
<tr>
<td>MRTS</td>
<td>-5.34039</td>
<td>-3.580623</td>
<td></td>
<td>(0)</td>
<td>Intercept and trend</td>
<td></td>
</tr>
<tr>
<td>EXR</td>
<td>-1.984873</td>
<td>-5.175798</td>
<td>-5.574244</td>
<td>(1)</td>
<td>Intercept and trend</td>
<td></td>
</tr>
<tr>
<td>EMPLGDP</td>
<td>-6.279004</td>
<td>-2.967767</td>
<td></td>
<td>(0)</td>
<td>Intercept alone</td>
<td></td>
</tr>
<tr>
<td>POV</td>
<td>-1.689935</td>
<td>-2.607646</td>
<td>-2.967767</td>
<td>(1)</td>
<td>Intercept alone</td>
<td></td>
</tr>
</tbody>
</table>

Note: The values in parenthesis are 5% critical values below which the test statistic rejects the null hypothesis of the presence of unit roots in the variables and the test equations reported with trends have statistically significant trend components at the 5% level also.
Table 4.2 KPPS Test for Stationarity

<table>
<thead>
<tr>
<th>Variables</th>
<th>KPSS at Levels</th>
<th>KPSS at First Difference</th>
<th>KPSS at Second Difference</th>
<th>Order of Integration</th>
<th>Test equation Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2PC</td>
<td>0.250078</td>
<td>0.963000</td>
<td>0.963000</td>
<td>I(0)</td>
<td>Intercept alone</td>
</tr>
<tr>
<td>INFRATE</td>
<td>0.179560</td>
<td>0.463000</td>
<td>0.463000</td>
<td>I(0)</td>
<td>Intercept alone</td>
</tr>
<tr>
<td>LENRATE</td>
<td>0.359419</td>
<td>0.463000</td>
<td>0.463000</td>
<td>I(0)</td>
<td>Intercept alone</td>
</tr>
<tr>
<td>INFL</td>
<td>0.058828</td>
<td>0.463000</td>
<td>0.463000</td>
<td>I(0)</td>
<td>Intercept and trend</td>
</tr>
<tr>
<td>DLATE</td>
<td>0.218562</td>
<td>0.123686</td>
<td>0.123686</td>
<td>I(1)</td>
<td>Intercept and trend</td>
</tr>
<tr>
<td>MORTS</td>
<td>0.222444</td>
<td>0.110609</td>
<td>0.110609</td>
<td>I(1)</td>
<td>Intercept and trend</td>
</tr>
<tr>
<td>ELL</td>
<td>0.159630</td>
<td>0.077919</td>
<td>0.077919</td>
<td>I(1)</td>
<td>Intercept and trend</td>
</tr>
<tr>
<td>EMPLOY</td>
<td>0.199774</td>
<td>0.105068</td>
<td>0.105068</td>
<td>I(1)</td>
<td>Intercept and trend</td>
</tr>
<tr>
<td>MV</td>
<td>0.622701</td>
<td>0.119134</td>
<td>0.119134</td>
<td>I(1)</td>
<td>Intercept alone</td>
</tr>
</tbody>
</table>

Note: the values in parenthesis are 5% critical values beyond which the test statistic rejects the null hypothesis of the stationarity of the variable and the test equations reported with trends have statistically significant trend components at the 5% level also.

Since the KPSS test for stationarity reveals a maximum order of integration of unity then the pair-wise granger causality test would be inappropriate considering as examined in the previous section on methodology and hence we adjust the conventional granger causality technique on the recommendations of the Dolado and Lutkepol (1996) and Toda and Yamamoto (1995) and these are carried out in the next section.

Causality Analysis of Poverty, Unemployment and the Components of Social Exclusion

The methodology of the Dolado and Lutkepol (1996) and Toda and Yamamoto (1995) tests for causality ensures that for a set of variables, made up of a mix of stationary and first order integrated variables the causality results converges and this is because if the Dolado and Lutkepol (1996) test for causality stipulates a lag order $p = p^* + 1$ and the Toda and Yamamoto (1995) causality test stipulates a lag order $p = p^* + d_{max}$ where each variable is integrated $I(d)$ of the order $d \in \{0, 1\}$ (where $p^*$ is the optimal lag length determined with the agreement of a set of information criteria) then the both tests converge if the maximum order of integration of the variables under consideration is unity which is the case in our study. We
commence with the causal connection between poverty and the selected aggregate indicators of social exclusion.

The vector autoregressive model specification connecting the poverty headcount and the CO2 emissions in Nigeria appears to be optimal at the unit lag length and this means that both tests for causality involved in this study stipulate a VAR model with the lag length 2 and this is specified below along with the Wald test for the zero restrictions that enable us determine the extent of causality and the nature of such between the two variables and from the Wald tests we see a p-value of 0.41 for the overall effect of CO2 emissions on poverty and 0.35 for the overall effect of poverty headcount on CO2 emissions and this shows the absence of causality between the two variables. The appropriate lag length for the VAR model containing the poverty headcount and the inflation rate is unity and hence the VAR (2) model with the maximum lag length 2 is estimated to correct for the varying orders of integration and from the VAR specification and the Wald tests we see that poverty headcount does not Granger cause the inflation rate and vice versa.

The VAR(6) equations are estimated for the poverty headcount and the lending rate, since the optimal lag length is 5, going by the information criteria and we see that the while lending rate Granger causes the poverty headcount ratio with a p-value of the Chi square statistic 30.80660 is approximately 0, the poverty headcount ratio does not Granger cause lending rate as signified by the Chi-square statistic 1.365793 with a p-value of 0.9678. This suggests the presence of a uni-directional relationship that runs from the lending rate to the poverty headcount ratio.

The VAR(6) equations are estimated to measure causality between the poverty headcount ratio and the person per telephone line since the optimal lag length is 5. Person per telephone line does not Granger cause the poverty headcount ratio significantly as noted by the Chi square statistic 3.480713 with a p-value of 0.7465 but on the other side we notice that the poverty headcount ratio Granger causes the person per telephone line with a Chi square statistic of 93.37199 and a corresponding p-value approximately equal to zero.

Death and mortality rates are significantly Granger caused by the poverty headcount ratio with Chi-square statistics 13.26285 and 17.18330 respectively with corresponding p-values 0.0390 and 0.0042 in VAR(6) and VAR(5) equations. However both variables do not the poverty headcount ratio. This means that while the unavailability of health facilities couple with poor sanitation and environmental hazards which increase the death and mortality rates significantly impacts on the level of poverty in the
country the reverse is not the case and hence there is no feedback relationship between the pair of variables.

The poverty headcount ratio significantly Granger causes the cross exchange rate (naira/dollar) as evident in the VAR(2) equation with Chi square statistic 9.570057 and the corresponding p-value of 0.0084 and from the coefficient statistics we see that an increase in the poverty headcount in a preceding period (last year) coincides with a depreciation in the following period (current year) as noticed by the approximate coefficient value 0.96 and hence we can assert that whatever factor that increases the poverty headcount ratio also plays a major role in the depreciating the cross exchange rate (naira/dollar).

On the causality results for unemployment and the selected components of social exclusion, we adopt a proxy for unemployment which is the ratio of employed persons to the gross domestic product (the unavailability of time series data for unemployment for Nigeria makes us resort to this proxy) and from the first causality results estimated via VAR (2) equations shows that CO2 emissions and the ratio of employment to the gross domestic product do not Granger cause each other in any direction and this is evident in the Chi-square statistics 1.197930 and 0.876525 with p-values 0.5494 and 0.6452 respectively indicating that CO2 emissions do not Granger cause the ratio of employment to GDP and vice versa.

In like manner also the ratio of employment to the gross domestic product does not Granger cause the inflation rate and vice versa and this is noted by the statistically insignificant Chi square statistics 4.467878 and 9.064756 and corresponding p-value 0.4842 and 0.1065 respectively in the VAR(5) equations estimated. In like manner also the lending rate as well as the cross exchange rate (naira/dollar) also does not Granger cause the ratio of employment to the gross domestic product and vice versa and both equation specifications are VAR (2).

However the persons per telephone line Granger causes the ratio of employment to the gross domestic product significantly as noted by the Chi square statistic 35.75441 and the corresponding approximate p-value 0 but the reverse is not the case as the employment proxy does not Granger cause the number of persons per telephone line in the estimated VAR(5) equations. Marginal significant bi-causality is recorded between the ratio of employment to the gross domestic product and the death rate as the p-values indicating the Granger causality of the death rate by the ratio of employment to the gross domestic product and vice versa 0.0817 and 0.0993 miss the 5% significance mark but not the 10% level and hence the causality between these pair of variables is marginal but in the case of the mortality rate we
notice that unlike the death rate, the mortality rate significantly granger causes the ratio of employment to the gross domestic product with a Chi square statistic of 28.09256 and p-value of 0.0001 while marginal significance, depicted by the p-value of 0.0806, is recorded as we consider whether the ratio of employment to the gross domestic product granger causes the mortality rate.

In summary, and on the one hand, we observe that the lending rate, death rate and mortality rate all determine the poverty headcount ratio with no evidence of a feedback and the poverty headcount determines the number of persons per telephone line in the country and on the other hand we observe that persons per telephone line, death rate and mortality rate play some role in determining the employment proxy with little evidence of a feedback effect. We re-consider the impulse response functions of the VAR specifications that yield these results with a view to determining how these variables interact in the event of a shock to any of the variables.

Analysis of the Responses of Poverty and Employment Proxy to Shocks on Social Exclusion Variables

In this section we consider using the VAR specifications in the previous section to trace the impact of exogenous shocks to the death rate, mortality rate, persons per telephone line and the lending rate on the poverty headcount ratio and the employment proxy.
It is readily observed that positive shocks to the lending rates initially increase level of poverty headcount to 0.99 and between the third and sixth years it falls back to nil and later exhibits a positive trend. This suggests that magnitude of the effect of exogenous shocks on the lending rates determines the magnitude of the jump in the poverty headcount ratio and the long run poverty headcount ratio. Shocks to the Death and Mortality rates both impact on the poverty headcount ratio in like manner as the positive response of the poverty headcount is witnessed after seven years and nine years, respectively.

A shock to the number of persons per telephone line has the effect of raising the ratio of employment to the gross domestic product in the first year but in the years that follow the ratio of employment to gross domestic product peters out after another rise between the fourth and sixth years. This could be rationalized by rising demand for telephone lines, the attraction of investors and the consequent increase in the demand for labour and in like manner the ratio of employment to the gross domestic product spikes in the first year in response to a shock in the death rate and this peters out in later periods after other spikes recorded in the fifth and seventh years.

However the mortality rate does not trigger a similar response in the ratio of employment to the gross domestic product like that death rate as shocks to the mortality rate initially depresses the ratio of employment to the gross domestic product up to the fourth year beyond which it rises in the fifth and peters out in later periods. The responses of the poverty headcount ratio and the ratio of employment to the gross domestic product suggest the importance of lending rates (which captures financial exclusion) over the health service exclusion variables in explaining the response of the poverty headcount ratio and the importance of number of persons per telephone line and death rates in engendering an immediate decline in the unemployment rate in the country.

Discussion and Conclusions
The analysis in the previous section makes us understand that the financial and health dimensions of social exclusion have some serious role to play as far as poverty and unemployment are concerned. The exclusion of persons from access to finance has the effect of stunting the growth of small and medium scale enterprises and hence employment which in turn reflects in the level of poverty. Also there is the case of unfavourable socio-economic and political happenings in Nigeria that may render a comparatively high paying job somewhat inadequate in raising the standard of living. Monetary policies may have some positive impact with regards to reducing poverty but it has not done enough as the monetary policies are yet to trickle down to the poor masses that constitute over 60% of the Nigerian population. Social
exclusion in Nigeria as captured by demographic, health, environmental sustainability, access to financial services and educational attainment variables suggests a rather poor connection between poverty and social exclusion and this could be traced to the fact that while some components reveal rising levels of social exclusion some others go contrary and when aggregating these variables using the principal components method we find that their relative effects are balanced out thus yielding a relatively inconclusive result.

On the whole, it is clear that despite the promising oil revenues accruing to the Nigerian economy compared to other Sub Saharan African countries, there is the indication that certain groups of the Nigerian society do not enjoy these proceeds and appear to be shut out. This calls for more concerted efforts by the Nigerian authorities to provide a means of reintegrating the socially excluded into the society as they also provide potential resources for the development of the country.

Finally, the characteristics allure of our local cultures should be harmonized, integrated and made to reflect love for one another as well as success in the struggle for nation building. Culture as it stands today will be Nigeria's greatest challenge in the future. The impact of social exclusion felt today is nothing compared to a full scale effect that descends on a once well-off country like Nigeria. Strengthening cultural securities requires an audit of the impact that the present structural arrangement in Nigeria is having on cultural and ethnic sentiments. If the result is suspicion and resentment as it is at present, the leaders should think again. On the other hand, if people believe in themselves and the value of their way of life will be enhanced by restructuring and decentralization agreed under a Sovereign National Conference as is being currently demanded, then, the calls should be launched with fair and a bit of hype. Yet at the same time as doing this thing which has never been done before, the Nigerian government as a matter of urgency must improve on the general welfare of the populace by ensuring the provision of basic social amenities like good pipe-borne water, electricity, basic health care, good roads while tackling the growing sense of social exclusion. Only thus one can say that the hopes and fears of the restive ethnic nationalities and sub-nationalities be reconciled, in a way that they never have been since the day of the country's independence.
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