

# **ECONOMIC LIFECYCLE AND DEPENDENCY: IMPLICATIONS FOR HUMAN CAPITAL DEVELOPMENT AND SOCIAL POLICY IN NIGERIA**

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## **INTRODUCTION**

The shape of economic lifecycle is important to economic development and social policy. Life cycle is a longitudinal concept referring to the passage through life of an individual or a generation (Lee et al, 2008) and the economic behaviour over the lifecycle can be summarised by the amount consumed at each age and by the amount produced through labour at each age. The relationship between these two reflects economic dependency. Economic dependency occurs when consumption exceeds labour earnings. The human life cycle has two stages of dependency which are the childhood and old age. These dependency periods are separated by a long stage of surplus production. The dependent age groups are sustained by the flows of resources from the productive age group. The flows can be upwards or downwards. According to Lee (1994), the resource flows occur through three institutional channels: family, government and financial markets. For each of the channels, there are three forms of reallocations for any of the channels. These are capital formation, credit transactions and inter-age transfers. Redistribution of resources across age has always been centrally important throughout human history. However, the circumstances have changed over time (Lee 2003). Incidentally, the reallocation of resources across age groups is an important feature of an economy but it has gone largely unmeasured for many economies.

Human life cycle begins and ends with dependency (Lee, 1994). These ages of dependency vary considerably with economic development. Specifically, child dependency lasts longer and old-age dependency begins earlier in higher income countries. The changes in age structure that result from the demographic transition have economic consequences. They also have direct effect on standard of living by influencing the nature of population in the working ages. These consequences reflect the long periods of dependency that are characteristic of the human life span. In most settings, children are unable to support themselves until they are in their mid-teens to early twenties, and the elderly gradually lose their ability to support themselves as they experience the disabilities and diseases associated with normal aging. A substantial proportion of any human population thus consists of dependents—individuals who are not fully independent, economically. Because the periods of dependency occur at the beginning and end of the life span, the shape of a population's age structure determines its dependency burden, that is, the number of working-age adults relative to the number of children and the elderly.

Although there had been a plethora of studies investigating the relationships between population age structure in relation to economic change, relatively little is known of the conditions in many developing countries including Nigeria. These specifically concern the ages during which people are dependent and whether the extent of that dependency varies in important ways by the age of dependents. Nigeria is the most populous country in Africa and the 2005 national census puts her population at 140 million people. This makes Nigeria's population to be more than 20 per cent of the African population. This implies that an understanding of the economic lifecycle in Nigeria has important implications for Africa as a whole. Nigeria's population is however a young population. In the next few years, the country is expected to experience a shift from very young

population structure to one where there is a shift towards youths and working age population.

However, the empirical basis for understanding how population dynamics might affect contemporary African economies is weak and little is known about resource flows across age groups as well as how these flows operate across various types of investment areas such as education, health, and savings, among others. But current research on population age structure in relation to economic development has demonstrated the positive impact of population age structure in enabling nations to experience rapid economic growth during the *first demographic dividend* – the stage where youth dependency ratios have fallen but old age dependency ratios still remain relatively low. The research has also contributed greatly to a better understanding of the key role played by the *second demographic dividend* as individuals in the middle to older working ages accumulate assets in anticipation of an extended retirement period. These accumulated assets can later be ploughed back into investment, thus promoting economic development.

An understanding of the economic lifecycle can shape policies in the continent on how to better enjoy the first demographic dividend and prepare the ground on how Africa and indeed, Nigeria can benefit from the second demographic dividend, through the development of appropriate institutions and provision of the right incentives. In addition the estimates shall reveal the structure of surplus generated during productive years of individuals and the nature of transfer system that will determine wellbeing of the people.

In recent years researchers have focused on empirically examining these issues. Some have utilized the National Transfer Accounts (NTA) framework for their analysis especially in the US, European and Asian countries. This paper focuses on similar issues identified earlier using the NTA framework to estimate economic the lifecycle of Nigeria. The NTA framework is an accounting system for measuring intergenerational transfers at the aggregate level in a manner consistent with National income and Products Accounts (NIPA). NTA provides estimates of economic flows across age groups, using two forms of asset reallocations and transfers. It also distinguishes the institutions involved in the transactions in government and the private sector. The NTA framework uses a system of economic accounts that quantifies intergenerational flows in a comprehensive fashion. This paper presents an overview of the NTA framework, describes the methods and data used in the application of NTA framework in estimating Nigeria's economic life cycle, provides some empirical estimates and suggests policy implications for promoting human capital development and social policy in Nigeria.

## **II BACKGROUND TO THE STUDY**

Nigeria is the most populous country in Africa and one of the top three largest economies in the continent. The economy of the country revolves round crude oil export which accounts for more than 80 percent of export earnings and the total federally-collected revenue of the government in 2006 (CBN, 2006). Given the oil-dependent nature of the country, standard of living is tied around fluctuations in the international oil market. This has consistently shaped the nature of economic growth of the country. However, favourable oil market prices in last few years have led to improved economic growth in

the during the last decade or so. In the same vein, poverty has reduced considerably from 65.7 percent in 1996 to 54.5 per cent in 2004. Despite the reduction in poverty incidence, the number of people living in poverty has been on the increase, For example the poverty figure for the period 1996/2004 shows that the number of people living in poverty increased from 66 million in 1996 to 78 million in 2004. This is driven mainly by the increase in population whose rate is about 2.8 percent per annum.

The high population growth rate is a consequence of the high total fertility ratio in the country. Fertility ratio was still as high as 5.85 in 2000 (Table 1). This is expected to fall over the next few years to 4.74 in 2010 and 2.4 in 2050. The high fertility ratio is reflected in the shape of Nigeria’s population pyramid (figure 1) but as fertility declines and the young population grows older, the population pyramid is expected to show an increasing proportion of Nigerians within the working population (figure 2). The profile of the population age structure in Nigeria can also be given by the age dependency ratios and fertility ratios. Life expectancy in Nigeria is currently low being just 46.6 years in 2005. It is however expected that it will increase to about 62.1 years in 2050. Total age dependency is very high and by 1990, it reached its highest rate of 96 percent. It has been projected that this will reduce to 85% in 2010 and 45 percent by 2050 (Table 3).

**Table 1: Trends of total fertility ratio (TFR)**

Year	1970	1980	1990	2000	2010	2020	2030	2040	2050
TFR	6.9	6.9	6.64	5.85	4.74	3.64	2.95	2.55	2.4

Source: UN(2007)

Figure 1: Population Pyramid, Nigeria, 2006

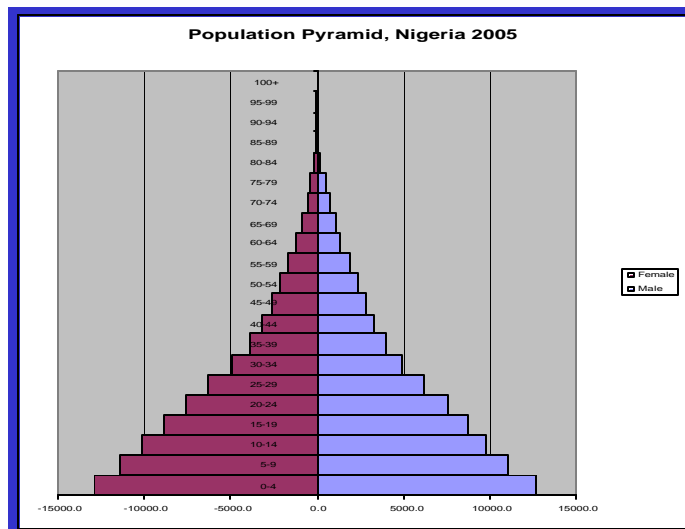
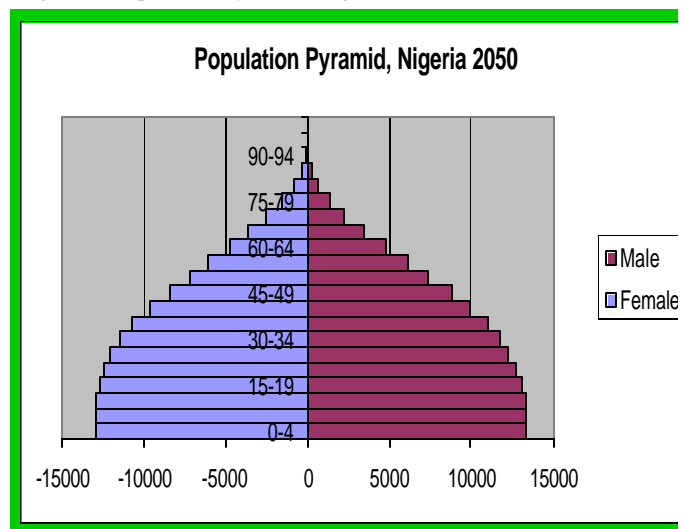


Figure 2: Population Pyramid, Nigeria, 2050



The dependency ratio is driven by the population age structure. However, as total fertility rates reduce and the young grow into the working age, the dependency ratio will decline. Table 3 shows that the total dependency ratio which was 91 percent in 1988 will reduce

to 85 by 2010 and 50 by year 2050. However, unlike many developed countries where the dependency is tilted towards the old age, Nigerian dependency ratios are largely driven by child dependency ratio. While child dependency reduces as fertility rate declines old age dependency increases as we observe in table 3 where it increases from 6 percent to 9 percent over the period, 1990 to 2050, for example. Estimating the NTA of Nigeria can provide much needed information for addressing ensuing problems and challenges concomitant with these changes in age structure in Nigeria. This is one of the expected benefits of this study.

**Table 2: Trends of life expectancy in Nigeria, Years**

Period	All	Male	Female
1970-1975	42.8	41.3	44.4
1980-1985	45.8	44.3	47.5
1990-1995	47.5	46.3	48.7
2000-2005	46.6	45.9	47.3
2010-2015	48.4	48	48.9
2020-2025	52.4	51.9	52.8
2030-2035	56.4	56	56.8
2040-2045	60.2	59.6	60.8
2045-2050	62.1	61.4	62.9

Source: UN(2007)

**Table 3 Trends of dependency rate in Nigeria(Percent)**

Year	Total	Child	Old-age
1970	90	84	6
1980	91	85	6
1990	96	91	6
2000	93	88	6
2010	85	80	6
2020	74	68	6
2030	62	56	6
2040	54	47	7
2050	50	41	9

Source: UN(2007)

### III THEORETICAL FRAMEWORK AND METHODOLOGY

#### 3.1 Theoretical Framework

The theoretical analysis of reallocation of resources across different ages and transfers, in particular, has been done under many frameworks in the economic literature. A common framework that is often utilised is the overlapping generations models (OLG) framework. The OLG framework presents economic activities that take place where different

generations of people coexist and make some kind of deals with one another. It is a response to the seminal works of Samuelson (1958) and Diamond (1965). Most advanced macroeconomics textbooks now explore macroeconomic theory from OLG framework.

The framework has been used in analysing optimal population growths, economic fluctuations among others. However, most of the analysis based on OLG framework makes many strong assumptions that are difficult to rationalise in national economic systems. For example, some of the models make the assumption that life cycle is divided into two broad age groups which do not include the child dependency age-group. This assumes that life cycle starts at labour market entry and ends with old age dependency (Lee 1994). This compromises the adequacy of policy prescriptions from such models because child dependency is an important stage of the economic lifecycle. This is because children can be costly in times of child birth and childrearing, which broadly defined, can include the period of higher education of children. In order to address some of the issues raised by the omission of children from OLG framework, Becker and Murphy (1988) developed a theory linking parental transfer decisions to the development of the welfare state. They submit that there is a socially optimal amount of investment in children in which parents' adequate investment in the education of children would be made up to the point where the rate of additional year of education would equal to the rate of return on an additional unit of capital.

A more comprehensive way of dealing with intergenerational coexistence, and transfers within the economic lifecycle is by using the NTA) framework. NTA, developed by Lee, Mason and others (Bommier and Lee, 2003; Lee, 1994a, 1994b), is an accounting system for measuring intergenerational transfers at the aggregate level in a manner consistent with National Income and Product Accounts (NIPA). The NTA approach works through the construction of an age-specific national economic input-output system. The accounts allocate consumption and production to single years of age. Thus, they facilitate understanding of how changes in a population's age structure—a product of changes in fertility and mortality—potentially affect the extent to which there is a surplus of production over consumption and hence a potential for understanding the structure of life cycle deficits across age groups and how these deficits can be financed. NTA offers a unique way of examining population development links. It gives the interaction between, and among population age structure, economic lifecycle and the system for intergenerational supports and their potential implications on the accumulation of wealth, economic growth and generational equity (NTA, 2008)

### **3.2 Methodology**

Based on the foregoing, the methodology utilised in this paper derives from the NTA framework. The useful summary expression of the framework adopted is given by the equation of the life-cycle deficit (the difference between consumption and labor earnings at each age) and its component elements. This summary is given by equation (1):

$$\begin{array}{c}
\underbrace{C - Y_l}_{\text{Lifecycledeficit}} = \underbrace{Y_A - S}_{\text{Asset-based reallocations}} + \underbrace{t_g^+ - t_g^-}_{\text{Netpublictransfers}} + \underbrace{t_f^+ - t_f^-}_{\text{Netprivatetransfers}} \quad (1) \\
\hline
\qquad\qquad\qquad \underbrace{\hspace{15em}}_{\text{Nettransfers}} \\
\hline
\qquad\qquad\qquad \underbrace{\hspace{15em}}_{\text{Agereallocations}}
\end{array}$$

In this framework, inflows to individuals of any given age consist of labor income ( $Y_l$ ), income from assets ( $Y_A$ ), and transfer inflows from the public sector ( $t_g^+$ ) and the private sector ( $t_f^+$ ). Outflows consist of consumption ( $C$ ), investment ( $I$ ) in capital, credit and land, and transfer outflows to the government ( $t_g^-$ ) and to the private sector ( $t_f^-$ ). The equation above is obtained by rearranging terms in the basic *Inflows = Outflows* identity and by noting that saving  $S$  equals investment  $I$ . Thus, the equation(1) asserts that the difference between consumption and production, known as the *lifecycle deficit*, must necessarily be equal to *age reallocations* made up of *asset-based reallocations* and *net transfers*. This paper provides estimates of *LCD* made up of differences in consumption and labor income allocated by age group only. While the LCD table in this study -- the LHS of equation (1) -- provides, in a way, a complete picture of NTA estimates for Nigeria, the complete picture of the RHS, involving transfers and asset-based reallocations is not provided in this paper.

For this study, the different variables used for estimating the LHS of equation (1) were disaggregated by age and then made compatible with NIPA using the methodology of *aggregate control*. The different variables used in estimating the LHS of equation (1) are:

- Education expenditure(public and private);
- Health expenditure(public and private);
- Other expenditures(public and private); and
- Labour income, made up of:
  - Compensation of employees; and
  - Self-employment income.

### 3.3. Data Sources, Requirements and Estimation Methods

The NTA estimates presented in this paper were constructed using data from various sources, among which were:

- Nigeria Living Standard Survey, 2004
- Abstract of Statistics (2006), National Bureau of Statistics
- Central Bank of Nigeria (CBN) Annual Report and Statement of Accounts, 2007
- CBN Statistical Bulletin, 2006

In particular, NIPA data were used to construct the aggregates on public and private consumption, labor income (compensation of employees plus a portion of mixed income), which were used as aggregate controls. The methodology of aggregate control allows the allocation of expenditure estimates by age profile in such a way that whatever estimates are obtained from various sources like surveys, for example, are consistent with corresponding estimates in NIPA. Table 4 summarizes the NIPA estimates used in this

study<sup>1</sup> while Table 5 summarizes the estimation methods of the different variables and their data sources.

**Table 4: National Income and Product Accounts of Nigeria, 2004 (Million Naira)**

Income Approach		Expenditure Approach	
<b>Compensation of Employees</b>	<b>1,203,620</b>	<b>Government Final Consumption</b>	<b>785,819</b>
<b>Operating Surplus and mixed income</b>	<b>9,833,319</b>	Education	69,276
Mixed Income	5,899,991	Health	57,169
Labour's share of mixed income	3,952,994	Other	659,374
Capital share of mixed income	1,946,997		
Operating Surplus	3,933,328	<b>Private Consumption expenditure</b>	<b>8,111,127</b>
Domestic Factor Income	11,036,939	Education	430,696
Less Rest of World Employee Compensation	3,537	Health	1,118,410
Less Rest of World Property Entrepreneur Compensation	436,804	Other	6,562,021
Indirect Taxes	268,120		
Less Subsidies	5,585		
National income at Market Prices	10,859,134	<b>Net Saving</b>	<b>2,144,179</b>
Other Net Rest of the World Transfers	<b>181,992</b>		
<b>National Disposable Income</b>	<b>11,041,125</b>		<b>11,041,125</b>

<sup>1</sup> The level of disaggregation of the table was obtained using complementary data from various sources including NLSS and secondary sources on education and health expenditure



**Table 5: Estimation Methods and Data Sources**

NTA Variable	Determination of Age Profile	Data Sources	Macro Control
<b>Private Expenditure</b>			
Education, Private	Profile of the expenditure of education expenditure of individuals enrolled in <u>public</u> educational institutions by age and levels	NLSS	Education in NIPA (Public Sector allocated based on World Banks survey of Private and Public Expenditure of all levels of Government, 2000)
Health, Private	Profile of the expenditure of individuals who utilized privately owned health facilities by age and type of facility utilized	NLSS	Health in NIPA (Public component derived by the proportion in National Health Accounts (NHA) of Nigeria, 2002)
Others, Private	Profile of other expenditure by individual age	NLSS	Obtained as residual after deducting Private education and health expenditures from NIPA figures
<b>Public Expenditure</b>			
Education, Public	Profile of the expenditure of education expenditure of individuals enrolled in public educational institutions by age and levels	NLSS	Education in NIPA (Public Sector allocated based on World Banks survey of Private and Public Expenditure of all levels of Government, 2000)
Health, Public	Profile of the expenditure of individuals who utilized government owned health facilities by age and type of facility utilized	NLSS	Health in NIPA
Others, Public	Allocation to all equally age groups		Obtained as residual after deducting <u>Private</u> education and health expenditures from NIPA figures
<b>Labour Income</b>			
Compensation of employees	Profile of earnings of wage earners and family members who received wage income for working in family business	NLSS	Compensation of workers in NIPA
Self-employed Income	Profile of imputed income for the individuals who reported being an employer or being self-employed	NLSS	Mixed income determined to be 60% of total operation surplus given the large informal sector in Nigeria. Labour component of mixed income then allocated 66.667% of mixed income

#### IV. ANALYSIS AND DISCUSSION OF RESULTS

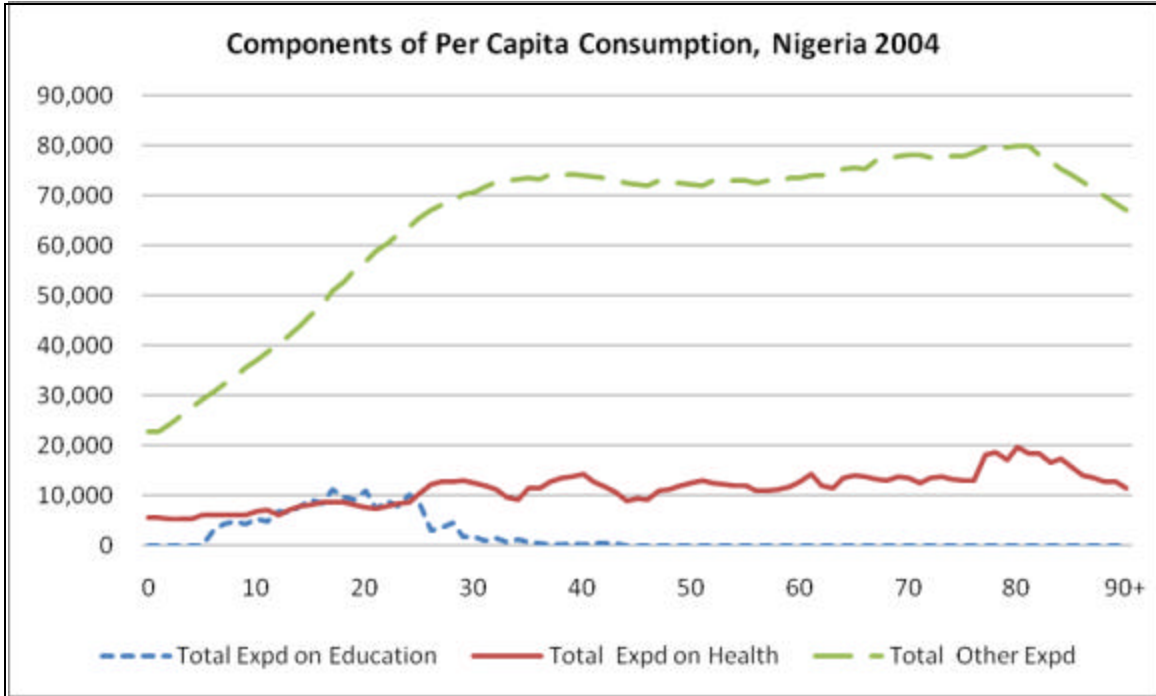
In this section we report estimates of the LCD and its components. Of course, the components are Consumption and Income, while LCD is estimated as the difference between the two at each age.

##### 4.1. Consumption

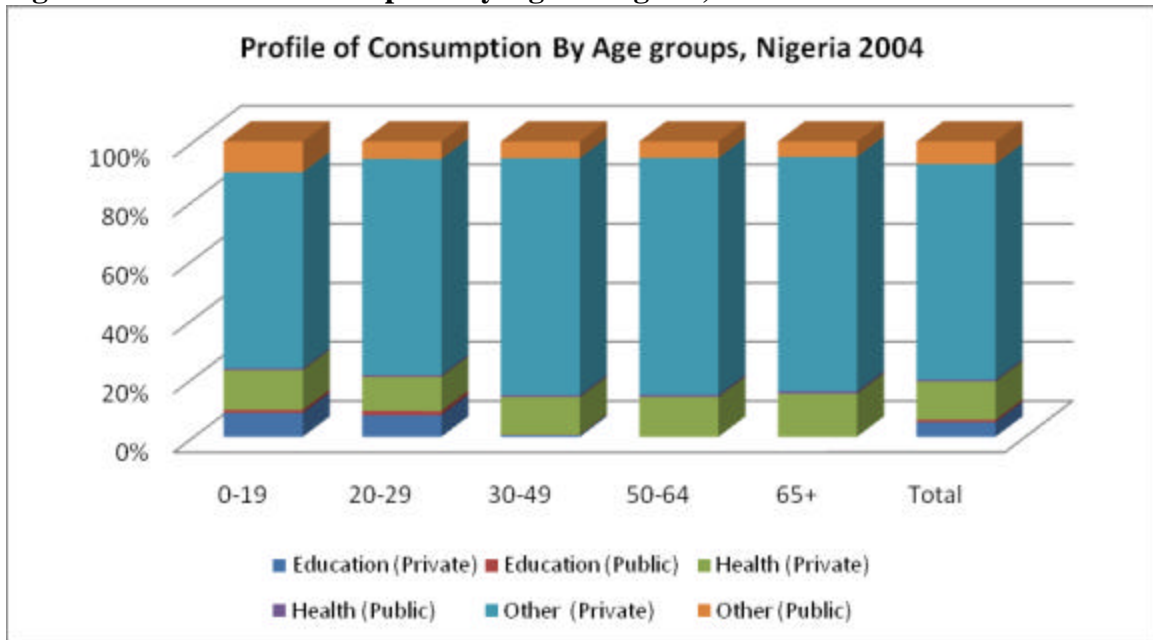
Total consumption is reported for both the private and public sectors. For each of the sectors, consumption is further divided into three components: consumption on health, education and other commodities and services. This is because total consumption does not tell the whole story, the interesting part being an understanding of the proportion that the public sector contributes *vis-a-vis* the private sector.

Per capita consumption profile indicates that Nigerians spend more on per capita basis on health than on education, except for the age range between 5 and 25 (figures 3-5). This is expected because the age group is the range when education expenditure is much intensive. There is very little consumption of education before age 5 and beyond age 35 in Nigeria. Low government expenditure on education is also not surprising given the relatively low enrolment rate in primary education, for example, compared to countries like Kenya. The peak spending on education is, however, by age 20 years old. Per capita other consumption appears to vary a little after age 30 where it stopped its initial rapid increase.

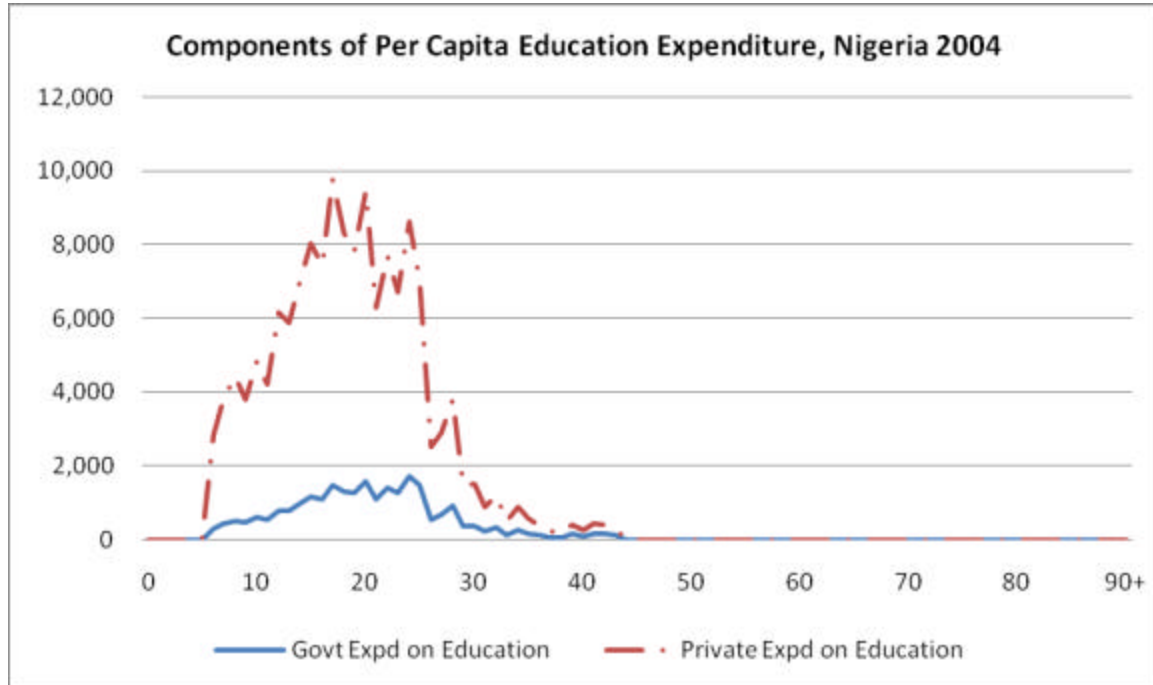
**Figure 3: Components of per Capita Consumption, Nigeria 2004**



**Figure 4: Profile of Consumption by Age in Nigeria, 2004**

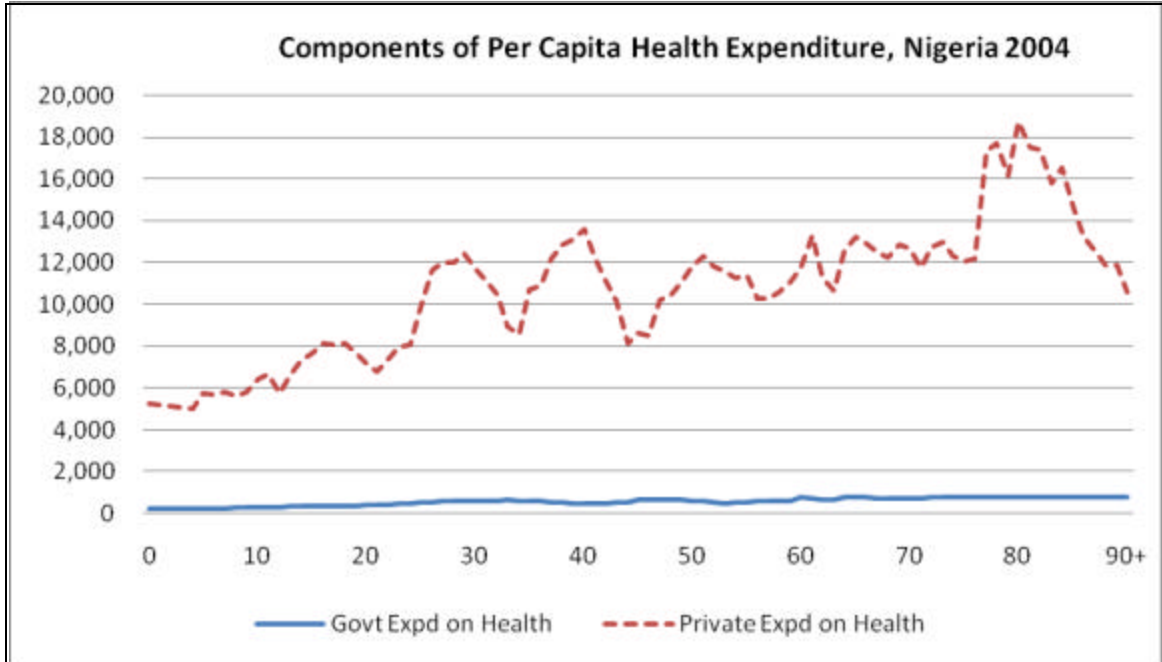


**Figure 5: Components of per capita Educational Expenditure, 2004**



The foregoing figures reveal that private sector spends more on the average than the public sector. In particular, figure 5 shows the dominance of the private sector in educational expenditure. Although the Nigerian government introduces a Universal Basic Education (UBE) in Nigeria in 1999 where basic education is free and compulsory for the first nine schooling years, it has not significantly reduced the amount of funds spent by the private sector on education. Individuals and households have been spending more on education however, because it is tuition-free only. The private sector still has to spend a lot on textbooks and other educational materials. In addition, many parents provide extra lessons after school which they have to pay for. Furthermore there is a growing population of children who attends privately owned educational institutions from primary to tertiary institutions. Besides, there is no national scholarship funding for the poor or any groups of individuals, for that matter, in the country. This makes private expenditure on education to be rather high and perhaps, unbearable particularly for the poor.

**Figure 6: Components per capita Health expenditure 2004**

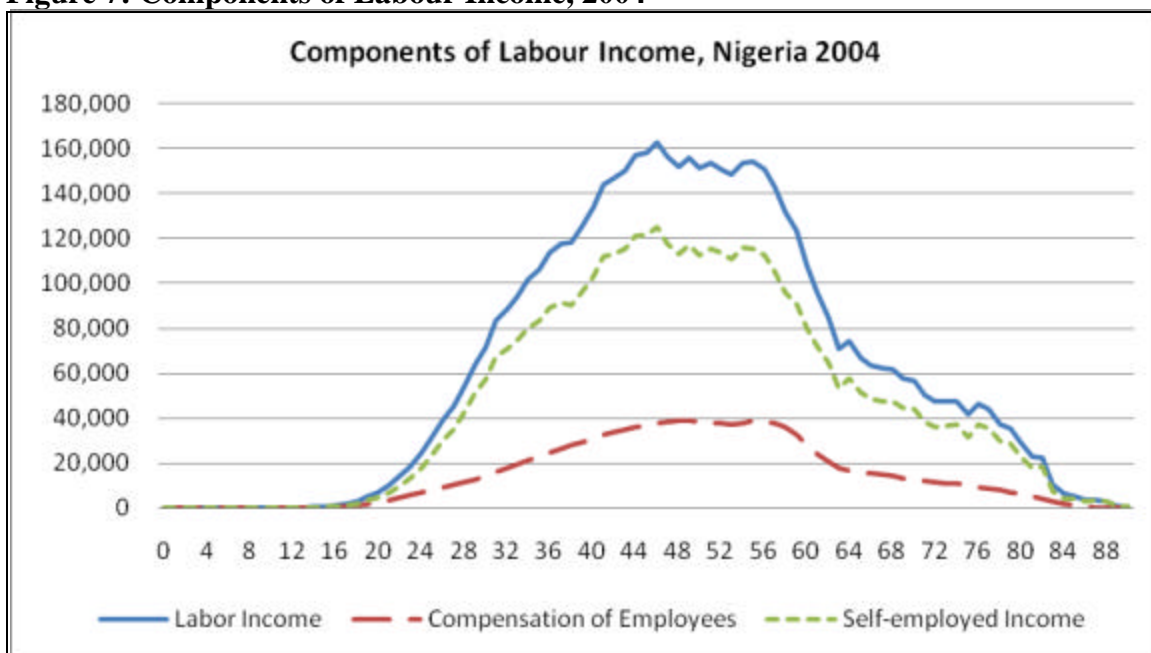


In the same vein a larger proportion of health spending in Nigeria is accounted for by the private sector. This is a result that is consistent with earlier studies on health expenditure in Nigeria (e.g. Soyibo, 2004)

#### **4.2. Income**

Labour earning is a combination of employee compensation and earnings of self employed individuals. We make a distinction between the two and present the findings in figure 7 . In Nigeria unlike many developed countries, self employment income is very high and bigger than wage earnings for all ages. This is because more than 72 percent of employed Nigerians are self employed. Thus their income surpasses the income of wage earners. Labour income is used as the proxy for productivity and the graph for labour earning profile has the expected inverted-U shape reflecting that production is concentrated among the working-age adults. The result reveals that the peak in productivity in Nigeria is reached at age 46 years

**Figure 7: Components of Labour Income, 2004**



### 4.3. Life Cycle Deficit

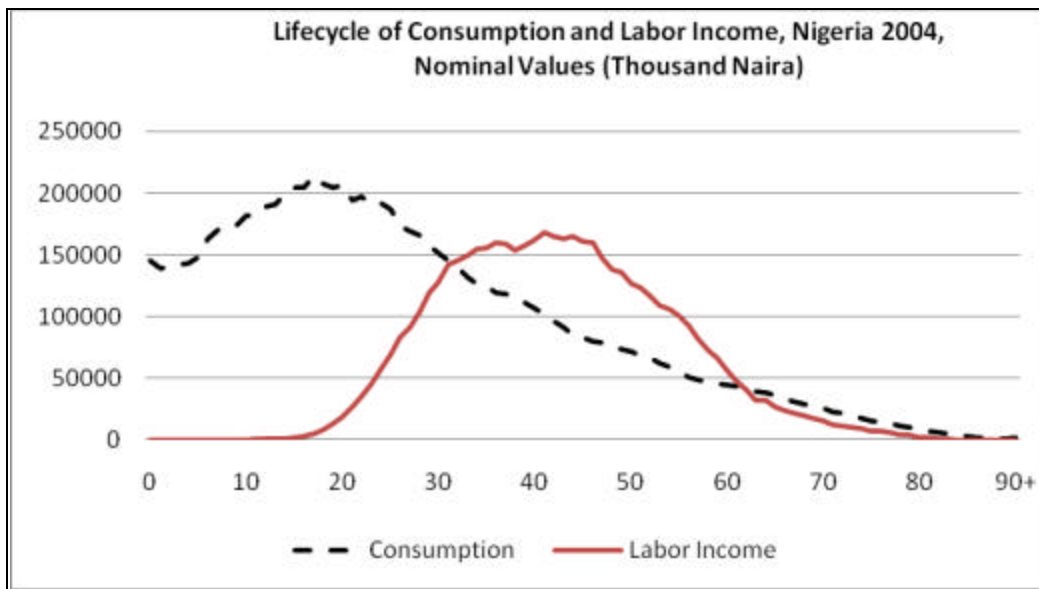
Figure 8 shows that LCD for young adults is much greater in Nigeria. This reflects the preponderance of younger people in its population. The figure reveals that given the individual lifecycles in Nigeria, the young and the elderly consume more than they produce; with lifecycle surplus appearing for 30 years of age between ages 33 and 63 years. One striking point here is that the age at which lifecycle surplus is attained is relatively high compared to 21 in China, 26 in India and 29 in Kenya<sup>2</sup> (Table 6) It should also be noted that the surplus period also ends later than in other countries. While it ends at age 63 in Nigeria it ends much earlier at age 61, 60 and 59 for India Indonesia and Kenya respectively. The difference between the early age and later age represents the period when surplus production is made by the age groups concerned which, in turn, is transferred to the dependent age groups. The table also demonstrates that the number of years under this span is smaller in Nigeria than for most other countries except for Kenya, another African country

Figure 9 is the per capita variant of figure 8. This shows that while consumption tends to increase with age, rising rapidly between age zero and 21, it appears to flatten out in the working age years, sloping upward gently in the early elderly years, before declining later. In contrast, figure 8 shows that aggregate consumption by age increases rapidly at the early ages, peaking at about 20 before declining and skewing to the right. Figures 10 and 11 show the distribution of per capita and aggregate LCD of Nigeria in 2004. Intergenerational flows in Nigeria weigh heavily downwards, i.e. in nominal aggregate terms a lot more is spent on the young than the old (fig. 11). This is like Kenya but

<sup>2</sup> The age represents the age at which production is equal to consumption. Early age represent age at which young adults starts to produce as much as they consume while later stage represent the age after which they no longer produce as much as they consume.

different from developed countries such as Germany (Soyibo et al, 2008). In per capita terms, the transfer to the elderly peaks at over ₦80,000 in 2004 at about age 84. In contrasts, the per capita LCD for children peaks over ₦60,000 around age 19 years. Table 7 displays the distribution of LCD by age group in Nigeria for the year 2004. Only two groups of ages generated surpluses; 30-49 years and 50-64 years which were used to finance the deficits generated by the other four groups of ages.

**Figure 8: Lifecycle Consumption and Labour Income, 2004**

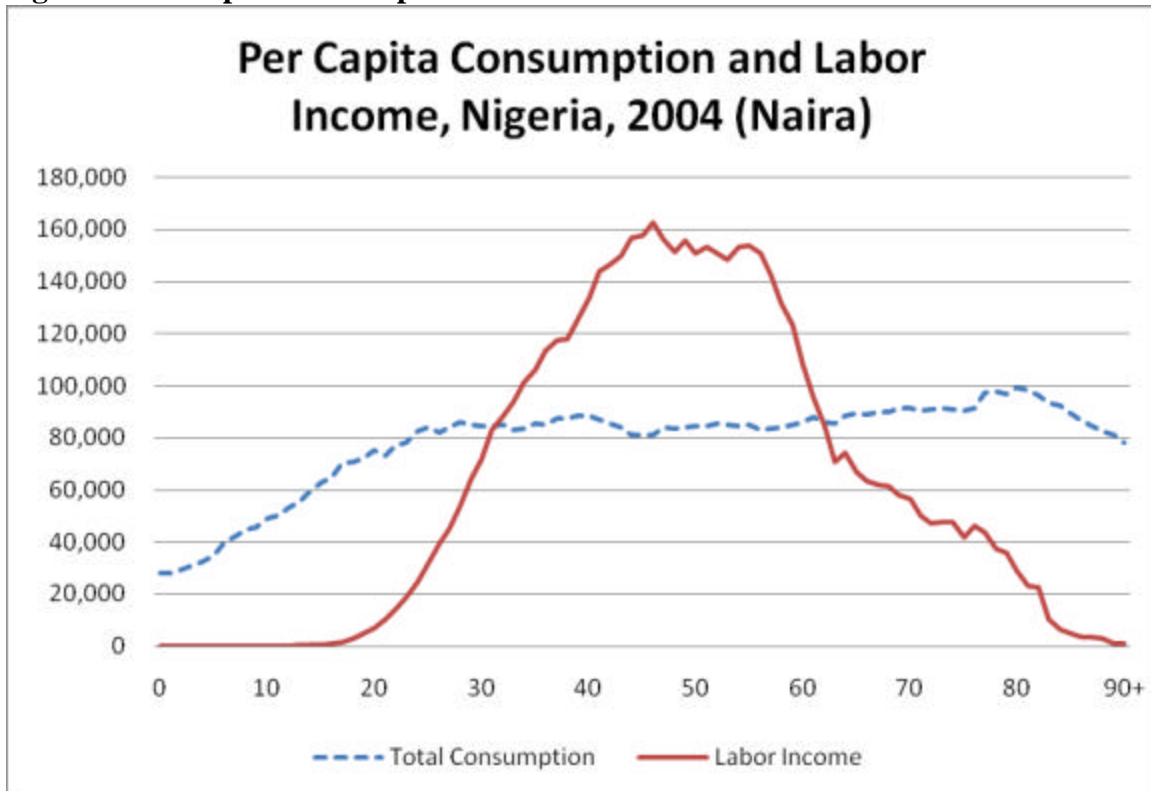


**Table 6: Age of Intersection between consumption and labor Income**

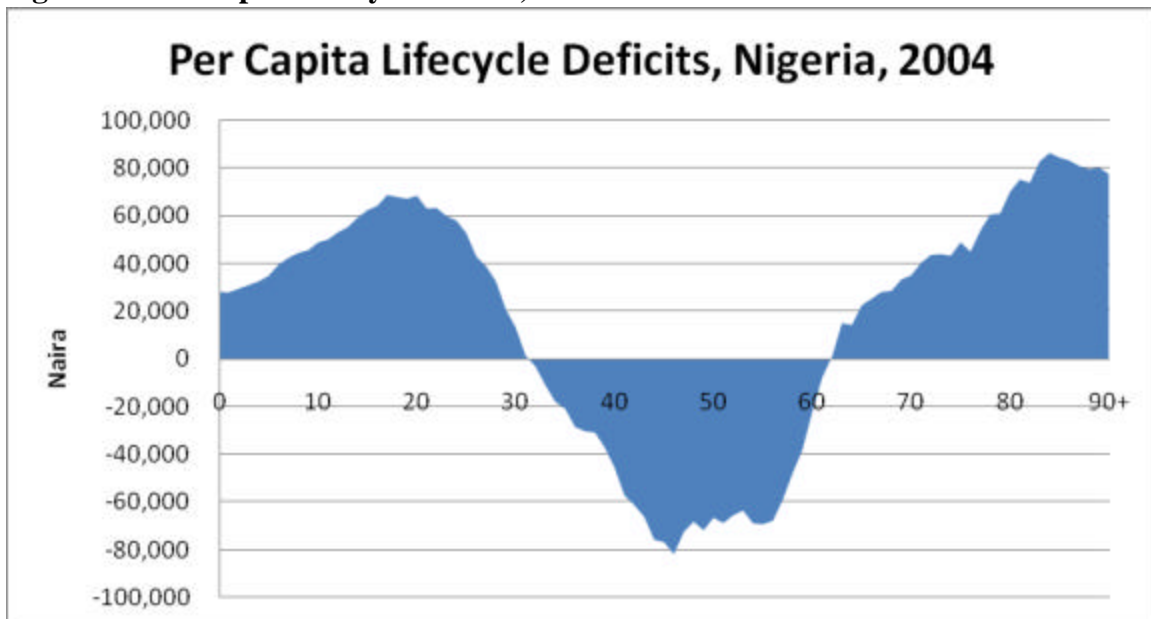
Country	Early Age	Later Age	Span
China	21	58	37
India	26	61	35
Indonesia	26	60	34
Kenya	29	59	30
Philippines	27	61	34
Spain	28	59	31
Nigeria	33	63	30

Source: Mason et al (2007)

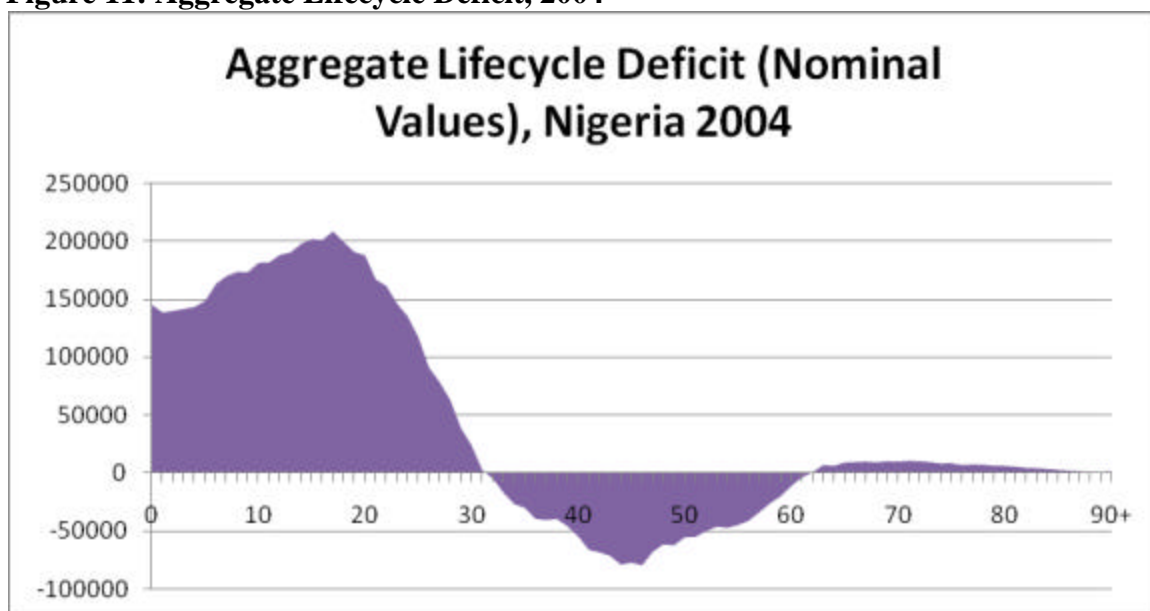
**Figure 9: Per capita Consumption and Labour Income**



**Figure 10: Per capita Lifecycle Deficit, 2004**



**Figure 11: Aggregate Lifecycle Deficit, 2004**



**Table 7: Aggregate Lifecycle Deficit NIGERIA, 2004 (Million Naira)**

	<b>Total</b>	<b>0-19</b>	<b>20-29</b>	<b>30-49</b>	<b>50-64</b>	<b>65+</b>
<b>Lifecycle Deficit</b>	<b>3,498,181.76</b>	<b>3,481,301.62</b>	<b>1,186,399.97</b>	<b>- 910,935.96</b>	<b>- 423,804.76</b>	<b>165,220.89</b>
<b>Consumption</b>	<b>8,654,796.32</b>	<b>3,518,807.97</b>	<b>1,835,546.56</b>	<b>2,153,217.76</b>	<b>778,741.65</b>	<b>368,482.37</b>
<b>Public Consumption</b>	785,819.41	427,659.13	146,659.27	139,901.61	49,280.80	22,318.61
<i>Education</i>	69,276.50	39,211.98	26,225.25	3,839.26	0.00	0.00
<i>Health</i>	57,168.51	22,142.12	11,413.36	14,921.14	5,621.98	3,069.92
<i>Other</i>	659,374.40	366,305.03	109,020.66	121,141.20	43,658.82	19,248.70
<b>Private Consumption</b>	7,868,976.91	3,091,148.85	1,688,887.30	2,013,316.16	729,460.85	346,163.76
<i>Education</i>	430,696.23	282,976.11	135,223.17	12,496.95	0.00	0.00
<i>Health</i>	1,118,409.90	474,278.55	211,546.96	273,574.37	105,077.99	53,932.02
<i>Other</i>	6,319,870.79	2,333,894.19	1,342,117.16	1,727,244.84	624,382.86	292,231.74
<b>Labour Income</b>	<b>5,156,614.56</b>	<b>37,506.35</b>	<b>649,146.59</b>	<b>3,064,153.73</b>	<b>1,202,546.42</b>	<b>203,261.48</b>
<i>Compensation of Employees</i>	1,203,620.34	13,823.89	155,653.95	685,382.13	302,362.52	46,397.84
<i>Self-employed Income</i>	3,952,994.22	23,682.46	493,492.64	2,378,771.59	900,183.89	156,863.64



## V. CONCLUSION AND POLICY IMPLICATIONS

The main conclusions and implications of this paper can be summarized as follows:

- Income generation in Nigeria is predominantly from self-employment which is mostly in the informal sector. This suggests that to boost labour income, appropriate incentives including building and developing institutions should be given the attention they deserve. Besides, the share of formal sector employment needs vigorous boosting, in the medium to long-term in the country.
- Consumption expenditure (education, health and others like housing) in Nigeria is predominantly from private sources. Therefore, the burden of building human capital is unfairly skewed against the poor. The poor need to be relieved of this additional and perhaps unnecessary burden. The study implies that government will need to be more alive to its stewardship role as it is the case even in less endowed African countries., like Kenya.
- The period of child dependency is longer in Nigeria than in many countries. However, the period of old age dependency is shorter in Nigeria. These imply the need to have appropriate social policies to improve the quality of life of both the young and the old so that Nigeria can begin to reap from its investment on her children very early and the elderly can have comfortable and less stressed life in old age.
- Inter-generational flows in Nigeria are heavily skewed downwards and LCD is much higher than lifecycle surplus, suggesting that extra consumption is funded from asset income and net transfers from abroad. This suggests that there is need to provide incentives to enhance the building and generation of asset income as well as transfers from abroad.

Based on the foregoing analysis and conclusions, the following policy recommendations are offered:

- Improving income generation in Nigeria will need to take into account the informal sector, while not ignoring the formal sector. In this connection, policies directed at employment generation, entrepreneurship and innovation development like the establishment of the Small and Medium Enterprises Agency of Nigeria (SMEDAN) and the National Programme for the Eradication of Poverty (NAPEP) will need to be strengthened. Besides, the economic policy climate must give appropriate incentives for employment in the formal sector to grow.
- There is need to improve the vehicle for building human capital in Nigeria. Policies aimed at reducing the burden of the poor in human capital building in health and education are important in this regard. Accordingly, there is need to improve government expenditure in education and health. In education, improving the flow of funds from government to its citizens through scholarships and bursaries, and loans can lighten the burden on the poor. In health, transfers to the poor through well-operated drug revolving funds will need to be intensified<sup>3</sup>.

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<sup>3</sup> We acknowledge that some drug revolving fund schemes exist in a number of states in Nigeria. While casual empiricism suggests that the contribution may be small, the perennial problem of lack of data makes it difficult to estimate the value.

Besides, the resource-pooling and risk-pooling functions of health financing using health insurance (which now exists in the country) and perhaps earmarked taxes need being strengthened. In the case of health insurance because of the large informal sector, there is the possibility of excluding a large segment of the population if it is not extended to informal sector. It is therefore, important that the implementation of the informal sector health insurance which has already been designed, be expedited to cover as many Nigerians as possible.

- Improving child dependency in Nigeria requires improving child human capital development in education and health. Thus, health policies aimed at boosting child health in the area of immunization, among others require strengthening. In education, boosting school enrolment, particularly at the primary and secondary levels, is key. To improve adult dependency, social protection policies like social security and pension schemes require enhancement and strengthening. The establishment of the National Pensions Commission is one such policy. However, there is need to develop a similar policy for the informal sector.
- Policies aimed at facilitating the building of asset income would enhance the generation of income to meet the requirements of funding the LCD generated during the periods of child and adult dependency. These include improved contract enforcement laws, provision of facilities and incentives that improve the investment climate, among others.

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