

Demographic Transition Variables and Economic Outcomes in Nigeria

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Abstract: -The study examined the theory of demographic transition in the context of the Nigerian economy. This follows findings from literature that population in its entity does not translate to economic growth, rather specific demographic partitions. Using such demographic transition theory variables as Birth Rate, Death Rate, Female Primary School Enrollment (proxy for education) and Mobile Cellular Subscription (proxy for technology) as explanatory variables and Gross Domestic Product (proxy for economic growth) as dependent variable, the study adopted the econometric tools of ADF unit root test, Johansen Cointegration test and Parsimonious ECM to treat data from World Bank indicators and Central Bank of Nigeria statistical bulletin for a period of 30 years (1990 – 2019). The data output confirms a positive but insignificant relationship between birth rate and economic growth. Technology has a positive and significant relationship with economic growth while education and death rate have negative relationship with economic growth. The study suggests amongst other things adoption and deliberate investment in technological advancement in Nigeria, complete overhaul of the primary school system in country as this is the bedrock of education world over. Also, adequate investment should be made in the health sector to improve the current health outcomes which have resulted in very high death rate.

Keywords: Population, Demographic transition theory, Economic Growth, Birth Rate, Technology.

JEL Classification: J11

I. Introduction

It is projected that Nigeria will be the third most populous country in the world by 2050 with estimated population of over 400 million people at projected growth rate of 1.93%. At present, the country has an estimated population of over 200 million people with growth rate of 2.5% (United Nations, 2021). One would expect that this huge population strength would translate to enormous economic potentials for the nation. But the reality is that, economic prosperity which is synonymous with Gross Domestic Product (GDP) growth has been found to be strongly correlated with specific population demographics and not the entire population as it were. This follows findings that infants and the elderly burden the economy greatly, while young adults between ages 14 – 49 are very healthy for GDP growth (Arnott & Chaves, 2018). Data made available by the nation's bureau of statistics indicates that Nigeria's demographic spread favors age bracket 0 -14, while her life expectancy is 54 years (National Bureau of Statistics, 2017). This indicates high dependency rate arising from high fertility rate and reduced work age since Nigeria's official retirement age is from 60 years. Fertility rate in any country can be attributed to factors such as: females' age when she had her first child, government policy, educational opportunity especially for women, access to family planning etc (Population Education, 2020). It has been reported that technology also plays a key role in determining fertility rate. This it does by providing assisted reproductive technology inform of fertility testing and tracking, In Vitro Fertilization (IVF), fertility preservation among others (Obasola & Mabawonku, (2017); Forbes, (2020). The availability of these technologies has ensured sustained fertility amidst delayed marriage and reproduction especially among women and the increasing unattractiveness of parenthood among young people. This has aided the current demographic makeup of Nigeria.

The efficacy of demographic transition is anchored on its simplicity in providing insight on the society's transition from periods of high fertility and mortality rates to periods of low fertility and mortality rate facilitated by the advent of modernization (Ahmed, 2004). The hallmark of modernization or industrialization includes advancement in education especially for women, urbanization and mechanization of most production processes which discourages child labour as well as enhances economic growth. However, industrialization in Nigeria is still at the primary stage with the extractive industry and agricultural sector, mostly subsistent agriculture dominating (Chete, Adeoti, Adeyinka, & Ogundele, 2014) amidst gradual decline in birth rate. Child labour is still prevalent and mechanized production process is still at infancy despite the fact that most countries especially high-income countries are exiting industrial age and entering information age. Also, studies have confirmed that Nigeria's economy has remained stagnated since 1980 (Bloom, Finlay, Humair, Mason, Olaniyan, & Soyibo, 2010), despite her huge population. This economic stagnation coupled with poor quality of education and health care prominently among the youths is hindering Nigeria from maximizing its demographic dividends. Many scholars have invested in studies aimed at identifying the uniqueness of the Nigerian huge population and her economic fortunes; Alimi, Fagbohun, & Abubakar, (2021), Monye-Emina, (2020) ; Mba, (2019); Pham & Vo, (2019) ;

Ogunjimi & Oladipupo, (2018); Arnott & Chaves, (2018); Ogunleye & Owolabi, (2018); Ademola & Saibu, (2017); Aidi, Emecheta, & Ngwudiobu, (2016); Bloom, et al, (2010). Also, Devedzic, Natalija, & Gligorijevic, 2017 dealt with education and its impact on population growth and economic well being. Obasola & Mabawonku, (2018); Obasola & Mabawonku, (2017) studied the role of ICT in determining population outcomes in Nigeria. These studies having dealt with various indices that influence population-economic growth outcomes, but have not critically evaluated the pillars of demographic transition which are modernization and education. This study therefore uses modernization which is proxied as technology as applied by (Fuchs, 2006) and female primary school enrollment as adopted by (Mba, 2019) together with crude birth and death rate to evaluate the efficacy of the demographic transition on economic outcomes in Nigeria using secondary data spanning the period of 1990 to 2019. The regression analysis will provide empirical information as to how economic growth is being impacted by such demographic transition components as crude birth rate, crude death rate, technology and female primary school enrollment.

The rest of this study is structured thus; section 2 provides theoretical and empirical literature review, section 3 deals of methodology and model specification, section 4 presents and discusses findings, while section 5 has conclusion and recommendation.

II. Theoretical Literature

Demographic transition theory explains the path societies navigate from pre-modern age that is always characterized with high birth and death rate to the post-modern age where both birth rate and death rate are on the decline. The decline in both indices is brought about by many factors among which are: advent of modernization, advancement in education especially among women, urbanization, advancement in industrialization, reduction in birthrate occasioned by adoption of enhanced family planning techniques amongst others (Ahmed, 2004). This theory was propounded by Warren Thompson in 1929 as part of attempt to explain the changing population dynamics prevalent at that time.

Validating this theory in the Nigerian context became imperative following the huge population surge in country despite the ravaging effect of corona virus, dwindling economic fortunes and retrogressive modernization. Modernization, a major component of demographic transition theory has two dimensions as identified by (Agyei, 1978). These are cultural and industrial dimensions. Cultural dimension has to do with increased literacy level, while industrial dimension deals with adaptation of technology and improved per capita gross national product. Increased literacy level especially among women has been found to impact population immensely. This is due to the facts that prolong educational pursuit among women leads to delay in raising family and consequently the number of children they produce (Ololade, Omotoso, & Asa, 2021). Also, women education affords them the opportunity to play actively in professions that were previously male dominated. This has greatly impacted work styles, output levels and general economic outlook. Primary education which is the basic education in Nigeria is expected to be strategically positioned to equip its beneficiary with basic literacy tool (Mba, 2019). This is vital owing to the fact that most cultures and religions in Nigeria do not support women education (Population Education, 2020). Technology is the driving force for modernization and industrialization in the world today. Its influence cuts across all spheres of human endeavor, Population inclusive Forbes, (2020); Chete, et al, (2014) argues that industrialisation in Nigeria is still at the cradle compared to its peers both in Africa and elsewhere. Nigeria has been unable to maximize benefits accruable from technology which includes creativity, innovation, enhanced functionality and ultimately increased output (Umeh, Why African Economy Needs 360 Degree Digitalisation Approach, 2020). That notwithstanding, Nigeria has huge potentials to exploit in technology.

Studies by Alimi, Fagbohun, & Abubakar, (2021); Pham & Vo, (2019); Arnott & Chaves, (2018); Aidi, Emecheta, & Ngwudiobu, (2016) confirms that demographic transition theory is effective in explaining the interaction between population and economic outcomes now and in the future. However, based on the impact of HIV/AIDS in most developing countries, especially in the sub-Saharan Africa and the ongoing devastating effect of the corona virus worldwide, Sengupta, (2020); Hassan, Hashim, & Khan, (2020); Tietenberg & Lewis, (2009) challenged the efficacy of demographic transition theory to provide effective guide to future economic-population dynamics both in developed and developing economies.

2.1 Empirical Literature

Population and economic growth has proved an inexhaustible topic as more and more scholars continue to debate whether or not the former affects the later, and if it does to what extent and direction.

In a recent study by Alimi, Fagbohun, & Abubakar, (2021); where they used data from Nigerian economy between 1981 to 2018 and employed the econometric tools of ARDL bound testing for cointegration and Modified Least Square method investigated the links among population growth, output growth and growth in per capita income. Their findings show that there is a positive long-run relationship between economic growth and population. In the short-run, there is a negative relationship due to high dependency level, which according to them might translate to gains for the economy in form of demographic dividends in the long-run. The study therefore calls for adequate investment in human capital development so that the youths can gainfully contribute to the country's economic development. This position was collaborated by Monye-Emina, (2020) in his work Rising population in

Nigeria: Challenges and opportunities. He confirmed that adequate investment in human capital development via adequate investment in education, health care and human resource development would create a future dependable workforce that will in no small measure contribute to the development of the Nigerian economy. A study by Ogunjimi & Oladipupo, (2018) to uncover the relationship between various age brackets and economic growth in Nigeria found that aged population influences economic growth negatively, while children population and labour force encourages economic growth. Using data between the periods 1981 to 2016 which was analysed using ARDL suggested massive government investment in activities that will enhance human capital advancement of children and active labour force in the country. In the same vein, (Arnott & Chaves, 2018) using large sample of countries and data spanning 60 years and extensive literature review confirmed that young children and senior citizens burden the economy greatly, while young adults of between age 15 – 49 years are very healthy for GDP growth. This was collaborated in a study by (Bloom et al, (2010) where they found that demographic dividend can only be achieved if young people are well educated and healthy and if the economy encourages earning through productive engagements of the labour force and savings. It also found that culture of violence among the youths, poor investment in education and health care, ethnic and regional discrepancies, weak institutions and failure of the rule of law are some key hinderances to maximizing Nigeria's demographic potentials.

On the contrary, (Pham & Vo, 2019) using panel fixed effects and quantile regression on data from 84 countries for the periods between 1971 to 2015 found that having older population is healthier for the economy as young population have a negative long term effect on economic growth.

In their study; population growth and economic growth in Nigeria, an appraisal, Ogunleye & Owolabi, (2018) employed the econometric tool of OLS on data covering the period 1981 to 2015 found that population growth positively impacts economic growth, fertility rate negatively impacts GDP while exchange rate and crude death rate were found to be insignificant in determining economic fortunes of the country. Also, in their study; Does population change matter for long run economic growth in Nigeria, Ademola & Saibu,(2017) using FMOLS on time series data for Nigeria covering 1990 to 2015 concluded that population exerts very negligible influence on economic growth in Nigeria. Rather, macroeconomic variables such as inflation, fixed capital formation and exchange rate are the key drivers of the Nigerian economy. The study concludes that for population to really impact significantly on economic growth, productive capacity of the country has to be expanded and stability of macroeconomic variables guaranteed.

On the contrary, (Aidi et al, 2016) investigated the relationship between population dynamics and economic growth in Nigeria using time series data spanning from 1970 to 2014. The data were analyzed using ordinary least square estimation technique. The result revealed among others that all the core variables (i.e. fertility, mortality and net-migration) of the study are inversely related to economic growth during the investigated period. The study further revealed that Gross Fixed Capital Formation (GFCF) and savings are strong drivers of economic growth in Nigeria. Sequel to the findings, the Nigerian government is advised to make direct efforts toward checking the alarming fertility rate in Nigeria. Also, efforts should be made to improve the quality of Nigerian labour force through more substantial investment in education and skills acquisition programs so as to improve productivity in Nigeria

Challenging the strenght of demographic considerations in determining economic outcomes, (Sengupta, 2020) applying the simple production function to the segemented impact of coronavirus on different age brackets in selected developed and developing countries found that the ongoing virus has drastically altered population projections countering the effectiveness of demographic transition theory. This is due to the long term negative effects of the shock from the pandemic on age aggregation and labour output. This view was also supported by (Hassan, Hashim, & Khan, 2020) in the case of Nigeria.

In brief, works that were x-rayed above dealt with the impact of different age brackets on economic growth, where they are positive or negative in the long or short run. They also examined the various macroeconomic variables that combine with population to influence economic outcomes and then the possiblity of the breakdown of demographic transition theory in the face of natural phenomenon such as the ongoing global coronavirus pandemic.

III. Methodology

This study seeks to establish the nexus between economic growth (using Gross Domestic Product-GDP) and demographic transition in Nigeria (captured using birth rate, death rate, female primary school enrolment and mobile cellular subscription as a proxy for technology) employing time series data covering from 1990 to 2019. Data for the variables were obtained from World development indicators 2021 (World Bank, 2021).

3.1. Model Specification

The study model is based on the modification of Aidi, Emecheta and, Ikenna (2016). When evaluating Population Dynamics and Economic Growth in Nigeria. Their model was;

$$RGDP = f(FERT, MORT, NETMGR)$$

Where:

RGDP = Real Gross Domestic Product

MORT= Mortality Rate

NETMGR= Net Migration

To capture the objective and importance of this study, the model was adjusted to accommodate additional two key variables; Female Primary School Enrolment (FPSE), and technology with Mobile Cellular Subscription (MCS) as proxy. These two variables are incorporated to capture the effect of demographic transition as defined by (Ahmed, 2004). The new modified model is thus stated as follows:

Gross Domestic Product (GDP) measured economic growth which is the dependent variable as a function of Birth Rate (BRR), Death Rate (DRT), Female Primary School Enrolment (FPSE) and Mobile Cellular Subscription (MCS). The functional relationship of the model becomes;

$$GDP = f(BRR, DRT, FPSE, MCS) \dots\dots\dots (1)$$

Equation (1) can be express in its econometric form as follows:

$$GDP = b_0 + b_1 BRT + b_2 DRT + b_3 FPSE + b_4 MCS + U_t \dots\dots\dots (2)$$

Where: GDP = Gross Domestic Product, BRT= Birth Rate, DRT= Death Rate, FPSE = Female Primary School Enrolment, MCS = Mobile Cellular Subscription, U_t = Error term

A Priori Expectation $a_1, a_3, a_4 > 0, a_2 < 0$

IV. Results

Table 4.1: Descriptive Statistics

	GDP	BRT	DRT	FPSE	MCS
Mean	4042.168	40.63140	15.49690	7264148.	53336191
Median	3925.724	42.62700	16.47450	8435613.	13867105
Maximum	5516.387	44.26500	18.57900	12657191	1.73E+08
Minimum	2901.768	0.000000	0.000000	0.000000	0.000000
Std. Dev.	-976.9379	7.872623	3.734134	4136248.	64176253
Skewness	0.198237	-4.798949	-2.437788	-0.782805	0.699476
Kurtosis	1.398560	25.32051	10.82594	2.438500	1.866914
Jarque-Bera	3.402252	737.9059	106.2708	3.458019	4.051189
Probability	0.182478	0.000000	0.000000	0.177460	0.131915
Sum	121265.1	1218.942	464.9070	2.18E+08	1.60E+09
Sum Sq. Dev.	27677822	1797.367	404.3689	4.96E+14	1.19E+17
Observations	30	30	30	30	30

Source: E-View Output 10

Table 4. 1 indicate that a total of 30 observations were analyzed in this study. The table further shows that GDP which is the dependent variable has a mean of 4042.168. This implies that considering the time under investigation using the predictor variables in the study ignoring other factors, the average GDP can be predicted to be 4042.168. The result further shows that the deviation of the GDP from the mean is low (976.9379), also the minimum and maximum are 2901.7 and 5516.3 respectively. Table 4. 2 also prove that BRT has a mean of 40.63140 with a little deviation of 7.872623 and a minimum and maximum of 0.000000 and 44.26500 respectively. DRT has an average of 15.49690 with a deviation of 3.734134 and a minimum of 0.000000 and maximum of 18.57900. FPSE has 7264148 as its mean and a deviation of 4136248. The maximum and minimum values for FPSE stood at 12657191 and

4136248 respectively. Finally, MCS reported a mean value of 53336191, the deviation was 64176253 with minimum and maximum value of 0.000000 and 1.73E+08 respectively.

Table 4.2: Augment Dickey Fuller (ADF) Unit Root Test

Variables	Level		1st Difference		Order of integration	Prob
	T-stat	Critical Value	T-stat	Critical Value		
GDP	0.901375	-1.953381	-2.1953381	-1.953381	1(1)	0.0295
BRT	1.285805	-1.953858	-2.511913	-1.953858	1(1)	0.9959
DRT	-0.418896	-3.587527	-4.221676	-3.644968	1(1)	0.0164
FPSE	-1.083657	-3.580623	-5.825222	-3.587527	1(1)	0.0003
MCS	-1.608347	-3.574244	-5.264133	-3.580623	1(1)	0.0011

Source: E-view 10

The Augmented Dickey Fuller (ADF) unit root test was conducted by comparing if the ADF statistic is greater than the critical values at 5%. Thus, as shown in Table 4.2 above, the unit roots process were non stationary at the levels test. But became stationary upon first differencing. The results therefore revealed that the series are integrated of order one. Hence, the series were subjected to co-integration test to determine their linear combinations for long run relationship.

Table 4.3: Johansen Co-Integration Test

No of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob **	Max-Eigen Statistics	0.05 Critical Value	Prob **
None *	0.921338	162.3381	69.81889	0.0000	71.19253	33.87687	0.0000
At most 1 *	0.855351	91.14552	47.85613	0.0000	54.13655	27.58434	0.0000
At Most 2 *	0.655948	37.00897	29.79707	0.0062	29.87498	21.13162	0.0023
At most 3	0.224679	7.133991	15.49471	0.5621	7.125391	14.26460	0.4744
At most 4	0.000307	0.008600	3.841466	0.9258	0.008600	3.841466	0.9258

Source: E-View Output 10

Johansen co-integration test in table 4.3 was conducted to determine if the trace statistics or max-Eigen values were greater than the critical values at 5%. Thus, the trace statistics results disclosed that there is cointegrating equations existing in the model. Similarly, the Max-Eigen test results also confirm that the model has three co integrating equations. These findings are indicative that linear combinations of the series lead to long run relationship among them. Owing these findings, the relationships among the variables are represented in an error correction model.

Table 4.4: Parsimonious Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3488.637	319.2919	10.92617	0.0000
D(BRT)	222.5600	506.4036	0.439491	0.6648

D(DRT)	-838.8219	1646.847	-0.509350	0.6158
D(FPSE)	-3.12E-05	3.51E-05	-0.889455	0.3838
D(MCS)	6.49E-05	2.20E-05	2.952622	0.0076
ECM(-1)	-1.57E-05	2.65E-05	0.593326	0.0093

R – squared	0.438862	Mean dependent var	4131.949
Adjusted R-squared	3.305258	S.D. dependent var	990.3070
S.E. of regression	825.4328	Akaike info criterion	16.46282
Sum squared resid	14308127	Schwarz criterion	16.75079
Log likelihood	-216.2481	Hannan-Quinn Criter.	16.54845
F-statistic	3.284788	Durbin-Watson stat	2.068155
Prob(F-statistic)	0.023984		

Source: E-view 10

The dynamic relationship between the variables as captured by the parsimonious error correction model (ECM) revealed that the explanatory power of the regressors collective accounted for 43.8% of changes in economic growth. The F-statistic (3.284) (0.023) revealed that the explanatory variables are joint important in explaining changes in Nigerian economic growth. The error correction coefficient of 1.57 percent is a pointer that 57% annual adjustment is required for any short run deviation to be corrected in the system, while the negative coefficient indicates that the model has the ability to correct previous years errors at a speed of 1.57.

4.1. Discussion of Findings

Birth-Rate and Nigerian Economic Growth

In-line with economic theory, Birth-rate would have a positive relationship with Gross Domestic Product (GDP) as a proxy to economic growth in Nigeria. It is expected that birth-rate would be positive to economic growth in Nigeria. In conformity with apriori expectation, the result in table 4.5 showed that a positive (222.5600) but insignificant (0.6648) relationship exists between Birth-Rate (BRT) and Gross Domestic Product (GDP) as a proxy to economic growth in Nigeria.

The implication is that as long as birth-rate (BRT) a component of population growth, continue to increase it will lead to about 222.5600 increase in terms of economic growth in Nigeria. This means that increase in birth-rate will lead to increase in potential labor force, which will in-turn lead to increase in output and positively impact on the growth of the economy. The result further revealed that the impact of Birth Rate (BRT) on Gross Domestic Product (GDP) is insignificant (0.6648). The above is in line with the findings of Ogunleye & Owolabi, (2018); Peterson, (2017); Ashraf, Weli, & Wilde, (2013) where they admitted that increase birth rate supports economic growth, and advocates for migration from developing countries like Nigeria with high birth rate to developed countries with reduced birth rate in order to create global balance.

Death-Rate and Nigerian Economic Growth

In-line with apriori expectation, that Death Rate (DRT) has an inverse relationship with GDP as a proxy of economic growth. Result in table 4.5 in conformity with economic theory showed that a negative (-838.8219) and insignificant (0.6158) relationship exist between death-rate and economic growth in Nigeria. This means that a unit increase in DRT will result to about approximately - 838.8219 decline in GDP. It therefore implies that if the death rate or mortality rate in the country is not controlled and continue to rise as indicative with the country’s life expectancy currently at 54 years, it will have an adverse effect on economic outlook because active labour force will be grossly insufficient. If this happens output will reduce along-side per capita income and by extension the growth of the Nigerian economy. The findings of this study is in agreement with (Alhassan, Adedoyin, Bekun, & Agabo, (2020); Ademola & Saibu, (2017); Aidi, Emecheta, & Ngwudiobu, (2016).

Female Primary school enrolment and Nigeria economic growth

The result in table 4.5 showed that an inverse relationship exists between Female Primary School Enrollment (FPSE) and Gross Domestic Product (GDP) in Nigeria. It was expected that FPSE would be positive to GDP as shown in our aprior expectation. However, the result indicates that FPSE has a negative (-3.12E.05) and insignificant (0.3838) relationship with GDP. This implies that a unit increase in FPSE will lead to -3.12E.05 reductions in GDP. This means that if FPSE rate in the country continue to decline

it would trigger illiteracy rate in the country, this will in-turn lead to high level of unemployment for skilled labour force and further reduce the growth of the Nigerian economy.

The above is in line with the findings of (Mba, (2019); Adeosun, Oni, Oladipo, Onuoha, & Yakassai, (2009) where they blamed the poor outing in Nigeria's primary school system to various factors such as poor infrastructure and ill-trained teachers, inefficient utilization of classroom time, lack of interest in teaching job by primary school teachers as some of the factors militating against primary school education in Nigeria. This position was collaborated by a World Bank development report which revealed that most students in Nigeria's college of education which is the basic requirement for teaching in primary school are not interested in teaching (World Bank, 2018). These uninterested teachers eventually breeds poorly nurtured primary school leavers. This, the study has found to be affecting the state of the Nigerian economy adversely.

Mobile Cellular Subscription and Nigeria economic growth

In-line with the apriori expectation, Mobile Cellular Subscription (MCS) which was proxy for technology would have a positive relationship with Gross Domestic Product (GDP) as a proxy to economic growth in Nigeria. It was expected that MCS would be positive to economic growth in Nigeria. In conformity with apriori expectation, the result in table 4.5 showed that a positive (649E.05) and significant (0.0076) relationship exists between MCS and GDP in Nigeria. This means that an increase in MCS would result to about 0.0076 increases in GDP in Nigeria. This is in conformity with the findings of (Okundaye, Fan, & Dwyer, (2019); Ukwuoma, (2019) and Akinwale, Sanusi, & Surujlal, (2018) where they stated that technology has impacted the Nigeria economy positively through creation of job opportunities, opportunities for linkages and connectivity, reduction in environmental degradation by reduced needs for travels, improved security of lives and properties etc. Technology has also ensured productivity enhancement with minimal disruptions by ensuring that gaps or low productivities are improved upon through agility and effectiveness. This results in reduced risks and errors which boost creativity and innovation and ultimately increases output.

V. Conclusion

The aim of this study is to validate the existence of the demographic transition theory in the Nigerian economic space. To achieve this, the study considered the impacts of the cardinal constituents of the theory as adopted by (Ahmed, 2004) which are birth rate, death rate, female primary school enrollment and technology which was proxied by mobile cellular subscription on economic growth in Nigeria which was proxied by Gross Domestic Product (GDP) for the period of 1990 to 2019. Using unit root test which ruled out stationarity at first difference and applying Johansen cointegration technique which showed that there cointegrating variables, Parsimonious error correction model was employed to ascertain the direction of the relationship between the dependent variable (GDP) and the independent variables (BRT, DRT, FPSE and MCS). From the findings, BRT, DRT and MCS conformed with the apriori expectation, while FPSE did not conform with the apriori expectations due to various factors such as poor teachers attitude to work, poor infrastructures etc in Nigeria.

VI. Recommendations

From the result discussed above, the study suggests thus:

- a. Enhancement in health and medical facilities in the country to ensure safer birth experience and also increase the country's life expectancy from the present 54 years.
- b. Massive investment in primary education through the country's universal basic education by ensuring that primary school teachers are adequately motivated and the right crop of teachers are employed to teach in the country's primary school. Also there is need for effective monitoring of the school system to ensure that teaching time is maximally utilized.
- c. Given the positive correlation between technology and GDP, government should ensure massive investment in ICT and other technological outfit. Technology in all its form should be thought in all institutions of learning in the country and expansion of existing technological infrastructure in the country to ensure that all the nicks and crannies of the country has internet reach.
- d. Finally, as suggested by (Bloom, et al, 2010), there is need for masive job creation for the increasing population of the country as indicated by the rising birth rate. This will channel this population strength to the benefit of the country.

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