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MASTER'S THESIS

ON

FERTILITY RATE, LIFE EXPECTANCY AND ECONOMIC GROWTH IN NIGERIA

BY

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Abstract

The influence of fertility rate and life expectancy on economic growth cannot be overemphasized. This study empirically examined the fertility rate, life expectancy and economic growth in Nigeria employing the use of an ECM model as its tool of data analysis. The scope of the study is from 1981-2021 to reflect current dynamics in the real sector as well as the social sectors (demographics). Based on the findings of this study, it was discovered that life expectancy significantly influences economic growth in Nigeria. While fertility rate has an insignificant impact on economic growth. Also, government expenditures on health and education does not significantly affect economic growth in the period under consideration. In light of the above findings, significant resources should be allocated to the health and educational sectors as this would boost health care delivery and literacy rate in Nigeria. This is because it is only a healthy and educated workforce that can contribute meaningfully to the growth process of Nigeria. The study concluded that life expectancy is a key determinant of economic growth in Nigeria.

Keywords: Fertility Rate; Life Expectancy, Economic Growth, ECM.

CHAPTER ONE

INTRODUCTION

1.1. Background to the Study

The role of fertility rate and life expectancy rate as important social or demographic (health) variables in the growth and development of a nation cannot be overemphasized. There is a gradual demographic transition from high mortality rate, high fertility, and low life expectancy to relatively low mortality rate (infant and maternal), low fertility rates, and relatively high life expectancy in Africa especially in Nigeria which could be adduced to relatively improved health care delivery (primary, secondary, and tertiary health cares) in most essential the rural areas and also urban area. The growth and development of a nation depend on the quality of its human capital development in that no nation can significantly grow or develop with undeveloped human capital. Health and education are key variables that transform human resources into human capital in order for them to significantly contribute to the economic growth of a country. Hence, the vital statistics with respect to fertility and life expectancy rates are essential to the growth process of a country, especially a developing country like Nigeria (Barro 2013; Kunze 2014; Atake 2018; Mahumud et al. 2013; Piabou & Tieguhong 2017; Lawanson & Umar, 2021).

How do the variations in the fertility rate (population changes) impact the expansion or growth of the economy? More specifically, how much more would per capita income increase in a developing nation with a high fertility rate and life expectancy rate? Going at least as far back as Malthus (1798), this economics query is not new. The prevalent opinion has changed over the past decades, going from a heavy emphasis on the impacts of fertility rates and life expectancy to one that downplays their relevance, and most recently, back to one that emphasises their importance (Ashraf et.al. 2013). Hence, the relationship between life expectancy and economic

growth and also fertility rate and economic growth is one of the most fascinating themes in public health literature.

1.2. Statement of the Research Problem

Despite these perceived benefits of improved health, the recent focus on the empirical connection between health indicators (life expectancy, fertility rate, mortality rate etc.) and economic growth reveals that the impacts of health on economic growth are uneven, even when similar methodologies and data were employed in their analyses. Sharma (2018) and Bloom et al. (2018), for example, found no evidence of a positive influence of health on economic growth, despite rising evidence (Sede & Ohemeng, 2015; Serag et al. 2019) of a non-linear link between life expectancy and economic growth. While Lawanson and Umar (2021) found a positive link between health and economic growth. However, Kunze (2014) discovered that determining which outcome dominates in theory is difficult. The conflicting results show that the link between health and economic growth may not be direct, but rather through macroeconomic conditionings or channels (Ann & Jeon 2006; Sharma 2018; Pakdaman et al. 2019).

The majority of empirical research in Nigeria has examined a direct relationship between health indicators and economic growth with mixed results, but has neglected the combined role of fertility rate and life expectancy on economic growth. Evidence from the literature despite that there is adequate literature on life expectancy and economic growth in Nigeria while inadequate attention is paid to the influence of fertility rate on economic growth. In light of the above, this study would cover this gap by investigating the relationships between the fertility rate and life expectancy rate on economic growth in Nigeria.

1.3. Research Questions

From the above statement of the problem, the relevant research questions are:

1. What is the impact of the fertility rate on economic growth in Nigeria?
2. Does the life expectancy rate impact economic growth in Nigeria?
3. What is the relationship between the fertility rate and economic growth in Nigeria?
4. What is the relationship between the life expectancy rate and economic growth in Nigeria?

1.4. Hypotheses of the Study

The null hypotheses formulated for this study include:

1. There is no significant relationship between the fertility rate and economic growth in Nigeria.
2. There is no significant relationship between the life expectancy rate and economic growth in Nigeria.

1.5. Structure of the Study

This research work will be subdivided into chapters to aid easy understanding and proper structure of the study. It will span through five chapters: chapter one depicts the introductory aspects of the research. Chapter two deals with the assessment and review of relevant literature to the research work. Chapter three presents the theoretical framework of the study, model specification as well as the methodology adopted. Chapter four deals with the presentation and analysis of results. Chapter five wraps up the research work by giving a summary of findings, recommendations and conclusion. Enclosed to this chapter are the bibliography and appendices.

CHAPTER TWO

LITERATURE REVIEW

The total fertility rate is the product of age-specific birth rates for female residents of a certain geographic region (country, state, county, etc.) for a given time period (often a calendar year) multiplied by five. Life expectancy is the number of years that people of different ages may anticipate living, starting at age zero. Life expectancy at birth is the average number of years that a new born infant might anticipate living, given the present mortality conditions and the odds of dying at each age. Economic growth is the increase in the market value of the goods and services produced by the economy overtime. The geometric or trend analysis of the data are provided below.

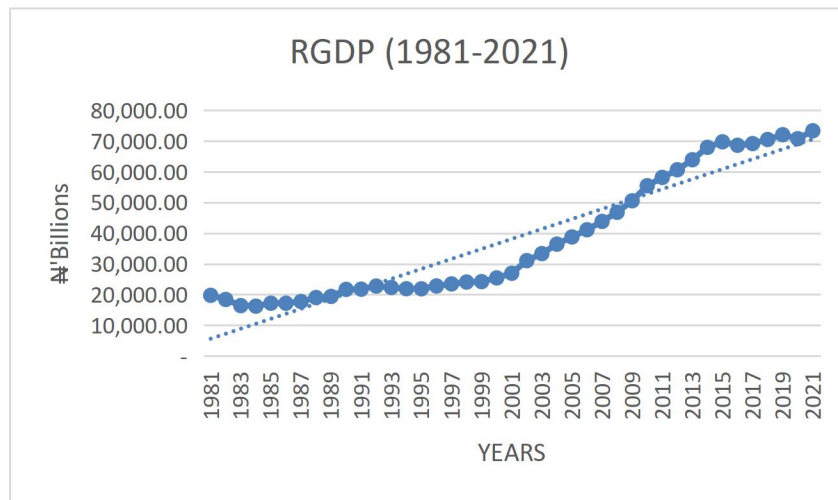


Fig. 4.1.1 Trend of RGDP

Source: Author's Computation Using Excel, 2022

From the figure above, it is depicted that the trend in real gross domestic product has witnessed a steady rise for the period of observation. A slight decline can be observed from 1981 to 1984. This may be due to the oil glut in the 1980s which brought about decreased export

earnings and higher domestic and foreign debts contraction. From 1984, it rose but was galloping over the period up to 2001. From 2001, it rose significantly till the year 2015. In 2016 RGDP experienced a negative growth rate (downward trend) as a result of the economic recession (mess down in economic activities) that characterized the Nigerian economy. The RGDP reached its peak in the year 2019 during the time of observation. The real level of output fell in 2020 and this may be adduced to the negative economic effect of the COVID-19 pandemic on the Nigerian economy. The total and/or partial lockdown of the country reduced significantly the level of economic activities, hence, negative economic performance of the Nigerian economy. While in 2021, the RGDP rose slightly depicting recovery.

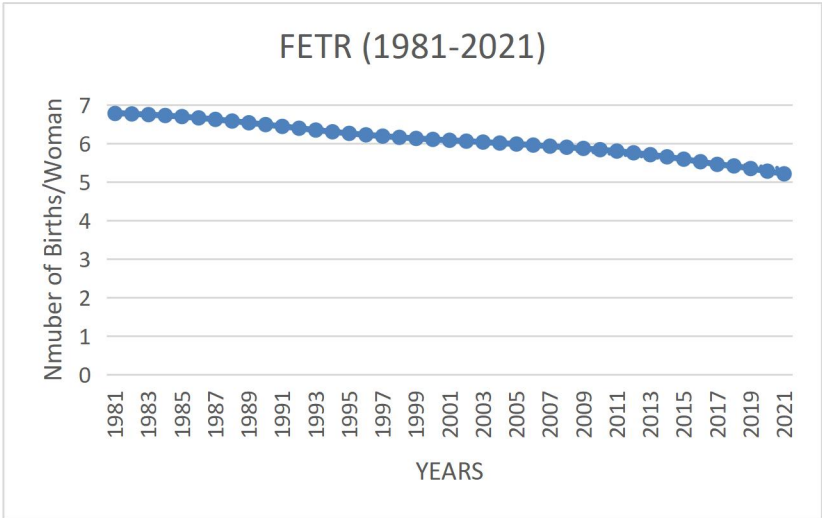


Fig. 4.1.2. Trend of Fertility Rate
Source: Author’s Computation Using Excel, 2022

The figure above shows that the trend in FETR has witnessed a steady fall for the period under consideration. It depicts a gradual fall in fertility rate which could be due to the prevalence of the use of contraceptive, other birth control measures, and high literacy rate.

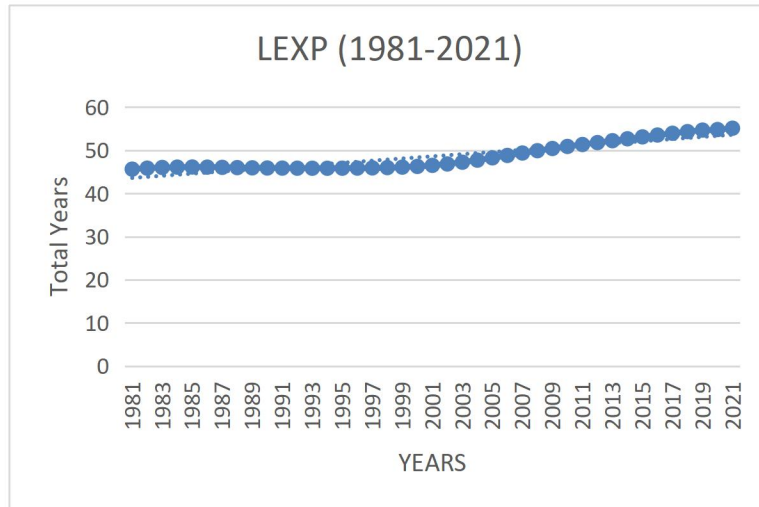


Fig. 3.1.3. Trend of Life Expectancy

Source: Author's Computation Using Excel, 2022

Between the periods under consideration, LEXP exhibited a gradual increase. The trend is positive with time. This depicts that the life expectancy at birth is rising with time.

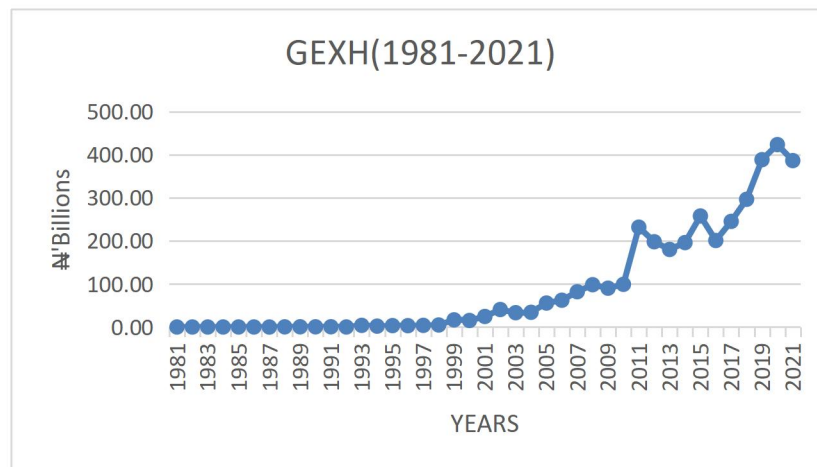


Fig. 3.1.4. Trend of Government Expenditure on Health

Source: Author's Computation Using Excel, 2022

Education and health are the two most important social variable and they tend to exhibit the same behavioural pattern. From the trend above, the growth in GEXH (which is similar to the growth in GEXE) has been rising. The trend is positive with time.

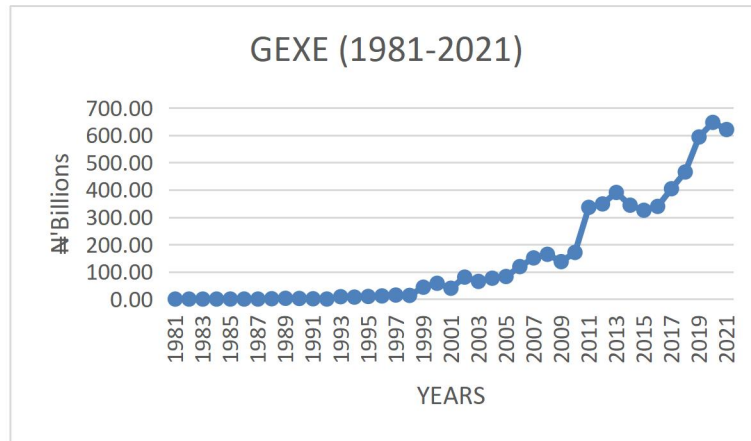


Fig. 3.1.5. Trend of Government Expenditure on Education

Source: Author’s Computation Using Excel, 2022

From the trend above, the growth in GEXE has been positive. There has been upward trend of GEXE. Hence, the trend of GEXE is positive with time.

Blanchet (2009) asserts that there are three (3) opposing viewpoints on the relationship between population expansion and economic development, namely the population neutralist, the population optimist, and the population pessimistic viewpoint. The Malthusian school of thinking embraced the gloomy perspective of the general populace. Thomas Malthus, who advocated for this idea, is the name of the school of thought that bears his name. Thomas Malthus said in "An Essay on the Principle of Population" that if immediate action is not done, continued population growth will cause an economy to stall. More people will need to be fed, he said, and since the population was expanding (at a geometric progression) faster than the food

supply (which was expanding at an arithmetic progression), this imbalance would have a negative impact on the economy.

This theory's proponents argue that technological advancements will increase productivity, neutralising any possible danger from a growing population to the food supply, in order to firmly refute Malthusian predictions of an unavoidable future food crisis (caused by population growth). Simon (1981), who pointed out that humans are only weights to the earth without skill, science, and technology, backed up these theorists' recalcitrant faith in technology as a means of escape by stating that output/productive capacity can be increased using one's own knowledge, forethought, and skills.

Olukemi & Dominic (2021) in their study examined the impact of health on economic growth is affected by the level of poverty in any nation.. Findings showed that health contributes positively to economic growth and also mitigates the adverse effect of poverty on economic growth in Nigeria. The study determined the minimum threshold of life expectancy of 64.4 years as a health improvement annual benchmark. Therefore, for Nigeria to achieve sustainable economic growth and significant poverty reduction, policies aimed at achieving the newly determined health improvement threshold from the current annual average of 47.8 years are fundamental.

Sede et.al (2020) carried out a study on HIV/Aids, Infant Mortality and Economic Growth: A Systematic Assessment of their Causal Relationship in Nigeria. Mixed results were recorded as on one hand, HIV/AIDS impacts positively on infant mortality through Mother-To-Child-Transmission while on the other hand, economic growth was found to be positively correlated with HIV/AIDS. The study however recommends that to achieve the desirable objective of sustainable economic growth, the health sector should be given a larger budgetary allocation and

the necessary support as the current government expenditure on health is not making any significant impact on health sector variable and the economy at large

Amade and Ibrahim (2018) uses a panel data technique to look at the effects of population increase from 1980 to 2015 on the economic growth of African countries. At the national and regional levels, the relationship between population expansion and economic growth is still hotly debated. The difference and system GMM's findings indicate that while fertility has a negative influence on Africa's economic growth, population growth has a favourable impact. The report continues by advising African countries to embrace and execute practical policy measures that would increase the productivity of their people in order to enjoy more demographic benefits. Population expansion positively affects economic growth, the research says.

Popoola (2018) examined the effects of population growth on the average life expectancy in Nigeria, which also takes into account additional control variables that have not been examined in previous studies as well as the explicit contribution of healthy citizens to economic development. The results show that increasing population growth has positive and insignificant effects on life expectancy; however, in Nigeria, a 1% reduction in fertility rate and a population of 65 and older dependency ratio could positively stimulate an improvement in longevity by 5.84 and 81.5 years, respectively. Additionally, the granger causality test demonstrates that population expansion may granger contribute to Nigeria's poor life expectancy at a substantial level of at least 10%.

Adebowale (2019) examined ethnic disparities in fertility and its determinants in Nigeria the total fertility rate was 8.02, 4.91 and 4.43 among women in Hausa/Fulani, Igbo and Yoruba ethnic group respectively. The proportion of women with ≥ 5 children was highest among the

Hausa/Fulani (40%), followed by Igbo (21.6%) and Yoruba (17.5%). For women aged 45–49 years; the PPR was highest among Hausa/Fulani while Igbo and Yoruba exhibited a similar pattern. The mean fertility was 1.725 times higher among Hausa/Fulani than Yoruba women, but Igbo and Yoruba women exhibited a similar pattern. Controlling for other factors barely changes this pattern. The main ethnic groups in Nigeria saw variation in fertility, with Hausa/Fulani having the highest levels.

The preceding studies provide evidence of the nexus between fertility rate on economic growth and also between life expectancy on economic growth. There is a need to update the literature and also examine the combined impact of the two most important demographic variables (fertility rate and life expectancy) on economic growth in Nigeria.

CHAPTER THREE
METHODOLOGY

3.1. Theoretical Framework

The theoretical framework of this study hinges on the Grossman model proposed by Grossman (1972). He proposed a model of health production inspired by the human capital model of Becker (1967). The crucial component of the Grossman model is the equation that defines the change in the health stock over the time period.

3.2. Model Specification

Based on Grossman (1972) as cited in Sede et al (2020) investment model, the price of health depends on many other variables besides the price of medical care. It is from this assumption we deduce our empirical model.

$$RGDP = f(FETR, LEXP, GEXH, GEXE) \dots\dots\dots (3)$$

Equation 3 indicates that RGDP is a function of FETR, LEXP, GEXH and GEXE.

The econometric form of the model above is stated as:

$$RGDP_t = \beta_0 + \beta_1 FETR_t + \beta_2 LEXP_t + \beta_3 GEXH_t + \beta_4 GEXE_t + U_t \dots\dots\dots (4)$$

Where;

RGDP= Gross Domestic product at constant prices (As a proxy for economic growth)

FETR = Fertility Rate

LEXP = Life Expectancy

GEHX = Government Expenditure on Health

GEXE = Government Expenditure on Education

U_t = stochastic error term

β_0 = constant intercept

$\beta_1 - \beta_4$ = Co-efficient of the associated variables

All variables are in their natural log form.

Finally, the major estimation technique for this study is the error correction mechanism. Hence, the ECM model for this study can be specified as;

$$\Delta RGDP_t = \beta_0 + \beta_1 LNFETR_{t-i} + \beta_2 LNLEXP_{t-i} + \beta_3 \ln GEHX_{t-i} + \beta_4 GEXEt_{-i} + \varepsilon ECM_{t-i} + U_t \dots\dots (6)$$

The coefficient of error correction term is expected to be negative ($\varepsilon < 0$) and significant as this is necessary condition to ensuring the existence of long run relationship and adjusted disequilibrium in the model (Narayan, 2005).

3.3. Estimation Technique

The study adopts a multiple regression analysis with Ordinary Least Square (OLS) econometric technique. In a view of avoiding the difficulties that may sprang up while carrying out regression analysis with clearly non-stationary series which thus leads to spurious results. However, this study however adopted Augmented Dickey Fuller (ADF) test for our unit root to ascertain whether the data series has a unit root in order attain stationary. The study also employed the use of Johansen co-integration test so as to ascertain the long run relationship between variables employed for this study. Further, ECM is employed to correct any form of disequilibrium in the short run. However, the techniques adopted for this study are further elaborated below;

CHAPTER FOUR
PRESENTATION AND ANALYSIS OF RESULTS

4.1. Preliminary Results

4.1.1. Descriptive Statistics

Table 4.1. Descriptive Statistics of the Variables

	RGDP	FETR	LEXP	GEXH	GEXE
<i>Mean</i>	38124.89	6.088049	48.60337	89.74776	148.2076
<i>Median</i>	26935.32	6.083	46.51	24.52227	57.95664
<i>Maximum</i>	73382.77	6.779	55.12	423.3298	646.7475
<i>Minimum</i>	16211.49	5.212	45.637	0.041315	0.162154
<i>Std. Dev.</i>	20553.99	0.444021	3.289651	123.8775	193.8386
<i>Skewness</i>	0.575236	-0.15623	0.776151	1.338238	1.238292
<i>Kurtosis</i>	1.703335	2.112326	2.020377	3.630589	3.330855
<i>Jarque-Bera</i>	5.133416	1.512894	5.755897	12.917	10.66501
<i>Probability</i>	0.076788	0.469331	0.05625	0.001567	0.004832
<i>Sum</i>	1563121	249.61	1992.738	3679.658	6076.514
<i>Sum Sq. Dev.</i>	1.69E+10	7.8862	432.8722	613825.1	1502937
<i>Observations</i>	41	41	41	41	41

Source: Author's Computation Using E-views 10, 2022

Table 4.1 depicts the descriptive statistics of the variables included in the model. The descriptive statistics above shows that the average or mean of RGDP is about ₦38,125 Billion and that of FETR is about 6 births per woman, the average value of LEXP is about 49 years. While that of GEXH and GEXE are about ₦90 billion and ₦148 billion respectively. The table shows that the series is at a high level of consistency as all the mean and median values of the respective

variables are within the max and min values of the series. The probability of the Jarque-Bera statistic shows that the residuals of more than half of the variables are normally distributed. Nevertheless, this shows that some operations are required to normalize the time series data. To obtain the Best Linear Unbiased Estimates (BLUE), the Ordinary Least Squares (OLS) assumption of normality should be considered imperatively.

4.1.2. Unit Root Test for Stationarity

Augmented Dickey-Fuller Unit Root Test Results

TABLE 4.2a. Unit Root Test (At Levels)

VARIABLES	ADF TEST STATISTICS	ADF CRITICAL VALUE			ORDER OF INTEGRATION	REMARKS
		1% Level	5% level	10% level		
LNRGDP	-0.919946	-3.615588	-2.941145	-2.609066	I(0)	NOT STATIONARY
LNFEETR	0.945372	-3.615588	-2.941145	-2.609066	I(0)	NOT STATIONARY
LNLEXP	-2.881778	-3.626784	-2.945842	-2.611531	I(0)	NOT STATIONARY
LNGEXH	-1.766695	-3.626784	-2.945842	-2.611531	I(0)	NOT STATIONARY
LNGEXE	-2.357403	-3.626784	-2.945842	-2.611531	I(0)	NOT STATIONARY

Source: Author's Computation using E-views 10, 2022

TABLE 4.2b. Unit Root Test (At First Difference)

VARIABLES	ADF TEST STATISTIC	ADF CRITICAL VALUE			ORDER OF INTEGRATION	REMARKS
		1% Level	5% level	10% level		
DLN(RGDP)	-3.987407	-3.610453	-2.938987	-2.607932	I(1)	STATIONARY
DLN(FETR)	-0.991663	-3.610453	-2.938987	-2.607932	I(2)	NOT STATIONARY

DLN(LEXP)	-0.832260	-3.610453	-2.938987	-2.607932	I(2)	NOT STATIONARY
DLN(GEXH)	-10.35897	-3.610453	-2.938987	-2.607932	I(1)	STATIONARY
DLN(GEXE)	-7.974075	-3.610453	-2.938987	-2.607932	I(1)	STATIONARY

Source: Author's computation using E-views 10, 2022

TABLE 4.2C. Unit Root Test (At Second Difference)

VARIABLES	ADF TEST STATISTIC	ADF CRITICAL VALUE			ORDER OF INTEGRATION	REMARKS
		1% Level	5% level	10% level		
DDLN(RGDP)	-9.765905	-3.615588	-2.941145	-2.609066	I(1)	STATIONARY
DDLN(FETR)	-8.408270	-3.615588	-2.941145	-2.609066	I(2)	STATIONARY
DDLN(LEXP)	-5.907398	-3.626784	-2.945842	-2.611531	I(2)	STATIONARY
DDLN(GEXH)	-7.319621	-3.639407	-2.951125	-2.614300	I(1)	STATIONARY
DDLN(GEXE)	-6.093190	-3.661661	-2.960411	-2.960411	I(1)	STATIONARY

Source: Author's computation using E-views 10, 2022

Table 4.2a, 4.2b, 4.2c which show the results of the ADF unit root test at levels, first difference, and second difference respectively. However, the test suggests that all the variables were stationary at their second difference using 5% critical values.

4.1.3. Johansen Co-Integration Test

Table 4.3a: Unrestricted Co-Integration Rank Test (Trace value)

Hypothesized No of CE(S)	Eigen Value	Trace statistic	0.05critical value	Prob**
None *	0.653854	105.0207	69.81889	0.0000
At most 1 *	0.556071	64.70680	47.85613	0.0006
At most 2 *	0.516686	33.84739	29.79707	0.0162
At most 3	0.107461	6.218032	15.49471	0.6698
At most 4	0.048721	1.898016	3.841466	0.1683

Trace value test indicates 3 co-integrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 4.3b: Unrestricted Co-integration Rank Test (Maximum Eigenvalue)

Hypothesized No of CE(S)	Eigen Value	Max-Eigen statistic	0.05critical value	Prob**
None *	0.653854	40.31394	33.87687	0.0074
At most 1 *	0.556071	30.85941	27.58434	0.0183
At most 2 *	0.516686	27.62936	21.13162	0.0053
At most 3	0.107461	4.320016	14.26460	0.8241
At most 4	0.048721	1.898016	3.841466	0.1683
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author’s Computation using E-views 10, 2022

Table 4.3a and Table 4.3b above depicts the results of Johansen Co-integration test. It shows the estimated result of the long run relationship between the variables. It can be observed that the trace statistic in table 4.3a indicates that there are 3 co-integrating equations at the 5% level of significance. While, the maximum Eigen value statistic in table 4.3b indicates that there are 3 co-integrating equations at the 5% level of significance. These results depict that there is co-integration or long–run equilibrium relationship among the variables employed in the study. Thus, we further proceed to conduct an error correction mechanism, given the one-year time lag used to show the speed of adjustment (λ) of the dependent variable to the changes in the independent variables in the short run.

4.2. Estimation Test Result

4.2.1. Error Correction Model

Table 4.4: Parsimonious Error Correction Result

Dependent Variable: DD(LNRGDP)

Variables	Coefficients	St. Error	t-Statistics	Prob.
C	0.002449	0.006227	0.393214	0.6967
<i>DDLNFETR</i>	0.325496	4.733843	0.068759	0.9456
<i>DDLNLEXP</i>	12.93086	5.412951	2.388874	0.0228**
<i>DDLNGEXH</i>	-0.001039	0.011609	-0.089475	0.9292
<i>DDLNGEXE</i>	0.000512	0.013153	0.038926	0.9692
<i>ECM(-1)</i>	-0.683151	0.147217	-4.640452	0.0001*
R ² = 0.413567		R ² = 0.324714		
F-stat = 4.654491		DW stat = 2.195929		
Prob(F-stat) = 0.002524		SEE = 0.037899		

Source: Author's Computation Using E-views 10, 2022

NB: * denote a 1% level of significance while ** denote a 5% level of significance

Table 4.4 above shows that the output of a parsimonious error correction model (ECM). It shows that about 64% of the discrepancy between the actual and the long run (equilibrium) value of RGDP is corrected or eliminated each year. Put differently, it tells us that about 68% of disequilibrium in the previous year is corrected in the current year. Notice that the coefficient of the ECM has a negative sign and is statistically significant at 5% as shown by its p-value of

0.0001 which is less than 5% level as expected. Thus, this justify our earlier position that the variables under study are indeed co-integrated. The coefficient of determination (R^2) is 0.413567 which depicts that about 41% of variations in the RGDP were explained by the independent variables in the model. Also, its adjusted counterpart is 0.324714 which shows that about 32% growth in the RGDP in Nigeria can be attributed to the explanatory variables taking into account the degrees of freedom in the model.

The elasticity coefficient of FETR is about 0.325496 and it depicts that a per cent increase in fertility rate will result to about 0.3 per cent in RGDP in Nigeria. The elasticity coefficient of LEXP is 12.93086 and it shows that a per cent increase in the LEXP will result to about 13 per cent increases in RGDP in Nigeria. The elasticity coefficient of GEXH is -0.001039 and it shows that a per cent increase in GEXH will result to about 0.001 per cent decreases in RGDP in Nigeria. The elasticity coefficient of GEXE is 0.000512 and it shows that a per cent increase in GEXE will result to about 0.0005 per cent increase in RGDP in Nigeria. It is important to note that FETR, LEXP, GEXE conformed to a priori expectation while GEXH did not conform to economic theory.

Similarly, the probability of the T-test (test for individual significance of the parameters in the model) for the FETR, LEXP, GEXH, and GEXE were 0.9456, 0.0228, 0.9292, and 0.9692 respectively. By implication, the T-test indicates that only LEXP significantly influences RGDP at 5% percent level of significance. The F-test which measure the overall significance of the model is interpreted using its Prob.-value. The P-value of the F-test 0.002524 which is less than 1%, hence, the overall test is significant. Thus, the explanatory variables are simultaneously significant in forecasting changes in RGDP in Nigeria. The Standard Error of the Estimate or Regression (SEE) measures the reliability of a model for forecasting or prediction. From the

result above, the SEE value is low, hence, our model is reliable for forecasting. Also, the Durbin-Watson statistics value of 2.195929 which is approximately 2 indicates that there is no autocorrelation in the model.

4.3. Discussion and Policy Implications of Findings

There exists a positive and significant relationship between life expectancy at birth and economic growth in Nigeria. The implication of this is that LEXP does significantly impact on RGDP in Nigeria. Hence, an increase in life expectancy would stimulate the labour force which in turn would contribute to the economic growth of the country. Based on the hypothesis of this study, we reject the null hypothesis II and infer that life expectancy at birth significantly impact economic growth in Nigeria.

There exists a positive and insignificant relationship between fertility rate and economic growth in Nigeria. The implication of this is that FETR does not significantly impact on RGDP in Nigeria. That is, as the economy is growing fertility has gradually declined. Based on the hypothesis of this study, we therefore fail to reject the null hypothesis I and infer that fertility rate does not significantly impact economic growth in Nigeria

There exists a negative and insignificant relationship between government expenditure on health and economic growth in Nigeria. This implies that GEXH does not significantly affect RGDP in Nigeria. This could be adduced to the insignificant allocation to this sub-sector of the economy.

Finally, a positive and insignificant relationship exist between government expenditures on education and economic growth in Nigeria. This implies that GEXE does not significantly

affect RGDP in Nigeria. This could also be adduced to the insignificant allocation to this sub-sector of the economy

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.0. Introduction

This concluding section encompasses the summary of findings, policy recommendations and conclusion of this research study.

5.1. Summary of Findings

This research has provided empirical evidence on the relationship between fertility rate, life expectancy, and economic growth in Nigeria using annual time series data from 1981 to 2021. Given the ECM result, life expectancy at birth has a positive and significant impact on the economic growth of Nigeria. While fertility rate has a positive and insignificant impact on the economic growth of Nigeria. The control variables which are government expenditures on health and education depicts that health expenditure has a negative and insignificant impact on economic growth while education expenditure has a positive and insignificant impact on economic growth in Nigeria.

5.2. Policy Recommendations

From the findings of this study, the following can be recommended.

1. In order to enhance fertility rate, significant resources should be allocated to the health and educational sectors as this would boost health care delivery and literacy rate in Nigeria. This is because it is only a healthy and educated workforce that can contribute meaningfully to the growth process of Nigeria.
2. In order to achieve the desired goal of improving and sustaining economic growth in Nigeria, the health and educational sectors as social variables should be given a stronger financial allocation and support, as existing government spending on health and education have little influence. This would help in providing the needed resources to spur the social sectors on the path of growth with both forward and backward linkages to the real sector of the economy.

5.3. Conclusion

The influence of fertility rate and life expectancy on economic growth cannot be overemphasized. This study empirically examined the fertility rate, life expectancy and economic growth in Nigeria employing the use of an ECM model as its tool of data analysis. Based on the findings of this study, it was discovered that life expectancy significantly influences economic growth in Nigeria. While fertility rate has an insignificant impact on economic growth. Also, government expenditures on health and education does not significantly affect economic growth in the period under consideration. In light of the above findings, significant resources should be allocated to the health and educational sectors as this would boost health care delivery and literacy rate in Nigeria. This is because it is only a healthy and educated workforce that can contribute meaningfully to the growth process of Nigeria. The study concluded that life expectancy is a key determinant of economic growth in Nigeria.

5.4. Limitations of the Study

There are always going to be gaps in studies, so this one is not an exception. Only four regressors were used in this analysis, which is a significant flaw. This may have influenced the findings of this study; as a result, more research in this area is necessary, with more policy (financial sector) variables included to capture pertinent economic dynamics in Nigeria. The data series were stationary at second difference which is not promising for an econometric analysis. Also, the use of only ADF test for unit root has a failing in that it does not account for structural breaks. Hence, there is need for further studies to utilize Phillips-Perron test for unit root.

5.6. Areas for further Research

The findings of this study, like other empirical analyses, should be interpreted with caution because they are based on a country-specific characteristic, data from a specific time period, and a specific econometric approach. Although the current study adds to our understanding of the fertility rate, life expectancy and Nigerian economic growth, it has certain limitations, primarily due to the reliability of secondary data and the econometric technique adopted for the study. Further studies could be carried out to examine the subject matter using some selected states as a case study.

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APPENDICES

All available on request