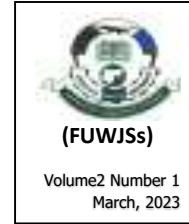


**IMPACT OF EDUCATION AND HEALTH
EXPENDITURES ON HUMAN CAPITAL
DEVELOPMENT IN KADUNA STATE, NIGERIA**

BOGNET Alfred Cyprain

Kaduna State Planning and Budget Commission
Kaduna, Kaduna State, Nigeria
alfredbognet7@gmail.com



Peter Adamu (PhD)

Economics Department, Kaduna State University, Kaduna, Nigeria
peter.adamu@kasu.edu.ng; peteradamu@gmail.com

Autaelisha Menson (PhD)

Economics Department, Kaduna State University, Kaduna
autaelisham@gmail.com

Prof Peter P. Njiforti

Economics Department, Ahmadu Bello University, Zaria
njifortica@yahoo.com ppnjiforti@abu.edu.ng

Abstract

The growth and development of any nation depend on how well its human capital is being developed in terms of government spending in education and health. However, it is not yet clear on the extent to which Kaduna State Government expenditures on health and education over the years have boosted the human capital development in the State. For instance, the United Nations Educational, Scientific and Cultural Organization (UNESCO) have insisted that 26% of the annual budgets of a government should be allocated to education. This study therefore examines Kaduna State Government's expenditures on education and health between the years 1990 to 2019, and how these impact human capital development in the State. The study used primary school enrollment data and these were analyzed through the lens of autoregressive distribution lag (ARDL) Model. The study's results revealed that in the long-run, education expenditures have significant positive impact on human capital development in Kaduna State, while health expenditures of Kaduna State Government has insignificant positive impact on human capital development in the State. Overall, in the short-run, both education and health expenditures of the Kaduna State Government have positive and significant impact on human capital development in the State. The study concludes that Kaduna State Government expenditures on education and health contribute significantly to the growth of human capital development in the State. The study recommends that the Kaduna State Government

need to further increase budgetary allocations to education and health in order to ensure continuous boost of human capital development (HCD).

Keywords: Human capital, education, health, budget, Kaduna

Introduction

The greatest asset of an economy is its educated and healthy population (Chinwe, 2020). The 1995 World Bank report highlighted that 64% of the wealth of 192 countries resides within their human capital; while 16-20% of their wealth resides within their physical and natural resources (Adamu, 2012). Studies by Becker (2010); Ahuja, (2013); Adediran, (2014); Quah (2018); World Bank, (2019) and Ihejirika, (2020) have all proven that 80% of advanced nation's wealth resides within their human capital. The outstanding development records of the Asian Tigers (Taiwan, Hong Kong, Singapore and South Korea) prove the significance of human capital in creation of wealth and development. These countries lack natural resources but leverage on the development of the talents, knowledge, skills and health stock of its people through investment in education, health and skill acquisition as well as their maximal utilization (Adamu, 2012). Before the 18th century, investment in human capital was very low but this has changed radically with the application of science and technology for producing products first in Britain and then gradually to other countries (Adediran, 2014). Today, some development experts call the 19th century the age of human capital (World Bank, 2019; Ihejirika, 2020). The importance of human capital development explains why UNESCO insists that 26% of the annual budgets of a country should be allocated to education. The Asian Tigers and other developed nations like United States of America (USA) invest more on education and health so much such that school's enrolments at all levels is approximately 100% and life expectancy is 80 years on the average (Ihejirika, 2020).

It is clear that education expenditures in Nigeria slowly took an upward trend from 2010-2017 and is taking a downward trend afterwards and this affects education outcomes and human capital development in the country (Adamu, 2012; Ihejirika, 2020). Furthermore, the oil boom which led to increase in Federation Account Allocation Committee (FAAC) and the rising internally generated revenue has made the budgetary allocation to education and health sectors to take a rising trend in many States in Nigeria, including Kaduna State. Reports from State Partnership for Accountability, Responsiveness and Capability (SPARC, 2012) and Kaduna State Planning and Budget Commission (2019, 2021) indicate that Kaduna State in 2011 spend N19.5 billion (15%) of its total expenditure on education and spend

N10.5b (8% of its total expenditure) on health and this expenditure was supposed to build up human capital in the State. In addition, the Kaduna State's 2020 budget allocated 25.07% (N64.64bn) of its total budget to education and 15.36% (39.61bn) to the health sector. This shows that 40.43% of the 2020 budget goes to human capital development. The 2021 budget allocated 26% (59.59b) and 15% (35.75b), totaling 41% of the total budget to education and health sectors. Even though the 2020 and 2021 budgets are not the actual releases, but they point to the fact that the allocation to education and health in the State is growing. Being aware of the role of human capital in the creation of wealth and development in the State, the State established the Human Capital Development Council to boost human capital development in the State.

With all these achievements, yet it is still not clear how Kaduna State Government's budgetary allocations and expenditures on education and health sectors have impacted on the overall human capital development in the State. Thus, this paper seeks to examine the extent to which Kaduna State Government expenditures on the education and health sectors have boosted human capital development in the State.

Education and Health Expenditures in West African Countries

Samuel and Ngozi (2019) studied the impact of education and health expenditures on human capital development in West African Countries from 1985 -2016. The results obtained after using ARDL technique of analysis shows that increased government education and health expenditures has positive and significant impact on Human Capital Development in the selected 13 countries. This study provided an insight into the impact of public expenditure on human capital development among 13 West African countries only. The result might be different if more countries are added to the selected countries and a country by country analysis would have given a better outlook on the impact being measured. Nonso (2012) investigated the relationship between social spending and Human Capital development in Selected West African countries using Ordinary Least Squares. He found that health expenditure is significant in explaining human capital development in the selected West African Countries. But OLS did not allow the investigation of long run relationship. Adewumi and Enebe (2019) studied the impact of social expenditure (expenditure on education and health) on human capital development in West Africa using panel regression model of analysis. The result obtained shows that increase government education and health expenditures have positive and significant impact on primary and secondary schools' enrolments. The result also shows bidirectional causality between expenditure and each school level enrolment

and hence recommends judicious use of funds in these sectors in order to achieve meaningful human capital development.

Innocent, Job, Okeke and Aondo (2017) empirically studied the relationship between Human Capital Development and government expenditure using ARDL model and impulse response function. The results of their findings showed that government expenditure is positive but has insignificant impact on human capital development in Nigeria both in the short and long runs between 1990-2014 and thus recommended increased spending in providing quality education and health services to change the status quo. This study fails to investigate the direction of causality. Abiodun and Ebiefe (2013) studied the impact of social spending on human capital development in Nigeria from 1980-2012. The regression results show that expenditure on education and expenditure on health impacts human capital development positively. They recommended increase in public spending on Education and health expenditures to boost Human Capital Development in Nigeria. This study also didn't look at long run relationships and direction of causality. Aigbokhun, Imahe and Ailement (2007) studied the impact of education expenditure on human capital development in Nigeria and found that educational expenditure do not affect human capital formation positively. The work centred on only university education excluding other levels of education. This findings are contradictory to earlier findings of Innocent et.al (2007); Samuel and Ngozi (2019); Waltyer (2010); Adamu (2012); Abiodun and Ebiefe (2013); Oluwatobi and Ogunrinola (2011); Kairoet al. (2017); Ogonna, Okafor and Okeke (2017) who found a positive relationship.

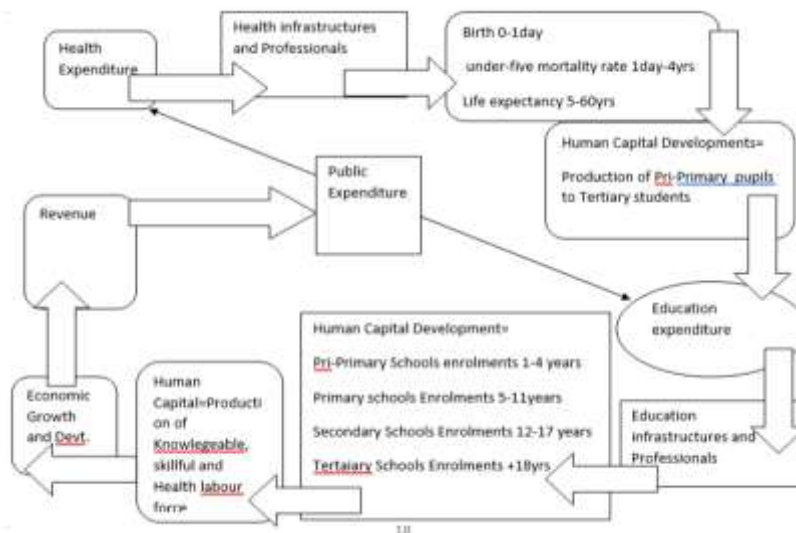
Waltyer (2010) studied the relationship between the growth of public expenditure and human capital development in Enugu State (1991-2007) using (OLS) multiple regression model and found a positive but insignificant relationship between Enugu state's expenditure (on education and health) and human capital development. The insignificant results from decay infrastructures and increasing cases of diseases (example, malaria) majorly. Adamu (2012) analyzed the impact of public expenditure on human capital development in Kano State for twenty years using (OLS) multiple regression model and descriptive analysis. His findings were that public expenditure impacts HCD in Kano State positively but insignificantly. He also found out that there was insufficient funding and inappropriate expenditure in education services the result of which is shortage of modern manpower among indigenes of the state. In an earlier study, Admau (2006) investigated manpower development strategies and development planning in Nigeria using descriptive statistics found that Human capital investment is an indispensable component of the development process-it is a force that can

help in tackling inequalities and poverty in Nigeria. Both Adamu (2012) and Waltyer's (2010) studies do not explore long run relationships.

Results of studies on government expenditure and human capital development internationally and locally have found and reported conflicting evidences as already seen under this section. for emphasis While Aigbokhan (2005), Aigbokhun, Imahe and Ailement (2007) found a negative relationship between public expenditure and human capital development; the findings of Innocent et.al (2007); Samuel and Ngozi (2019); Waltyer 2010); Adamu (2012) ; Abiodun and Ebiefe (2013), Oluwatobi and Ogunrinola (2011); Kairo *et al.* (2017), Ogbonna, Okafor and Okeke (2017 fund a positive relationship between public expenditure and Human capital development even though some of them are significant and some are insignificant. More over most of the studies do not examine the long run relationship between between public expenditures and Human capital development.

Methodology

Figure 1: Relationship between Education and Health Expenditure and Human Capital Development



Source: Authors, 2021

From figure 1 above, it is clear that health expenditure produces health infrastructures and professionals that brings about healthy births, high life expectancy and zero or low under-five mortality. Health expenditure produces healthy children for enrolment into pre-primary and primary

Expenditure, LER=Life Expectancy Rate, U5MR=Under Five Mortality Rate, NHPE=Number of Health Professionals Employed, NHF=Number of Health Facilities.

The econometric forms of the above models are as follows:

$$PSE_t = \gamma_1 + \gamma_2 GEE_t + \gamma_3 GHEX_t + \gamma_4 LER_t + \gamma_5 U5MR_t + \gamma_6 NHPE_t + \gamma_7 NHF_t + \varepsilon_{1t} \quad (3.6)$$

$$SSE_t = \phi_1 + \phi_2 GEE_t + \phi_3 GHEX_t + \phi_4 LER_t + \phi_5 U5MR_t + \phi_6 NHPE_t + \phi_7 NHF_t + \varepsilon_{2t} \quad (3.7)$$

Where: PSE = Primary School Enrollment (proxy for human capital development), SSE= Secondary School Enrollment (proxy for human capital development), GEE=Government Education Expenditure, GHEX=Government Health Spending, LER=Life Expectancy Rate, U5MR =Under Five Mortality Rate, NHPE=Number of Health Professionals Employed (NHPE), NHF=Number of Health Facilities, γ_1 - γ_7 and ϕ_1 - ϕ_7 = Estimated Parameters, ε_1 and ε_2 = Error Terms, t=Time Trend

Technique of Data Analysis

The study conducts unit root test to check the stationarity state of the variables using Augmented Dickey-Fuller Test (ADF) method. The essence of the unit root test is to know at which stage the variables under study are stationary so as to apply the appropriate estimation technique for the analysis of data.

Co-integration Test: After the unit root test, the study conducts cointegration test using Bound testing approach based on the fact that result of the unit root test revealed that the variables are integrated of order zero and one that is I(0) and I(1).

Autoregressive Distribution lag (ARDL) Model

Based on the outcome of the unit root test, the study employed Autoregressive Distribution lag (ARDL) model as formulated by Pesaran and Shin (1997). This econometric technique is used to estimate the long term association among the variables even though they are integrated at different order.

Variables and their Measurement

Dependent Variable

- i. Primary School Enrolment (PSE)
- ii. Secondary School Enrolment (SSE):-(For Robustness and sensitivity Analysis)

Independent Variables

- i. Government Expenditure in Education (GEE): This is total amount of government expenditure in education expressed in billions of naira. The Apriori expectation is expected to be positive because it is expected that if government expenditure in education increases, human capital development will also increase
- ii. Government Expenditure in Health (GHEX): This is total amount of government expenditure in health expressed in billions of naira. The Apriori expectation is expected to be negative because it is expected that if government expenditure in health increases, human capital development will also increase as diseases reduce.
- iii. Number of Health Care Institutions Built (NHB): The higher the NHB, the higher the health stock accumulated by workers as a result of access to health facilities. The Apriori expectation is expected to be positive because it is expected that if the NHB increases, human capital development will also increase as diseases reduce.
- iv. Number of Health Professionals Employed (NHPE) : The higher the NHPE, the higher the health stock accumulated by workers as a result of access to professionals. The Apriori expectation is expected to be positive because it is expected that if the NHPE increases, human capital development will also increase as diseases reduce due to increase in healthcare services.
- v. Under Five Mortality Rate (U5MR): This is the tendency of a child born in a particular period dying before reaching the age of five years of age expressed per 1000 live births in a country. Life Expectancy Rate was used by the study to measure health outcomes and it is in line with work of Kiross, Hamzat, Ebeh and Ali (2019), Raeesi, Harati, Rezapour and Javan (2018) among others
- vi. Life Expectancy Rate (LER): This is the average life a person is expected to live in a country. Life Expectancy Rate was used by the study to measure health outcomes and it is in line with work of Raeesi, Harati, Rezapour and Javan (2018), Rezapour, Mousavi, Lotfi, Movahed and Alipour (2019) and among others.

Nature and Sources of Data

The study basically used annual time series data which were obtained from Kaduna State Planning and Budget Commission, Kaduna State's Development plans, SPARC Reports, Integrated Disease Surveillance and Response (IDSR) forms, Maternal Newborn and Child Health Programme (MNCH2) , Kaduna State Ministries of Education and Health, Kaduna State approved budgets on Kaduna State Government website, Kaduna State Bureau of Statistics, Kaduna State Government

Annual budgets (2004–2010), Kaduna State’s Annual School Census, Kaduna State Reports of the Auditor General and Kaduna State Report of the Accountant general (2010).

Results and Discussions

i. Unit Root Test

Table 1: Summary of Unit Root Test (Augmented Dickey-Fuller Test) at Trend and Intercept

Variables	Test Statistics at Level	5% Critical Value at Level	P Value at Level (5%)	Test Statistics at First Difference	5% Critical Value at First Difference	P Value at First Difference (5%)	Order of Integration
Log(SSE)	-1.291103	-3.574244	0.8701	-5.277614	-3.580623	0.0011	I(1)
Log(GEE)	2.349972	-3.587527	1.0000	-8.715886	-3.580623	0.0000	I(1)
Log(GHEX)	-1.014366	-3.580623	0.9257	-11.12774	-3.580623	0.0000	I(1)
Log(LER)	-3.751514	-3.574244	0.0345	-6.231007	-3.587527	0.0001	I(0)
Log(U5MR)	-1.780513	-3.574244	0.6880	-6.206479	-3.580623	0.0001	I(1)
Log(NHPE)	-1.795366	-3.574244	0.6809	-4.649275	-3.580623	0.0047	I(1)
Log(NHF)	-1.873715	-3.574244	0.6421	-5.248235	-3.580623	0.0011	I(1)

Source: Authors’ Computation (2021) using Eview 9

Where: log=Natural Logarithms, SSE= Secondary School Enrollment, GEE=Government Education Expenditure, GHEX=Government Health Expenditure, LER=Life Expectancy Rate, U5MR =Under Five Mortality Rate, NHPE=Number of Health Professionals Employed, NHF=Number of Health Facilities

The result of the unit root test presented in Tables 4.1 above showed that Primary School Enrollment (PSE), Government Education Expenditure (GEE), Government Health Expenditure (GHEX), Under Five Mortality Rate (U5MR), Number of Health Professionals Employed (NHPE) and Number of Health Facilities (NHF) are stationary at first difference using 5 percent level of significance, while Life Expectancy Rate (LER) is stationary at level using 5 percent level of significance. Therefore, the variables under study are integrated of order one and zero that is I (1) I(0). After the Unit Root test, the next section presents the result of the ARDL Bounds test to Cointegration

ii. ARDL Bounds Test to Cointegration

The result of the ARDL Bounds test to Cointegration is presented in Table 4.2 below. From the result, the F- statistic value of 8.453190 is higher than

both the lower and upper bound critical values at 5 percent level of significance. Based on the result, the study concludes that there is long run co integration among the variables such as Primary School Enrollment, Government Education Expenditure, Government Health Expenditure, Under Five Mortality Rate, Number of Health Professionals Employed, Number of Health Facilities and Life Expectancy Rate in Kaduna State over the period under study

Table 2: ARDL Bounds Test

Computed F-Statistic	K	5% critical Bound Test value	
		Lower Bound	Upper Bound
8.453190	6	2.45	3.61

Source: Authors' Computation (2021) using Eviews 9.

iii. ARDL Long-Run Estimate

Considering that the variables under study are of mixed order of integration as shown by the unit root test in Table 4.1, the researcher employed the Autoregressive Distribution lag (ARDL) model for the analysis of the data. This method was employed because it is suitable for variables that are either I(0) and I(1) or both. The ARDL long run estimate is presented in Table 3 below

Table 3 ARDL Long Run Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GEE)	0.089908	0.035785	2.512440	0.0332
LOG(GHEX)	0.060811	0.050846	1.195983	0.2623
LOG(LER)	-0.043204	0.015951	-2.708515	0.0397
LOG(U5MR)	-0.035464	0.047692	-0.743614	0.4761
LOG(NHPE)	-1.582965	1.302821	-1.215028	0.2553
LOG(NHF)	0.452428	0.205110	2.205782	0.0475
C	63.782442	30.514821	2.090212	0.0662

Source: Authors' Computation (2021) using Eview 9.

Where: log= Logarithms PSE = Primary School Enrollment, GEE=Government Education Expenditure, GHEX=Government Health Expenditure, LER=Life Expectancy Rate, U5MR =Under Five Mortality Rate, NHPE=Number of Health Professionals Employed, NHF=Number of Health Facilities

The long run ARDL estimate in the above Table 3 showed that Government Education Expenditure (GEE) and Number of Health Facilities (NHF) have significant positive impact on Primary School Enrollment (proxy for Human Capital Development) at 5 percent level of significance. While Government Health Expenditure (GHE) showed insignificant positive impact on Primary School Enrollment (proxy for Human Capital Development) at 5 percent level of significance. However, Life Expectancy Rate (LER) showed significant negative impact on Primary School Enrollment (proxy for Human Capital Development) at 5 percent level of significance. While Under Five Mortality Rate (U5MR) and Number of Health Professionals Employed (NHPE) showed insignificant negative impact on Primary School Enrollment (proxy for Human Capital Development) at 5 percent level of significance.

To be precise, a unit change in Government Education Expenditure and Number of Health Facilities will bring about 0.089908 percent and 0.452428 percent significant increase in Primary School Enrollment respectively.

In terms of apriori expectation of the study, the coefficients of the variables are expected to have positive signs except for Under Five Mortality Rate which is expected to have a negative sign. From the above result, the variables showed the expected signs except for Life Expectancy Rate and Number of Health Professionals Employed which showed negative signs.

iv. Dynamic Short-Run Estimate

To estimate the model, the study chooses automatic lag selection using Akaike Information Criteria, and the software chooses ARDL (2, 2, 1, 2, 0, 0, 2). Table 4 below presents the result of the ARDL short-run estimate.

Table 4: ARDL Short Run Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(PSE(-1))	1.171984	0.283470	4.134422	0.0025
DLOG(GEE)	0.014025	0.005006	2.801422	0.0335
DLOG(GEE(-1))	-0.011295	0.009348	-1.208268	0.2577
DLOG(GHEX)	0.020675	0.009181	2.251965	0.0497
DLOG(LER)	-0.332366	0.596367	-0.557318	0.5909
DLOG(LER(-1))	1.086009	0.421829	2.574522	0.0300
DLOG(U5MR)	-0.011387	0.015323	-0.743129	0.4764
DLOG(NHPE)	-0.508262	0.240500	-2.113360	0.0497
DLOG(NHF)	-0.146831	0.108755	-1.350114	0.2100
DLOG(NHF(-1))	-0.227299	0.113920	-1.995248	0.0771
ECT(-1)	-0.321082	0.141075	-2.275968	0.0489

R-Square=0.91, Adjusted R-Square=0.89, F-Stat=145.8341, Prob F Stat(0.000)

Source: Authors' Computation (2021) using Eview 9.

Where: D= Difference, log=Logarithms, PSE =Primary School Enrollment, GEE=Government Education Expenditure, GHEX=Government Health Expenditure, LER=Life Expectancy Rate, U5MR =Under Five Mortality Rate, NHPE=Number of Health Professionals Employed, NHF=Number of Health Facilities

The short run coefficients in Table 4 above revealed that the coefficient of Primary School Enrollment (proxy for Human Capital Development) at lag 1 is positive and significant at 5 percent level. This implied that Primary School Enrollment (PSE) at lag 1 significantly influenced Primary School Enrollment. The result also revealed that Government Education Expenditure (GEE) and Government Health Expenditure(GHEX) have significant positive impact on Primary School Enrollment at 5 percent level of significance. However, Number of Health Professionals Employed (NHPE) showed significant negative impact on Primary School Enrollment (PSE) at 5 percent level of significance. While Life Expectancy Rate (LER), Under Five Mortality Rate (U5MR) and Number of Health Facilities (NHF) showed insignificant negative impact on Primary School Enrollment (PSE) at 5 percent level of significance.

In addition, the coefficient of the Error Correction Term (ECT) is negative (-0.321082) and significant with a probability value of 0.0489. This further confirmed the existence of the long run relationship among the variables such as: Primary School Enrollment, Government Education Expenditure, Government Health Spending, Under Five Mortality Rate, Number of Health Professionals Employed, Number of Health Facilities and Life Expectancy Rate. The coefficient of the Error Correction Term explains that about 32 percent of the disequilibrium in the long run will be adjusted annually.

In terms of apriori expectation of the study, the coefficients of the variables are expected to have positive signs except Under Five Mortality Rate which is expected to have a negative. From the above results, the variables showed the expected signs except for Number of Health Professionals Employed, Life Expectancy Rate and Number of Health Facilities which showed negative signs.

Furthermore, the result also revealed that the model is well fitted because it has an R-square value of 0.91. It showed that about 91% of Primary School Enrollment (Human Capital Development) is explained by Government Education Expenditure, Government Health Spending, Under Five Mortality Rate, Number of Health Professionals Employed, Number of Health Facilities and Life Expectancy Rate while the remaining 11% is being

captured by other variables that are outside the model. The F statistic value is also significant with a very low p-value of 0.000 which is less than 5 percent. This implied that Government Education Expenditure, Government Health Spending, Under Five Mortality Rate, Number of Health Professionals Employed, Number of Health Facilities and Life Expectancy Rate jointly explained Primary School Enrollment (proxy for Human Capital Development)

v. Diagnostic Test

Diagnostic test of the model was carried out and the result is presented in Table 5 below. From the result, the probability value of the Jarque Bera statistic is more than 5 percent which means that the residual of the model is normally distributed. Similarly, the Breusch-Godfrey Serial Correlation LM test and Breusch-Pagan-Godfrey heteroscedasticity test also revealed that the model does not suffer from serial correlation and heteroscedastic problem because their observed R squares probability values are more than 5 percent. The diagnostic test suggests that the data fit the model

Table 5: Diagnostic Check

Test	Statistics	P-value
Jarque-Bera	0.553743	0.758152
Breusch-Godfrey Serial Correlation LM Test	Obs*R-squared) 3.168767	0.1112
Breusch-Pagan-Godfrey heteroscedasticity	(Obs*R-squared) 18.45458	0.2980

Source: Authors' Computation (2021) using Eview 9

The study used Primary School Enrollment to measure Human Capital Development in Kaduna State. Before the estimation of the models, the study carried out unit root test so as to ascertain the stationarity state of variables using ADF unit root test method. The result of the unit root test revealed that the variables are integrated of order one and zero. While the ARDL Bounds test to cointegration revealed that the variables have long run relationship over the period under study. The result of the ARDL long run estimates revealed that Government Education Expenditure and Number of Health Facilities have significant positive impact on Primary School Enrollment at 5 percent level of significance while Government Health Spending showed insignificant positive impact on Primary School Enrollment at 5 percent level of significance which is in line with the apriori expectation of the study and consistent with the study of Kairo et al. (2017) on the relationship between human capital development and government expenditure in Nigeria,

Furthermore, the result of the ARDL short run estimates revealed that the coefficient of Primary School Enrollment at lag 1 significantly influenced Primary School Enrolment. The result also revealed that Government Education Expenditure and Government Health Spending have significant positive impact on Primary School Enrollment at 5 percent level of significance which is in line with the apriori expectation. However, Number of Health Professionals Employed showed significant negative impact on Primary School Enrollment at 5 percent level of significance. While Life Expectancy Rate, Under Five Mortality Rate and Number of Health Facilities showed insignificant negative impact on Primary School Enrollment at 5 percent level of significance which is contrary with the apriori expectation of the study.

GEE Expenditure impacts human capital Development positively and significantly in both the short run and long. This is because GEE has been growing over the years and has also been used in providing and maintaining educational infrastructures and professionals. For instance, the State has achieved the UNESCO recommendation of 26% of total Budget to education in 2020 budget and forward. The rise in education expenditure was necessitated by rise in population which gave raise to increasing need for more schools, education infrastructures and professionals. The table below provides few evidences to support why GEE is significant in building human capital.

Table 6: Education sectors projects

EDUCATION SECTOR			
S/ N	Projects	Total	Year or period
	Construction Of 4-Vip Toilet in the three senatorial zones	37	2019
	Construction Of Hand Pump Borehole in the three senatorial zones	37	2019
	Two-Seater Pupils And Teachers Furniture in the three senatorial zones	37	2019
	Construction Of 4-Vip Toilet in the three senatorial zones	37	2019
	Construction of 62 new Secondary Schools' classrooms in the three senatorial zones	62	2015-2020
	Construction of 6 new Science Secondary Schools' in the three senatorial zones	6	2015-2020
	Establishment of 230 basic Literacy Centres in the three senatorial zones	230	2015-2017
	Establishment of 115 Post Literacy Centres in the three senatorial zones	115	2015-2017

	Establishment of 23 vocational Centres in the three senatorial zones	23	2015-2017
	Recruitment of qualified primary and secondary school teachers	36840	2015-2021
	Training of 35528 school heads and teachers on leadership, reading , sounds, literacy and numeracy.	35528	2017
	Award 797 projects	797	2015-2017
	Supplied 186182 pieces of furniture to 775 schools in the three senatorial zones	186182	2017
	Supplied 421098 school uniforms to students in the three senatorial zones	421098	2017
	Renovated 379 Primary Schools and 42 Secondary Schools in the three senatorial zones	421	2017
	Awarded scholarships to 11869 students	11869	2015-2018

Source: Data compiled from Budget Presentations Speeches 2015-2021, COs Mid-Term Reports 2015-2020, MDGs and SDGs Reports 2000-2020

The Government Health Expenditure (GHEX) has also been raising over the years under study. The state has been allocating 15% of its total budgets to Health which is the WHO recommendation or standard share of a total budget. Health expenditure is significant in the short-run because the sector spends money in providing health infrastructure and professionals such as building PHCs, building hospitals, recruitment and payment of salaries, maintenance of the health facilities et cetera. GHEX is insignificant in the long-run because of funds mismanagement, corruption, inadequate professionals and infrastructures. The evidence of its being significant are presented in the table below.

Table 6: Health sectors projects

HEALTH SECTOR			
S/N	Projects	Total	Year or period
	Construction Of 8-Bed Health Clinic in the three senatorial zones	20	2019
	Procurement Of Equipment For 8-Bed Health Clinic in the three senatorial zones	20	2019
	Construction of 4-Vip Toilet in the three senatorial zones	28	2019
	Construction of Hand Pump Borehole in the three senatorial zones	20	2019
	Upgrade/construction of health Centre in the three senatorial zones	46	2014-2017

	Upgrade and repairs of health clinics in the three senatorial zones	255	2015-2019
	Completion of primary health care facility in the three senatorial zones	1	2014
	Awarded 311 projects in Ministry of health in the three senatorial zones	311	2015-2-17
	Construction of Solar Powered Borehole in the three senatorial zones	29	2014
	Construction of Perimeter Wall Fence in zone one	22	2014
	Construction of Toilet Facilities in zone one, two and three	12	2014
	Procurement of Hospital Equipment in zone one, two and three	29	2014
	Construction of 1 No. Bedroom Semi Detached in zone one	5	2014
	Repairs and Renovation of Health Centres in zone one, two and three	2	2014
	Repairs and Extension of Labour and Mini Theatre in zone one	2	2014
	Renovation of uncompleted labour Ward in zone one	1	2014
	Rehabilitation and equipping of 255 PHCs and 60 Private facilities for immunization in the three senatorial Zones	315	2014
	Comprehensive upgrade of 255 PHCs with Maternal & Anti Natal Care equipment in the three senatorial zones	255s	2014
	Rehabilitation and equipping of 255 PHCs and the 23 General hospitals.	278	2014
	Expansion, Creation and construction of College of Nursing Kafanchan, Pambegua and Tudun wada in zone one and two.	3	2014
	Recruitment of 1435 health professionals	2680	2014-2017

Source: Data compiled from Budget Presentations Speeches 2015-2021, COs Mid-Term Reports 2015-2020, MDGs and SDGs Reports 2000-2020.

The results of this study partly supported the findings of State specific studies such as those of Waltyer (2010), and Adamu (2012) who found a positive relationship between public expenditure and Human Capital Development in Enugu and Kano States respectively despite the differences in theoretical framework, variables used and methodologies adopted. Apart from examining the relationship between education spending and HCD as Adamu Studies also did, Waltyer's study investigated the relationship between health expenditure and HCD in Enugu State. She found a negative

insignificant relationship between Health expenditure and HCD in Enugu state, this study found a positive and insignificant relationship between Health expenditure and HCD. Meaning that as expenditure increases human capital development also increases but at an insignificant or negligible rate. All of the three State specific studies used OLS technique and thus couldn't investigate the Long run relationship between Public expenditure and Human Capital Development in Kaduna State

Another notable thing about the findings of this work is that they validated the findings of other scholars in terms of the relationship between public expenditure and Human Capital Development in counties analysis and state specific analysis. It validates the works of Aigbokhun (2007); Abiodun and Ebiefe (2013); Innocent et.al (2017), Adewumi and Enebe (2019); Kairo (2017); Samuel and Ngozi (2019); Adamu (2012) and Waltyer (2010) which despite variation in context, methodology, and Technique of analysis still revealed a positive and significant relationship between Education expenditure and HCD

Conclusion and Recommendations

The study investigates the impact of Kaduna State Government expenditures on education and health sectors and how these impact on human capital development in State over the period 1990 to 2019. Based on the results, the study concludes that government expenditures on education and health in Kaduna State contributes significantly to the growth of human capital development in the State over the years. This implies that public expenditures increase and cause growth in human capital development in Kaduna State. Since there is a positive relationship between public expenditure and human capital development, the state government should increase budgetary allocations and releases in both education and health sectors to ensure continuous boost of human capital development in the State. Government health spending showed insignificant positive impact on human capital development. This implies that there is need for government to increase its spending in the health sector. The under-five mortality rate had insignificant impact on human capital development in both the short and long runs. Hence, this calls for more allocation of health spending to this area to reduce under-five mortalities in order to increase school enrolments and human capital development in the health sector. There is also need to increase the number of health facilities available in order to boost the health stock of workers in the State.

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