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Public-Private Partnership: Pathway to Educational Development in Nigeria

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ABSTRACT

This paper has provided evidence on the impact of public and private partnership on educational development in Nigeria, using OLS methodology in analysing the time series data from 1980-2020 best linear unbiased estimator (BLUE). The study found that government allocation to education in Nigeria fall below18% for past decades. However, this can be augmented by private sector contribution to education which is derived as the proportionate of total expenditure on education and this form the basis for modelling the impact of public and private partnership on educational development. It was found that the estimated value of R^2 (goodness of fit) of 0.98 or 98% shows that 98% systematic variation in Educational Productivity is caused by variation in total labour force, unemployment rate, inflation rate, public expenditure on education, private expenditure on education and gross fixed capital formation. The study concludes that public participation in financing education is not enough for effective funding of education but private sector can also argument the expenses in order to produce skilful and economic active labour force. Recommendation was made that there is need to increase budgetary allocation to the educational sector and also create an enabling environment for development of private sector which will improve educational productivity either by funding it or by employment.

Keywords: Education, Development, Nigeria, Partnership, Public-Private

INTRODUCTION

There is a new awakening now in the global community too give quality education to the youth. It requires the combined effort of the government and community especially in the management of schools. It is also being increasing realized that bureaucracy due to over-centralization can be shifting to the development of schools and therefore there is a need to free them in some aspects of management so that they can use their initiatives to deal with their peculiar challenges. Though the idea of community participation in establishing and managing school is not alien to the world in general and Nigeria in particular as western education originated as a private venture (from the Christian mission) the recent development is taking it to a partnership level in various forms, hence the charter or other countries. However, this is not confirmed to the education sector but extended to virtually all sectors of the economy including transport roads, electricity, communication etc. going by south African's experience. The idea is to make available more infrastructures for the populace through private participation since government cannot do it all alone (cited by Colton K, 2007).

Investment in education leads to the accumulation of human capital which is the key to economic growth and increased incomes. It produces knowledge, skills, values and attitudes. It is essential for civic order and citizenship and for the reduction of poverty (World Bank, 1995). Education therefore is both a private and social investment that is shared by individuals, students, their families, employers, government and other groups including international agencies. In order words, the higher the level of education, the higher the productivity. This implies that investment in education increases the production capability of individual citizens and subsequently increase the Gross Domestic Product (GDP). Nigeria is not an exemption in terms of the problems and imbalances that were rooted in the economic and thus the educational system. The observed waste in public enterprise might have therefore called for policy reforms since the late 1980s in Nigeria. In the 1980s the hydra-headed structural Adjustment Programme (SAP) was offered to Nigeria and indeed other African countries as a programme of economic recovery. The necessary adjustment or reforms which involves "downsizing" liberalization of trade, "Marketisation" (commercialization), privatization and reduction of social spending and the usual ingredients of neo-liberalization capitalism (Adedipe N.O, 2010).

In recent times more private participation in virtually all sectors of the Nigerian economy is being embraced. This is in line with the global trend of public-private partnership (PPP) in financing public enterprises. The underlying assumption was that the public sector has been efficient and there was the need to give the private sector to power the economy private participation in the provision of educational service is also an offshoot of decentralized (or deregulation) of education. There is no doubt that there is increasing incidence of poverty at the household level in Nigeria. About 70% Nigerians is children/wards to schools. This is because only 30% of families can afford to live with US$1 or daily (Abiola, 2010). The world Bank uses references lives set at US$1 per day as Benchmark to measure extreme poverty line. Private universities in Nigeria are only able to enroll less than 150 students, instead of their quota of 500, per annum. In addition, the number of students per university is 6000. This is, however, over whelming skewed in favor of the federal and to a lesser degree states universities, where student's enrolment per university is over 20,000. Many research works have been emphasized on the public-private partnership towards educational development in Nigeria at different angles without looking at the impact of public private partnership and educational development. Therefore, this study is centered on the impact of public-private partnership and educational development in Nigeria. The main significance of the study of the topic "The Public-Private Partnership and Educational development in Nigeria" is to help in maximizing the potential for expanding equitable access to schooling and for improving education outcomes, especially for marginalized groups. This research work covers the entire usage of some macro-economic data such as educational productivity, public sector contribution to education, private sector contribution to education in the country. All macro-economic data are sourced from CBN statistical Bulletin, publication of National Bureau of statistics for various years taken from 1981-2020.

LITERATURE REVIEW

Conceptual Framework

Fafunwa (1974) believes that education is the sum total of all the process by which a child or young adult develops the abilities, attitudes and other forms of behavior which are of positive value to the society in which he lives. It is pertinent to realize that variation in definitions of

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what education is or ought to be is not a recent phenomenon, over two thousand years ago, Aristotle remarked "Mankind are by no means agreed about the things to be taught, whether we look to virtue or the bests of life. Neither is it clear whether education is more concerned with intellectual or moral virtue". In the opinion of Ezewu (1993) two major factors are responsible for the definitions of the concept of education. Education is often married to other concepts such as schooling, training and so on and some philosophers defines it in terms of these other related concepts.

Apart from being a discipline of study, education is also a transmission of the cultural heritage of the given societies. So as the culture varies or change from one society to the other so does the concepts change. Furthermore, according to George Hegel (1986) defined education as a progressive perfection of humanity from a simple, uncultivated, positive state of mind toil to the consciousness and exercise of its freedom. Akinpelu (1991) quoted by Amaele (2003) argued that for a process to be qualified as education it must involve the following; (i) A conscious effort to bring about a desirable change (ii) A change that is intentional deli defined education as a progressive perfection of humanity from a simple, uncultivated, positive state of mind toil to the consciousness and exercise of its freedom. Akinpelu (1991) quoted by Amaele (2003) argued that for a process to be qualified as education it must involve the following; (i) A conscious effort to bring about a desirable change (ii) A change that is intentional deliberate and purposeful (iii) Knowledge and understanding; and (iv) A method of transmission that is morally acceptable. Hence, however education is the process of the teaching and learning of the child. It is about imparting skills and the acquisition of knowledge for a particular trade or profession in which appropriate methods are applied (Kellerman, 1980). According to Enamiror, (2007) education is a systematic Procedure for the transfer and transformation of culture, through formal or informal training of people in a society.

Concept of Public-Private Partnership:

The term public-private Partnership (PPP) covering a wide range of process and structures; it is often hard to define. According to (Bray 1985, Naidoo, 2005) defined public-private partnership as a result of devotion of the centralized control of power and decision-making from government into private initiatives at state/provincial, local government and school levels. Public-private partnership (PPP) also involves making minimum requirements for private participation in the provision of education (Babalola and Adedeji, 2007). More so, Investopedia (2013) defined public-private partnership as a business relationship between a private sector company and a government agency for the purpose of competing a project that will serve the public. Public-private partnership means agreement between the government/statutory entity/government owned entity on one side and a private sector entity on the other, or the provision of public assets and/or public services, through investments being made and/or management being undertaken by the private sector entity for a specified period of time, where there is well defined allocation of risk between the private sector and the public entity and the private entity receives performance standard payments that conform (or are benchmarked) to specified and pre-determined performance standards, measureable by the public entity or its representative (CMA Ramesh Krishman, 2013).

Furthermore, the Canadian Council (2009) for public-private partnerships has also adopted the following definition to help clarify what is meant by this concept. A public-private partnership is defined as "a co-operative ventures between the public and private sectors, built on the

expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and reward". Hence, however public private partnership is the collaboration between the governments and the private sector in delivering of high quality, effective and efficient higher education services to the people (NISER 2004). The public-private partnership (PPP) initiative in tertiary education has been encouraging of recent. Apart from the Education Trust Fund (ETF) into which two percent of total profit of companies are paid, some individuals and corporate organizations have been contributing to education development through endowment and research grants, scholarship award to students in various disciplines and contribution towards building lecture halls, lecture theatre, hostels, water supply and even road construction and supply of vehicles to schools.

Moreover, thus public-private partnership is seen as a significant method of promoting developments (Agere 2000, P.68) and a tool for development (Paoletto 2000). ADBI studied several public-private partnerships in Asia and the Pacific and defines public-partnership as collaboration activities among invested groups and actors, based on a mutual recognition of respective strengths and weakness, working towards common agreed objectives developed through effective and timely communication (ADBI 2000, p.42). the world Bank definition of public-private partnership (PPP) is closely aligned to that of the ADBI. The World Bank (1999, p.4) defines public-private partnership in conjunction with the private, for profit and not for profit sectors, also referred to as the government, business and civic organization.

Forms of Public-Private Partnership in Education

Seven firms of public-private partnership (PPP) in education are now highlighted. Each of these types exhibit different characteristics in their design, different aims for the partnership as well as roles that are played by the respective public and private partners.

Adopt-a-School Programs:

The main feature of adopt-a-school programs is that the private sector partners provide cash and in-kind resources to complements government funding of public schools. The main aim of the programs is that quality, access, infrastructure and community participation are improved with the government schools. Two common features of such programs include the role of a facilitator between the school and the adopting body and a focus on adoption of the poorest government school. There are large examples of these programs in the Philippines and in the Sindh Province of Pakistan.

Private Sector Philanthropy:

The main feature of private sector philanthropic initiative is to increase the amount and effectiveness of corporate philanthropy to improve chances for poor children to gain access to a quality education. These initiatives range from the purely philanthropic to those that have a profit element although overching all of them is the aim to create sustainable models for education reform in the developing world through PPPS.

Capacity-Building Programs:

The main features of these capacity-building initiatives are that the private sector partners provide support to public schools across a range of areas such as curriculum and stative training, textbook provision, teacher training and quality assurance.

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Outsourcing of School Management:
School management initiatives involve the public sector authorities establishing contracts directly with private providers to operate public school or manage certain aspects of public-school operations. Although these schools are privately managed, they remain publicly owned and funded. A common feature of these details such aspects as the performance targets, accountabilities, timeline and arbitration procedures.

Government Purchasing Programs:
Government purchase initiatives involve contracts both in this case the government contracts with private schools to deliver education at public expense, often in the form of a subsidy per student enrolled in an accredited or eligible private school.

Voucher Programs:
Voucher and voucher-like initiatives also involve government funding students to attend private schools but in this case the transaction involves a voucher that is essential a certificate or entitlement for the parent to use to pay for the education of their children. This voucher can be used to purchase education in either public or private school.

School Infrastructure Partnership:
School infrastructure initiatives involves the design, financing, constructing and even operating of public-school infrastructure under long-term contracts by private sector parties in partnership with the government. Essentially, under these infrastructure PPPs, the government is learning a facility that has been financed, built and operated by the private operator while the government continues to retain its responsibility for the delivery of the core educational service provision.

Factors for Success in Public-Private Partnership (PPPs) in Education
Ultimately success for PPPs in education must be measured by the degree that the PPPS have improved teaching and learning, provided improved facilities and introduced improved means of management and enabled the wider community to participate in the process of education and training. Michael Latharn (2009) further reviewed some basic factors for success in PPPs in education, which are:

Needs:
it is important to ensure that a needs assessment is carried out that includes not just the partnership ‘s providers but also the partnership end users. Context of further, it is necessary for this assessment to place any PPPs within the concept of the overall National education sector plans and for all the partners to be clear about the transaction costs that will be incurred in maintaining their partnership.

Ownership:
Following on from the needs, it is essential to ensure that the end users are involved in the conception, planning and implementation stages of the endeavour. In addition, there needs to be an appropriate balance that can allow for the PPP to be directly accountable for its terms of accountability.

Impact:
Although it is difficult to ascribe effects of change in the education sector, it is important to establish impact assessments on the partnerships and again to use the end users in this process of gathering the requisite evidence of impact.

Accountability:
Unfortunately, regulation and accountability concerning partnership is still spares and weak. But this regulatory vacuum makes it even more imperative that measures are in place to ensure transparency regarding the management, financial structures, processes and results. A focus on outcomes is paramount and it is important from the outset to have and results regarding these outcomes among the stakeholders.

Adoptable Model of Public-Private Partnership (PPP)
BOT (Build-Operate-Transfer):
This model is normally suitable for PPP in new projects to develop non-moving basic infrastructure networks such as toll roads, electric power transmission and distribution lines, railroads, main airports and seaports etc. private investor/FDI, with or without equity partnership in a joint venture with state owned company may develop the infrastructure. The operation however is to be jointly performed with the licensed state company. After a number of years as specified in the BOT- contract ownership of assists is transferred to the state company. The joint venture company may then continue developing new projects so in effect it operates like a developer country.

BOT (Build-Transfer-Operate):
This model is suitable for upgrading or modernization of existing now moving basic infrastructure. The investors/FDI, with or without equity partnership in a joint-venture with state owned company, develop the project but after completing the construction ownership of new assets is transferred to the licensed state company and the system may be jointly operated for a specified/unspecified period of time.

BOO (Build-own-Operate):
This model is suitable for the development and operation of the rolling stocks utilizing the non-moving basic infrastructure such as trains (railway trains), Ocean shipping lines, IPPs (Independent Power Plants), etc. investments/FDI with or without equity partnership with state owned company, may develop, their own and operate the system with no obligation to transfer the assets to the state. With BOO model competition is stimulated and service quality improved.

MDBC (Modified Design-Build Contract):
In traditional design-build (DB) contract, private contractor is engaged for a fixed-free payment on competitions. The primary benefits of DB contracts include time and cost saving, efficient risk sharing and improved equality. Government may consider-Turkey DB approach with the payments linked to achievement of tangible intermediate construction milestones (instead of lump-sum payment on completion) and short period maintenance/repair responsibilities. Penalties/incentives for delays/early completion and performance guarantee (warranty) from private partner may be incorporated. Subsequently, as the market sentiment turns around

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these projects could be offered to private sector through operation-maintenance tolling concessions.

Performance Based Management/Maintenance Contractors: In an environment of constrained economic resources, PPP that improves efficiency will be all the more relevant. PPP models such as performance-based management/maintenance contracts are encouraged. Sectors enable for such models include water supply, sanitation, solid waste management road maintenance etc.

The Roles of Public-Private Partnerships on Education

Increasing the private sector's role in education may have several potential advantages over traditional public delivery of education. Whether their benefits are actually realized depends greatly on how well designed the partnership between the public and private sector is, on the regulatory framework of the country, and on the capacity of the government to oversee and enforce its contracts and partnerships with the private sector. When implemented correctly the private sector can increase efficiency and choice and expand access to education services, particularly for households that tend to be pool served by traditional delivery methods.

Currently, private for-profit schools across the world are serving a full range of communities-from elite families through middle-income families to the poor. Private public partnerships (PPPs) also allow government to take advantage of the specialized skills offered by certain private organizations and to overcome operating restrictions such as inflexible salary scales and work rules that may prevail in the public sector. The main rationale for developing public-private partnerships (PPPs) in education is to maximize the potential for example equitable access to schooling and for improving education outcomes especially for marginalized groups.

METHODOLOGY

Growth and development in the oil rich economies could be enhanced through the market contribution from educational sector. The contribution of education to National productivity is directly related to the investment in quality education which will enhance educational development. However, educational productivity is determined by the level of both public and private investment in education.

This study makes use cobb-Douglass production function as the theoretical basis of modeling the impact of public private partnership on educational development in Nigeria. Production function is a function that shows relation between the input and the output in economic growth. Only the abundance of labor is not enough, the accumulation of wealth and the improvement of technology is also very important. Hence, all of the factors that can affect the productivity of the sector should be considered (Boopen, 2006). Cobb-Douglas Production Function is a widely used function that can explain the entire factor above, and it has also been used in various studies in Nigeria.

In this study, a cobb-Douglas Production Function model is structured to estimate the impact of public private partnership on educational development in Nigeria as follow:

In this study, it is hypothesized that Educational development (proxy by educational productivity) depends not only on public investment on education both also with private sector

investment on education which has been impeded by high Unemployment rate, inflationary rate and enhanced by gross fixed capital formation, the level of skilled labour force in the country, Inflation rate is the anti-purchasing power that reduces the quality and quantity of investment made on education in Nigeria and also rendered the impact of government and private sector allocation insignificant.

Thus, the output equation to be estimated econometrically using time series data is presented below:

$$EP = F\ (GFCF, PEXPEDU, PRIEXPEDU, TLBF, UE \text{ and } INFRATE) \quad (1)$$

Model Specification

When the equation (1) above is linearize, we have the model specified as follow:

$$\text{In } EP = a_1 + a_2 \ln PEXPEDU + a_3 \ln PRIEXPEDU + a_4 \ln GFCF + a_5 \ln TLBF + a_6 \ln UE + a_7 \ln INFRATE + U_t \quad (2)$$

Where EP stands for Educational Productivity Proxy for educational development. The independent variables include: GFCF is the accumulated wealth proxy by Gross Fixed Capital formation in the economy in millions of naira per year; TLBF stands for Total labour force in numbers of working labour force in the Nigeria, PEXPEDU is the public expenditure on education which stands for government's total contribution to education, PRIEXPEDU is the private sector contribution to human capital development which stands for private expenditure on education , UE represent the unemployment rate in the country and INFRATE which stands for the inflation rate. Finally, U_t is the stochastic error term. ln refers to natural log of the respective variables.

Estimation Procedure

The method of Ordinary Least Squares (OLS) is used in the model parameter estimation. The parameter estimate obtained by OLS have some optimal properties like best, linear and unbiasedness (BLUE) and the method has been used in a wide range of economic relationships with fairly satisfactory results. In addition, OLS is an essential component of most other econometric techniques. A software package known as E-view-7.2 is used in running the regression. The 'a prior' expectation concerns the magnitude and signs of the parameter estimates, whether they are positively or negatively related to gross domestic products. This evaluation is guided by economic theory. The expected signs are: $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, and $\beta_4 > 0$.

This study makes use of different procedure to ensure that the results of the regression results are reliable. Durbin Watson *d* test and Breusch-Godfray tests are used to detect fitness of model. Durbin-Watson *d* test is simply the ratio of sum of the squared difference in successive residuals to the RSS. This test is used to find problem of autocorrelation in the model. To avoid some of the drawbacks of the Durbin Watson d test of the autocorrelation, Breusch and Godfray have constructed a test of autocorrelation that allows for: non stochastic regressors, such as the lagged values of the regressends; and higher order auto regressive schemes such as AR1, AR2. (Gujrati, 2004). Jarque-Bera test for the normality in residuals and White's test are used for heteroscedasticity.

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Coefficient of determination, R^2, shows the degree of variation in the dependent variable due to the variation in the explanatory variables. Adjusted R^2adjust for the degree of freedoms associated with the sum of squares. As the number of explanatory variables increases, adjusted R^2 increases less than unadjusted R^2. Adjusted R^2 can be negative. In this case when it is negative, it is considered zero.) (Gujrati, 2004).

Data Used and Sources

This study uses data between 1980 and 2020 to estimate the model.

- EP: Educational productivity at current basic price in million naira
- GCFC: Gross Fixed Capital formation in the economy in millions of naira
- PEXPEDU: Public expenditure on education in millions of naira
- PRIEXPEDU: Private expenditure on education in millions of naira
- UE: Unemployment rate per year t
- TLBF: Total labour force as numbers of working population force
- INFRATE: Inflation Rate in the country

All the time series data are sourced from CBN statistical bulletin 2020 with an exception of total labour source which is sourced from WDI 2020.

DATA ANALYSIS AND INTERPRETATION

Data Presentation

A time series data was used for this study which covers a period of thirty-three (41) years (1980-2020). The data collected were of Educational Productivity which is measured by educational sector contribution to GDP, Poverty Index, Gross Fixed Capital Formation (GFCF), Unemployment rate, inflation rate and total Labour Force, Data used in this study were obtained from Central Bank of Nigeria statistical Bulletin 2020, CBN Annual Report and statement of Account and Federal Office of Statistics, Data on Total Labour force and poverty index were obtained from World Development Indicator database of 2020

Analysis of Result and Discussions

Time series data was used for the analysis is E-view7.2. Windows econometric package was used to process the data obtained.

Empirical Analysis

Table 1: below presents the stationarity test of the time series data used in the empirical analysis.

Variables	ADF Statistical with Intercept	Probability	Order of Integration
EP	-7.585006	0.0000	I(1)
PEXPEDU	-4.43210	0.0020	I(1)
PRIEXPEDU	-2.26570	0.0200	I(1)
GFCF	-3.660109	0.0107	I(1)
TLBF	-5.613055	0.0001	I(0)
UE	-6.334452	0.0007	I(1)
INFRATE	-4.32432	0.00024	I(1)

*Stationary at 1 percent significant level

The empirical evidence from many literatures has shown that most of the time series data are not stationary, this research work makes of Augmented Dickey fuller Test due to short of fall of dickey fuller with problem of autocorrelation, with $\Delta Y_t = {}^{\beta}{}_1 + ZY_t + ai + et$ (Intercept Only). The null Hypothesis stated that the times series variable is not stationary or got unit root. The test in the above table reveals that the entire variables are stationary in their first difference with an exception of total labour force.

Table 2. OLS Estimated Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	310.7687	93.14485	3.336402	0.0026
GCFC	7.31E-05	4.26E-05	1.715520	0.0981
INFRATE	0.312483	0.523936	0.596416	0.5561
PEXPEDU	0.199136	0.065873	3.023047	0.0056
PRIEXPEDU	0.274462	0.426084	0.644150	0.5251
TLBF	7.42E-06	3.12E-06	2.378290	0.0250
UE	-7.011437	3.178224	-2.206087	0.0364
R-squared	0.989598	Mean dependent var		791.2942
Adjusted R-squared	0.987197	S.D. dependent var		392.3843
S.E. of regression	44.39762	Akaike info criterion		10.61008
Sum squared resid	51249.87	Schwarz criterion		10.92752
Log likelihood	-168.0663	Hannan-Quinn criter.		10.71689
F-statistic	412.2505	Durbin-Watson stat		0.965602
Prob(F-statistic)	0.000000			

The numbers in the table under the parameter estimate of the corresponding standard errors establishes that the degree of error terms is considerably minimized and hence the estimates are reliable. The parameter estimates comply with a priori expectations which explain that quality of education is grossly depended on the explanatory variables.

Considering the magnitude 1% increase in EP (proxy Educational Productivity) is brought about by 0.007% increase in (GFCF) gross fixed capital formation, 31.2% increase in Inflation rate, 19.9% increase in public expenditure on education, 27.4% increase in Private expenditure on education, 0.0007% increase in Total labour force and finally 701% decrease in Unemployment rate in the country. This postulates that an increase in public and private expenditure on education (investment in education) and other related variables will lead to astronomical increase in educational productivity proxy for educational development in Nigeria. The estimated value of R^2 (goodness of fit) of 0.98 or 98% shows that 98% systematic variation in Educational Productivity is caused by variation in total labour force, unemployment rate, inflation rate, public expenditure on education, private expenditure on education and gross fixed capital formation. This equally ascertains that apart from the parameters or outside the scope of this analysis accounts for about 2% variation in the Educational Productivity which

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is covered by the error terms (μ). The adjusted R^2 when the degree of freedom is considered with the number of explanatory variables also explain the 98% variation in Educational Productivity proxy by educational contribution to GDP. However, the analysis is statistically significant.

The overall significance of the entire model or the goodness of fit of the model as measured by the F-statistic shows that the F-statistic calculate (F^*) is greater than the F-statistic tabulated (F) at 5% level of significance, hence we accept the alternative hypothesis that variation in, total labour force, unemployment rate, inflation rate, gross fixed capital formation, public expenditure on education and private expenditure on education grossly affected Educational Productivity which is proxy for educational development in Nigeria and ultimately affect sustainable development in Nigeria. However, the analysis applies with econometrical criteria and shows that the model has overall significance and the coefficients are stable. Public expenditure on education [PEXPEDU] which is one of the important variables in the model shows a positive and significant relationship to Educational Productivity (EP). With probability value of 0.006, this result shows that probability is less than 0.05. Hence, it shows that public expenditure is a significant factor that affects positively the educational development in Nigeria and also increases the Economic growth. The result however is not surprising because from the A-prior expectation, it was clear that increment in [public investment in education] as human capital will enhance educational development in the country as well as the country's Economic growth.

Private expenditure on education [PRIEXPEDU] is also one of the important variables in the model. It also shows a positive and significant relationship to Educational Productivity (EP). It thus shows that Private expenditure is a significant factor that positively affects the educational development in Nigeria and also increases the Economic growth. From the A-prior expectation, it was clear that increment in [private investment in education] as human capital will enhance educational development in the country as well as the country's Economic growth. Gross Fixed Capital Formation (GFCF) which is also an important variable in the model, shows a positive relationship with Educational Productivity and is also very significant. From the result it shows that a 1 percent increase in gross fixed capital formation (GFCF) will lead to 0.007% rise in Educational Productivity which is referred to as an astronomical increase or rise in Educational Productivity as well as RGDP [Economic growth]. This explains that when the government starts investing in fixed capitals such as plants and machinery, Factory, land and its buildings, patients, copyrights, goodwill, computing and communication infrastructure that mostly include work station, servers, data storage, facilities, local area network, the internet, telephone fax etc. It would result in the existence of these things for long term needs. Gross fixed capital formation has shown a good and positive relationship with Educational Productivity and Economic growth in Nigeria which if invented in would help improve the real gross domestic products of Nigeria.

Labour force [TLBF] which is positively related to Educational Productivity is a significant factor that determines economic growth in Nigeria since $P<0.05$ it was significant at 5% level of significance. This implies that a 1percent rise or increase in labour force will surely lead to about 0.0007% increase in Educational Productivity as well as (Economic growth) in the Nigerian Economy which shows an astronomical rise. When the Nigerian government invests in the quality of labour force, unemployment rate will reduce, for example formal labour which

is a sort of employment that is structured and paid in a formal way, contributes greatly to the Nigerian Gross National Product which yields higher income and great benefits and securities for both men and women. From the result above it is shown that investment in the Nigerian labour force would improve the Educational Productivity and real gross domestic product (Economic growth) of the economy and would lead Nigeria into being a Developed Nation.

The F-statistic shows a value of approximately 412.3 which indicates that the overall model is significant with the probability value being P=0.00 which indicates a significance at 1 percent level. The Durbin-Watson statistics shows a value of approximately 0.97 which shows the presence of positive serial correlation. The Akaike information criterion and Schwarz criterion shows about 10.61 and 10.92 respectively which indicates that the model selection is good. The Hannah-Quinn criterion also shows about 10.72 consequently the conformity with the expected sign indicates that there is a direct relationship between each of the variables and Educational Productivity. For the Reliability of the result, white heteroskedacity-consistent standard errors & covariance with the HAC standard errors and covariance test were used simultaneously which gives the result pasted below:

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	310.7687	85.02641	3.654967	0.0011
GCFC	7.31E-05	4.06E-05	1.800230	0.0834
INFRATE	0.312483	0.388027	0.805314	0.4279
PEXPEDU	0.199136	0.054858	3.630051	0.0012
PRIEXPEDU	0.274462	0.410031	0.669369	0.5092
TLBF	7.42E-06	2.64E-06	2.813495	0.0092
UE	-7.011437	2.635124	-2.660762	0.0132

R-squared	0.989598	Mean dependent var	791.2942
Adjusted R-squared	0.987197	S.D. dependent var	392.3843
S.E. of regression	44.39762	Akaike info criterion	10.61008
Sum squared resid	51249.87	Schwarz criterion	10.92752
Log likelihood	-168.0663	Hannan-Quinn criter.	10.71689
F-statistic	412.2505	Durbin-Watson stat	0.965602
Prob(F-statistic)	0.000000		

HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	310.7687	104.1241	2.984600	0.0061
GCFC	7.31E-05	4.21E-05	1.737578	0.0941
INFRATE	0.312483	0.314798	0.992649	0.3300
PEXPEDU	0.199136	0.056740	3.509641	0.0017
PRIEXPEDU	0.274462	0.340349	0.806413	0.4273
TLBF	7.42E-06	3.21E-06	2.310080	0.0291

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UE	-7.011437	3.570796	-1.963550	0.0604

R-squared	0.989598	Mean dependent var	791.2942
Adjusted R-squared	0.987197	S.D. dependent var	392.3843
S.E. of regression	44.39762	Akaike info criterion	10.61008
Sum squared resid	51249.87	Schwarz criterion	10.92752
Log likelihood	-168.0663	Hannan-Quinn criter.	10.71689
F-statistic	412.2505	Durbin-Watson stat	0.965602
Prob(F-statistic)	0.000000		

From both results above, R^2 remains the same and also with other statistical method of evaluation. However, the model is reliable. This simply implies that the result is reliable for policy recommendation. The above regression result has the consistent problem of auto-correlation which is shown by durbin-watson autocorrelation evaluation method with the result 0.97 for all three ways of statistical evaluation that shows consistent problem of auto-correlation. However, the study makes use of different procedure to ensure that the results of the regression results are reliable. Durbin Watson *d* test had some draw because of it inconsistence. Breusch-Godfray tests are used to detect fitness of model. Durbin-Watson *d* test is simply the ratio of sum of the squared difference in successive residuals to the RSS. This test is used to find problem of autocorrelation in the model. To avoid some of the drawbacks of the Durbin Watson d test of the autocorrelation, Breusch and Godfray have constructed a test of autocorrelation that allows for: non stochastic regressors, such as the lagged values of the regressends; and higher order auto regressive schemes such as AR1, AR2. (Gujrati, 2004). The null hypothesis state that there is problem of auto-correlation while alternative hypothesis against it.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	4.929277	Prob. F (2,24)	0.0161
Obs*R-squared	9.608569	Prob. Chi-Square (2)	0.0082

Test Equation:
Dependent Variable: RESID
Pre-sample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-97.10806	89.70727	-1.082499	0.2898
GCFC	-2.59E-06	3.78E-05	-0.068563	0.9459
INFRATE	-0.344506	0.492029	-0.700173	0.4906
PEXPEDU	-0.017403	0.058260	-0.298716	0.7677
PRIEXPEDU	-0.078278	0.383598	-0.204061	0.8400
TLBF	2.76E-06	2.96E-06	0.933806	0.3597
UE	3.159898	2.971988	1.063227	0.2983
RESID (-1)	0.736602	0.287430	2.562715	0.0171
RESID (-2)	0.338988	0.343352	0.987288	0.3334

R-squared	0.291169	Mean dependent var	-3.53E-14

Adjusted R-squared	0.054892	S.D. dependent var	40.01948
S.E. of regression	38.90561	Akaike info criterion	10.38715
Sum squared resid	36327.51	Schwarz criterion	10.79529
Log likelihood	-162.3881	Hannan-Quinn criter.	10.52448
F-statistic	1.232319	Durbin-Watson stat	1.437391
Prob(F-statistic)	0.323252		

The result gives the probability values of Pro F (2 25) = 0.0161, and Prob chi-square (2)=0.0082 which is significant at %5 significant level and move against the Durbin Watson d test of presence of positive serial correlation. However, the Breusch and Godfray test shows absence of serial correlation. The wald test of significant impact of explanatory variable is presented below to show the single impact of Public expenditure on education (PEXPEDU) on educational development, the null hypothesis of the test indicates that PEXPEDU is equal to zero c (4) =0. While alternative hypothesis against it.

Wald Test:
Equation: Untitled

Test Statistic	Value	Df	Probability
t-statistic	3.023047	26	0.0056
F-statistic	9.138814	(1, 26)	0.0056
Chi-square	9.138814	1	0.0025

Null Hypothesis: C (4) =0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C (4)	0.199136	0.065873

Restrictions are linear in coefficients.

Since the t-stat, f-stat and chi-square statistics probability value are less than 0.05 or 5%. Therefore, we conclude that public expenditure on education has a singleton significant impact on educational development.

Implication of the Result

The Economic Implication of this result is that all the explanatory variables such, Gross Fixed capital formation (GFCF), Unemployment rate, Total labour force (TLBF) and Inflation rate total labour force, public expenditure on education and private expenditure on education grossly affect educational development in Nigeria. The result also implies that when the government does not employ in other to increase total labour force or show concern about gross fixed capital formation and labour force or invest heavily on education and also create enabling

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environment for growth of private sector both in education and other sector it would lead to an astronomical fall in the educational productivity of Nigeria which will discourage educational development. But if the governments formulates policy an inaugurate empowerment programs in other to reduce the level of unemployment rate and produce adequate infrastructural facilities which serve as a pull factors for both local and foreign investors another to boost private sector performance in the country that this will increase educational productivity and quality of the labour force by providing, enough classrooms, well equipped laboratories, and teachers that are well paid to motivate excellence in teaching, as well as educational policies, there will be improvement in educational development [EP].

SUMMARY, CONCLUSION AND RECOMMENDATIONS.

Summary of Findings

This paper has provided evidence on the impact of public and private partnership on educational development in Nigeria, using the best linear unbiased estimator (BLUE). The study found that government allocation to education in Nigeria fall below18% for past decades (CBN, 2020) which is quite low and fall below the recommendations of the United Nations. However, this can be augmented by private sector contribution to education which is derived as the proportionate of total expenditure on education and this form the basis of modelling the impact of public and private partnership on educational development. Nevertheless, it is found that the estimated value of R^2 (goodness of fit) of 0.98 or 98% shows that 98% systematic variation in Educational Productivity is caused by variation in total labour force, unemployment rate, inflation rate, public expenditure on education, private expenditure on education and gross fixed capital formation. The results of this research work are in line with Bakare (2006) who investigated the growth implications of human capital investment in Nigeria using vector autoregressive error corrections mechanism. He revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria and that 1% fall in human capital investment led to a 48.1% fall in the rate of growth in gross domestic output between 1970 and 2000. This ascertain the work of Beeker, Bowman and Harbison who all agree that increases in the value of aggregate output in relation to the increase in the existing factors of production is due to investment in human capital. The implication is that making investments in human beings as capital will in the long-run lead to improve production and a more rapid economic growth cited by (Adeagbo, 2010). Also, Babatunde and Adefabi (2005) investigated the long run relationship between education and economic growth in Nigeria between 1970 and 2003 through the application of Johansen cointegration technique and vector error correction methodology. Their findings revealed a long run relationship exist between education and economic growth in Nigeria. A well-educated labour force appears to significantly influence economic growth both as a factor in the production function and through total productivity.

Conclusion

Therefore, based on the findings we conclude that public participation in financing education is not enough for effective funding of education but private sector can also argument the expenses in order to produce skillful and economic active labour force. Both private and public expenditure on education has positive effect on educational productivity while unemployment has negative effect on the educational development. By implication, if Nigeria is to achieve sustainable economic growth rate, it is of utmost importance to improve the quality of

education and invest heavily in the sector in order to achieve full employment of all factors of production in the economy.

Recommendation

The study therefore recommends that there is need to increase budgetary allocation to the educational sector and also create an enabling environment for development of private sector that support the finance of education sector. Despite the amount allocated to education annually, unemployment is the leakages in the economy which made both public and private investment in education unprofitable since greater percentages of human capital invested on are grossly unemployed. Government should as a matter of priority implement the minimum United Nations recommendation of 26 percent budgetary allocation to education. The donor agencies like the World Bank, UNDP, UNESCO, etc. should also be encouraged to inject funds into the educational sector especially; the private sector should be encouraged to finance education. The government and the private sector must join hands in mobilizing resources to furnish primary, secondary and tertiary educational institutions and equip them with adequate facilities, libraries, laboratory equipment, computers and modern instructional materials in order to improve the quality of education and enhance human capital development, labour productivity and ensure sustainable growth and development.

The Nigerian educational system has been known to be exposed to large scale corruption, and gross inefficiencies. There is need to give more autonomy in financial management in public educational institutions. The autonomy will improve their financial situation by improving the efficiency and effectiveness of resource use and cutting costs.

Besides, public educational institutions should be encouraged to develop resource mobilization strategies, in order to generate revenue by themselves. For this purpose, educational foundations can be set up in order to mobilize financial support from private donations.

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