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Public Health Expenditure, Child Right Act and Child Health Outcomes: The Nigerian Experience

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Abstract
This study focused on the Child Rights Act and how relevant stakeholders, institutions and agencies have been able to guarantee the attainment of these rights through budgetary provisions. Therefore, the main objective of this study is to determine the effects of public healthcare expenditure on the attainment of these rights. To this end, the study employed the Grossman human capital development model and fitted a time series data obtained from World Development Indicators and CBN statistical bulletin using OLS and TSLS. In the process, we observed that public healthcare expenditure has been on the increase, while the under-five mortality rate has been falling but not in the same proportion. Secondly, we observed that public healthcare expenditure is statistically significant with under-five mortality rate but with an infinitesimal magnitude of 0.017% (OLS) and 0.035% (TSLS). Public education expenditure is positively but has no statistically significant relationship with primary school enrolment. It was discovered that the incidence of mortality is higher than the child school enrolment. The findings also show that location and accessibility to both health and education facilities are important in explaining under-five mortality and primary school enrolment respectively. We therefore suggest that more proportion of the public healthcare expenditure should be allotted to the welfare of the under-five, thereby fulfilling the Child Rights Act.
Keywords: Public health expenditure, child right Act, Child Health outcomes

1. Introduction

There are strong indications to believe that public expenditure, like every other developing nation, has been on the increase in Nigeria. Time series data obtained from Central Bank of Nigeria (CBN) Statistical Bulletin attest to the fact recurrent expenditure was N4,805.20m, N7,576.4m, N36219.60m, N461,600.0m and N2,961,850.0m in the year 1980, 1985, 1990, 2000 and 2010 respectively (CBN Statistical Bulletin, 2010). In the same vein, total expenditure which was N14,968.50 in the year 1980 increased to N60,268.20m in 1990 and also skyrocketed to N4,194,127.80 in the year 2010 (CBN Statistical bulletin,2010). This is in agreement with established theories and practices in public sector economics (Musgrave and Musgrave, 2006; Bhartia, 2004; Maku, 2009). For an inclusive development, the most important cost elements to the general public are those revolving around public social and economic infrastructure (education, health and security). In Nigeria, governments over the years, have been making drastic efforts at ensuring that there is increase in the level of public expenditure on health and toward that end the recurrent and capital expenditure on health increased by 39.6% between the period 1980 and 1985. The case was the same, between year 2005 and 2010 when recurrent expenditure on health also increased by 54.2% (CBN Statistical bulletin, 2010).

With the above scenario, it would seem that public healthcare expenditure in Nigeria has been on the increase over the years. However, the increase accounted for only 1% of the GDP (Alabi, Adams, Chime, Abu and Aigomududu, 2010). About 2% of government oil revenue was allocated to health sector between 1981 and 2006. The implication of these is that access to healthcare resources will be inhibited (Ehikioya & Mohammed, 2013). Attesting to this is the Nigerian Project Agenda (2007) which shows that accessibility to healthcare facilities revealed that only 3 out of 5 Nigerians have access to health care facilities.

In spite of the efforts made at increasing the public health expenditure, the outcomes have not been proportional to the health status of the citizenry. It is worrisome to note that trend in childhood education development and child healthcare delivery did not square up with the expenditure pattern. These two observations create tendencies that threaten the survival and development of the child and hence human capital development and by extension, right to participate. Child survival and development as a form of human capital development has received lots of attention both nationally and internationally on the believed that health is wealth since productive capacity will be enhanced (Lawanson 2009).

Globally, the issue of child survival and development is so important. This makes international organizations set standard for what should be obtainable in safeguarding and protecting the child welfare. The United Nations Convention on the Rights of the Child (UNCRC) otherwise known as the Geneva Declaration is to entrench in the member nation's development agenda the right of child to survive and develop among other rights. By 26th January, 1990 the convention was signed by sixty countries and a result ratified by twenty countries to become and internationally enforceable law. In the same vein, the Africa Union (AU) Head of State Summit in 1990 at Addis Ababa adopted a charter on the right and welfare of the African child. The rights of the child can also be implied by provision of International Development Target (ITD), and which formed the major

focus of Millennium Development Goals (MDG) whose purpose is to eradicate extreme poverty, reducing child and maternal mortality, combating disease, ensuring environmental sustainability and providing access to affordable medicines.

In Nigeria, the British colonial government in 1943 passed the children and young person Act which was a law to protect children, but related primarily to juvenile justice and this law was later revised and incorporated into Nigeria Federation Law (NFL) of 1958. The legal provision of this Law fell short of the CRC and African Charters on the Rights and Welfare of the Child (ACRWC), thus Nigeria signed the UNCRC and ACRWC in 1991 and 2001 respectively. In 1996, Nigeria submitted its first report on the implementation of the Convention of the Rights of the Child to the UN Committee on the Rights of the child. One of the recommendations made by the Committee was to finally ensure the domestication of the CRC, as this is necessary for its full implementation under Nigeria law. In 1993, the first bill on the Child Rights Act was presented but not passed into law but in September 2003, the National Assembly enacted the Child Right Act into law.

In spite of all the global efforts that have been put in place, there are no indications that the rights of the child have been respected as more and more children are becoming more vulnerable, especially in developing countries. The space for survival and development of the child has become narrower due to lots of abuses ranging from inadequate access to basic healthcare, education and nutrition on one hand and trafficking, abduction, and forced labour on the other hand. All of which has impeded the right to participate in the socio-economic landscape of the country. These problems served as the motivation for this study. Therefore, the main objective of this study is to determine the extent of attainment of conditions for the fulfillment of the provisions of the Child Rights Act in relations to public health expenditure in Nigeria. In achieving this main objective, the following specific objectives will be achieved.

i. to examine the trends and patterns of under-five mortality rate and public health expenditure before and after the enactment of CRA
ii. to determine how much of the reduction in under-five mortality rate can be explained by the increase in public health expenditure
iii. to determine the relationship between public education expenditure and primary school enrolment.

The rest of this study is organized into five sections. Section II is the review of existing relevant evidences: theories, conceptual framework and issues around the child Rights. Section IV, analyzed and discussed the results. In section V, presents conclusion, summary and recommendations

2. Review of Existing Evidences

A report of the World Health Organization (WHO) in 2012 on Nigeria puts the percentage share of public health expenditure on total government expenditure in 1995, 2000, 2005, and 2010 at 7.05%, 4.22%, 6.41% and 4.4% respectively. In spite of all these increases, much impact has not been made in the area of reduction of infants, under five and maternal mortalities since 1989 (Bakare and Sanmi, 2011). An assessment of the share of public health expenditure on the national budget revealed that the share of health is rather low and this is reflected in the child healthcare outcomes. For instance, the infant mortality rate (91, per 1000 live births) is among the highest in the world, and the immunization coverage has dropped below thirty percent while mortality rate for children under age five was 192 deaths per one thousand in the year 2007. In the same vein, Nigeria ranked 2nd after India among the countries where a third of the under-five death occurs (UN IGME Report 2013). Nigeria is facing an orphaning and child vulnerability crisis of potentially catastrophic proportions, occasioned by HIV. Although, prevalence in Nigeria is relatively low at 3.1%; and appears to be small, but because of its large population (140 million) the number of adults and children living with HIV is one of the highest in the world, at 2,800,000. Official figures estimate that there are 17.5 million Orphan and Vulnerable Children (OVC), including 7.3 million orphans; although practitioners in the field believe these figures could be underestimating the size and scope of the problem (Nigeria OVC Situation Analysis 2008). In general the health indicators such as mortality, morbidity, and expectancy rates, diseases burden statistics are at variance with huge health expenditures (Eneji, et al, 2013).

The provisions of the Child Rights Act (as contained in the convention on the Rights of the Child 1989) supersedes all other legislations that have a bearing on the Rights of the Child, having been enacted at the National level, the States are expected to formally adopt and adapt the Act for domestication as State laws. This is because issues of child rights protection are on the residual list of the Nigerian Constitution, giving states exclusive responsibility and jurisdiction to make laws relevant to their specific situations. Nigeria being a country with different and diverse set of people having different cultural values, norms and beliefs cum different laws serving as a guard to each of these class of people, enactment of this Act by the 36 state governments has been one of the challenges facing this Act. Even in states where this Act has been enacted, adequate strategies and policies are not in place for proper implementation of the Provisions of the Child Rights Act. As at 2007, UNICEF Nigeria Factsheet on Child Rights Act reported that the CRA has been promulgated into Law in 15

States in Nigeria: (Abia, Anambra, Bayelsa, Ebonyi, Ekiti, Imo, Jigawa, Kwara, Lagos, Nassarawa, Ogun, Ondo, Plateau, Rivers, and Taraba). Since the enactment of the Child Right Act, there has been relatively little in terms of improvement in the quality of living of the child and worse still, empirical research work on the rights of the Nigerian child in relations to public health expenditure and the best interest of the children has been scanty.

3. Research Methodology

3.1. Model Specification

Unlike Gupta et al (2002) and Rajkumar and Swaroop (2008) who used the same explanatory variables for both health and education outcomes, this study used different model and variable for child survival and development. It may be theoretically unsound to subscribe to the view that curved application of public expenditure is responsible for the observed child health outcome. To this end the model incorporates economic, social and environmental variables, (Fayissa and Gutema, 2008),

Survival Equation

$U_{5MR}= f (P_{HE}, I_{MM}, I_{DPT}, C_{LH}, U_{RP})$ - - - - - (i)

Development Equation

$P_{SE}= f (P_{EE}, U_{5MR}, Q_{LY}, A_{DR}\ P_{CY,}\ U_{RP})$ - - - - - (ii)

Where;

U_{5MR}= Under-five mortality rate

P_{SE}= Primary School Enrolment

P_{HE}= Public health expenditure

P_{EE}= Public education expenditure

I_{MM}= Immunization record on measles

I_{DPT}= Immunization record on DPT (diphtheria, pertussis and tetanus)

U_{RP}=Urban population proxy as accessibility to public health care service and primary school

A_{DR} = Age dependency ratio

P_{CY}= Per capita gross domestic product

C_{LH}= Children Living with HIV

Q_{LY}= Pupil-teachers ratio proxy as quality of primary school education

Equation (i) and (ii) is expressed in a form amenable to econometric testing:

$$U_{5MRt} = \beta_0+ \beta_1P_{HEt}+ \beta_2I_{MMt}+ \beta_3I_{DPTt}+ \beta_4U_{RPt}+ \beta_5C_{LHt}+ \mu_\beta \quad \text{(iii)}$$

$$P_{SEt}= \alpha_0 + \alpha_1P_{EEt} + \alpha_2U_{5MRt}+ \alpha_3Q_{LYt}+ \alpha_4A_{DRt}+ \alpha_5P_{CYt}+ \alpha_6U_{RPt}+\mu_\alpha \quad \text{(iv)}$$

Where β_1, β_2, β_3, β_4 and β_5 are parameters for child survival model and α_1, α_2, α_3, α_4, α_5 and α_6 are parameters for child development (education) model. μ_β and μ_α are error term of each model. β_0 and α_0 are intercept of each model. More so, because most of the variables in this study are in different sizes and to aid interpretation as well as to correct non stationarity of these variables at levels, and because the exact nature of the impact is not known, we express the models in logarithm form.

$$\log U_{5MRt} = \beta_0+ \beta_1\log P_{HEt}+ \beta_2\log I_{MMt} + \beta_3\log I_{DPTt} + \beta_4U_{RPt-1}+ \beta_5\log C_{LHt} + \mu_\beta \quad \text{(v)}$$

$$\log .P_{SEt}= \alpha_0 + \alpha_1\log P_{EEt} + \alpha_2\log U_{5MRt}+ \alpha_3\log Q_{LYt} + \alpha_4\log A_{DRt}+ \alpha_5\log P_{CYt} + \alpha_6U_{RPt-1} + \mu_\alpha \quad \text{(vi)}$$

Empirical viewpoint supports the existence of negative relationship between public health expenditure and under –five mortality rate. Scholars like Gupta et al (2002) find that government health expenditure is negatively correlated with childhood mortality but the relationship is not robust. Nixon and Ulmann (2006) show that health expenditure made significant contribution to improvements in infant mortality. In the midst of this, Deolalikar, (2005) was of the view that government expenditure on health does not play a major role in determining child mortality Theoretical viewpoint supports that, increase health inputs will lead to increase stock of health outcome (Grossman, 2000).

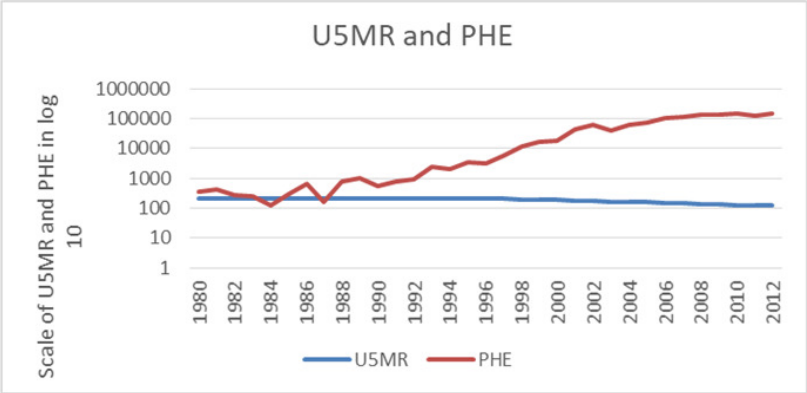
3.2. Data Source, Nature and Measurement

This study focused on the adequacy or otherwise, of public health expenditure on child health outcomes as tool for assessing achievement of the CRA. To this end times series data spanning 1989 - 2012 were obtained from the statistical bulletin of the National Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN) for demographic and financial variables respectively. For the purpose of comparative analysis, data were also obtained from the UNICEF and MDG reports and African Development Indicators. Macroeconomic time series data are stochastically trended, which is a problem that can be solved by differencing. In this connection a number of tests were conducted to verify the presence of unit roots in time series, using the Augmented Dickey Fuller (ADF) and Philip-Perron test for the all the variables. Due to the recursive nature of the models and owing to the fact that the problem of simultaneity could still arise in a recursive simultaneous equation model, two stage least square (2SLS) was used. The equations were also identified using ordered and rank conditions for identification. The instrumental variables for this study are the all the variables excluding under-five mortality rate.

4. Data Analysis, Presentation and Discussion

4.1. Trend Analysis

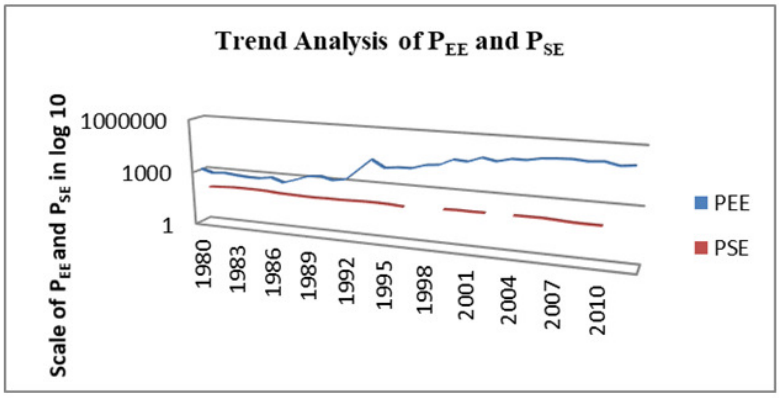
Figure 1: Chart plot of U_{5MR} and P_{HE}



Source: Authors analysis (2014).

From figure 1, it is evident that public health expenditure has been on the increase over the years. Subjecting the variables to the same scale made it possible to be able to see that P_{HE} has been trendy and U_{5MR} has relatively maintained a constant intercept. It could be seen that the two variables are inversely related, as P_{HE} is increasing U_{5MR} is reducing but not in the same proportion. It could also be said that, government financial commitment to the health of the child is overwhelming, but under-five mortality rate did not square up with the expenditure pattern.

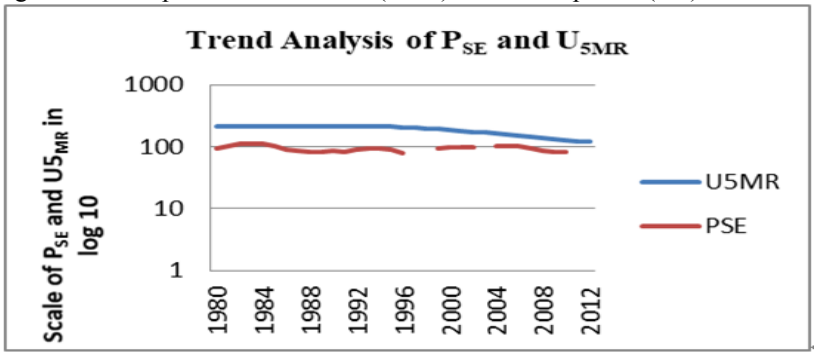
Figure 2: Chart plot of P_{EE} and P_{SE} in log 10 based scales (Authors analysis)



Source: Authors analysis (2014).

From figure 2 above, it is observed that there are some missing years for Primary school enrolment data. It could be seen that P_{SE} is basically on the log of 100 throughout the years under study. Therefore, it maintained stable and not sporadic changes over the years. But for public education expenditure, it maintained an increasing trend throughout the years. It is also far above P_{SE} all through the years. As it is known that development is an incremental and cumulative phenomenon, P_{EE} here, covers expenditure in all facets of formal education (primary, secondary and tertiary) and this could justify the wide gap between the lines of P_{EE} and P_{SE}.

Figure 3: Chart plot of Child health (U_{5MR}) and development (P_{SE}) outcome



Source: Authors analysis (2014).

Figure 3 above depicts the health and development outcome of the child. It is explicitly seen that the

mortality rate of the child is higher than the enrolment rate. This can be implying to mean that the child is being faced with lots of health challenges that tend to undermine his/her chance of enrolment for formal education.

4.2. Unit Root Tests

Table 1: Augmented Dickey Fuller and Philip Perron Test Results

Variables	t-Statistics	Probability value	Order of Integration	Significance
$\log U_{5MRt}$	-4.734964	0.0035	I(0)	*
$\log P_{Set}$	-2.412036	0.0185	I(1)	**
$\log P_{EEt}$	-9.697581	0.0000	I(1)	*
$\log P_{Het}$	-6.478724	0.0001	I(1)	*
$\log I_{MMt}$	-3.386250	0.0015	I(1)	*
$\log I_{DPTt}$	-4.911382	0.0000	I(1)	*
$\log P_{CYt}$	-5.855615	0.0002	I(1)	*
$\log Q_{LYt}$	-3.375058	0.0020	I(1)	*
$\log A_{DRt}$	-9.515688	0.0000	I(0)	*
$\log C_{LHt}$	-3.230425	0.0027	I(0)	*
U_{RPt-1}	-3.742488	0.0352	I(2)	**

Source: Authors Computation, 2014

*- Significant at 1% level of significance **- Significant at 5% level of significance ***- Significant at 10% level of significance

As shown in table 1, log $U_{5MRt,}$ log A_{DRt} and log C_{LHt} are all stationary at level and therefore so integrated at order zero. Log $P_{SEt,}$ log $P_{EEt,}$ log $P_{HEt,}$ log $I_{MMt,}$ log $I_{DPTt,}$ log P_{CYt} and log Q_{LYt} are all stationary at first difference and so integrated at order one. Meanwhile, U_{RPt-1} is stationary at second difference and integrated at order two.

$U_{5MRt} = \beta_0 + \beta_1 P_{HEt} + \beta_2 I_{MMt} + \beta_3 I_{DPTt} + \beta_4 U_{RPt} + \beta_5 C_{LHt} + \mu_\beta$ .....Eq. 1

$P_{SEt} = \alpha_0 + \alpha_1 P_{EEt} + \alpha_2 U_{5MRt} + \alpha_3 Q_{LYt} + \alpha_4 A_{DRt} + \alpha_5 P_{CYt} + \alpha_6 U_{RPt} + \mu_\alpha$ .....Eq. 2

Therefore, with the two conditions of identification examined, it could be said the equations are over-identified and they can be justified with the use of two stages least square method.

4.3. Regression Results and interpretation

Table 2: Child Health Equation: Under-five mortality rate as dependent variable

Variables	OLS	2SLS
$\log(P_{HE})$	-0.042757 (3.5613)*	-0.042757 (3.5613)*
$\log(I_{MM})$	-0.0028 (0.0701)	-0.0028 (0.0701)
$\log(I_{DPT})$	-0.0162 (0.7284)	-0.0162 (0.7284)
$\log(C_{LH})$	0.0665 (4.1786)*	0.0665 (4.1786)*
$D\_U_{RP}\_$	-3.28 (8.8287)*	-3.28 (8.8287)*
Constant	5.6043 (28.2985)*	5.6043 (28.2985)*
R-Squared	0.99	0.99
Prob(F-Statistics)	0.000000	0.000000
F-Statistics	686.4846	686.4846

Source: Authors computation, 2014. Absolute values of t-statistics in parentheses: *- Significant at 1% level of significance**- Significant at 5% level of significance***- Significant at 10% level of significance

Table 2 above shows the regression (OLS and 2SLS) results when under-five mortality rate is used as a dependent variable. A million-naira increase in public health expenditure (P_{HE}), holding other variables constant, under-five mortality rate(U_{5MR}) will decrease by 0.04% (OLS and 2SLS). This supports the a priori expectation that as public health expenditure increase, under- five mortality rate will tend to reduce. The variable P_{HE} is significant at 1%. A percentage increase in immunization rate against measles (I_{MM}) will bring about 0.0028% decrease in under-five mortality rate (U_{5MR}). This is in consonance with the a priori expectation that as immunization efforts against measles increases, under-five mortality rate will reduce. A percentage increase in immunization rate against diphtheria, pertussis and tetanus (I_{DPT}) will bring about 0.016% decrease in U_{5MR} in the OLS and 2SLS analysis and this supports the a priori expectation of the variable. Furthermore, a hundred increases in children living with HIV will tend to increase the chance of survival of children under-five by 0.066% (OLS and 2SLS) and this follows the a priori expectation. The variable (C_{LH}) is significant at 1% for both OLS and 2SLS. Also, the variable (U_{RP}) proxy as accessibility to health centres follows a priori expectation

of negative relationship. A thousand increases in the urban share of the population will increase the survival chance of the child (U_5) from death, that is, reducing U_{5MR} by 3.28% (OLS and 2SLS) holding other variables constant. And it is as well significant at 1% level of significance for both analysis (OLS and 2SLS). The value of the R- Squared is 0.99 (OLS and 2SLS). This means that the model is of good-fit, since 99% of the variation in the dependent variable (U_{5MR}) is explained by variation in the explanatory variables. Only 1% of these variations are explained by factors outside the models (error term).

The findings above are significant since the value of the F-statistic (686.4846 and 686.4846 for both OLS and 2SLS respectively) is greater than the prob. (F-Statistic) (0.000000 and 0.000000). Also the prob. value of the F-statistic (0.00000 for both analyses) is less than 1%, 5% and 10%level.

Table 3: Child development equation: Primary school enrolment as dependent variable

Variables	OLS	2SLS
Log(P_{EE})	0.0561 (1.8459)***	0.0912 (2.2976)**
Log(P_{CY})	-0.0858 (0.3569)	-0.2803 (0.9077)
Log(A_{DR})	-1.9153 (1.5733)	-0.8348 (0.6012)
Log(U_{5MR})	-1.2701 (5.5173)*	-2.0213 (5.5173)*
D_U_{RP}_	-5.64 (4.5131)*	-7.87 (4.6013)*
Log(Q_{LY})	0.1306 (0.7100)	0.0446 (0.1912)
Constant	20.2902 (3.5766)*	21.1235 (2.9499)*
R-Squared	0.75	0.60
Prob (F-Statistics)	0.000124	0.000368
F-Statistics	9.027945	7.558216

Source: Authors computation, 2014. Absolute values of t-statistics in parentheses: *- Significant at 1% level of significance**- Significant at 5% level of significance ***- Significant at 10% level of significance

Table 3 shows OLS and 2SLS regression outcome of model 6* where primary school enrolment was used as a dependent variable explaining public education expenditure, per capita income, age dependency ratio, under-five mortality rate, accessibility proxy as urban population and quality of the school proxy as pupil-teacher's ratio. Public education expenditure (P_{EE}) as it is shown in the table above for the two analysis (OLS and 2SLS), is positively related to primary school enrolment (P_{SE}) which is also the a priori expectation. A million-naira increase in P_{EE} will increase, holding other variables constant P_{SE} by 0.05% (OLS) and 0.09% (2SLS). Per capita income (P_{CY}) is negatively related to P_{SE} for both OLS and 2SLS method of analysis. A thousand-naira increase in P_{CY}, holding other variables constant, will bring about 0.08% (OLS) and 0.28% (2SLS) decrease in P_{SE}. This negates the a priori expectation. For age dependency ratio, it could be seen that as a greater number of children leads to an increase in the dependency ratio, a decrease in gross enrolment might also be observed. A percentage increase in the number of children who are dependent and vulnerable to ill conditions will results to 1.91% (OLS) and 0.83% (2SLS) decrease in primary school enrolment holding other variables constant. This follows a priori expectation.

Furthermore, a healthier population is expected to invest in education, that is, negative relationship is expected between U_{5MR} and P_{SE} and this is what is seen in the table 6 above for both method of analysis. A percentage decrease in the number of under-five mortality will result to 1.27% (OLS) and 2.02% (2SLS) increases in their school enrolment, holding other variables constant. The variable is significant at 1% level of significance both OLS and 2SLS. U_{RP} proxy as accessibility to primary school education has negative relationship with P_{SE} and this negates the a priori expectation. This might be due to the fact that a substantial number of the population find their settlement in rural areas as against the urban centres where most the schools are located. Nevertheless, the variable is statistical significant at 1% level of significance. Q_{LY} proxy as quality of primary school education (pupil-teacher ratio) is positively related to P_{SE} and it is also the expected outcome. A percentage increase in the quality of primary school education will results to 0.13% (OLS) and 0.04% (2SLS) increase in enrolment, while other variables are constant. The values of the R- Squared is 0.75 (OLS) and 0.60 (2SLS). These mean that the model is of good-fit, since 75% of the variation in the dependent variable (P_{SE}) is explained by variation in the explanatory variables for ordinary least square analysis. And for two stages least square, 60% of the variation in the dependent variable is explained by the explanatory variables subject to the instrumental variables.

The findings above are significant since the value of the F-statistic (9.027945and7.558216) for both OLS

and 2SLS respectively) is greater than the prob. (F-Statistic) (0.000124 and 0.000368). Also the prob. value of the F-statistic for both analyses is less than 1%, 5% and 10%level.

5. Summary, Conclusions and Recommendations

5.1. Summary

This study was carried out to determine the extent of attainment of conditions for the fulfilment of the provisions of the CRA in relations to public health expenditure in Nigeria. While doing this, some other objectives were also achieved such as knowing the picture of under-five mortality rate and public health expenditure, relationship between primary school enrolment and public education expenditure. The extent to which public health expenditure explained under-five mortality rate was also determined. The study focused on the rights of the child to survive and develop as contained in the CRA. Therefore, two different equations were used to determine these. Under-five mortality rate was used as child health outcome while primary school enrolment was used for child development outcome.

Explanatory variables in the study includes public health expenditure, public education expenditure, urban population, age dependency ratio, pupil-teacher ratio, immunization record on measles, immunization record on diphtheria, pertussis and tetanus, children living with HIV and under-five mortality rate. Grossman human capital theory was reviewed for the purpose of this study.

From literature reviewed, it was discovered that under-five mortality rate which is a dependent variable in the first equation can also be an independent variable for primary school enrolment. With this, models in the study became a recursive one in nature. And because OLS can be applied to each equation separately, OLS was used. Owing to the fact that the problem of simultaneity could still arise in a recursive system, two stages least square was used. Public health expenditure was found to be negatively related to under-five mortality rate. Public education expenditure was also found to be positively related to primary school enrolment.

5.2. Conclusions

- The preliminary trend analysis indicated that in the 1980's, U_{5MR} and P_{HE} are interwoven as the allocation on P_{HE} fluctuates over time on U_{5MR}. Noticeable gap starts showcasing between U_{5MR} and P_{HE} in the 1990's through the years 2000. From 2004 through the stroke of 2012, there was a wider difference between the patterns of U_{5MR} and P_{HE}.
- The Nigerian Child, especially, under-five is faced with lot of health hazards, even far higher than his/her formal education development. The incidence of mortality is higher than the child school enrolment.
- Public health expenditure does not explain much of the reduction in under-five mortality, public healthcare expenditure has been on the increase, but the increase is not up to even 1% per annum. The noticeable fall in the under-five mortality rate may not have been due to the increase in public health expenditure but by the funds from international donor agencies on immunizations and other childhood diseases, etc.
- Primary school enrolment and public education expenditure is positively related to location and accessibility to healthcare centre and primary school. It is therefore imperative that both subheads in the national budget must be improved upon to child survival and development.
- Under-five mortality rate goes a long way in explaining the Child school enrolment. This makes it possible to say a healthier child has a good chance of being enrolled for formal education.
- On the whole the general health indicators such as mortality, morbidity, and expectancy rates, diseases burden statistics are at variance with huge health expenditures. This has no doubt infringed on the child's right to survive, develop and participate.

5.3. Recommendations

- As it is seen, public health expenditure has been increasing with little of its effect on the health of the child under-five. It is imperative that countries must adopt the WHO standard on the health expenditure for the welfare of under-five. It is however important to mention that, the size of allocation to health system is not as important as the amount that get into the childhood health care. Possible areas of leakages should be block to ensure the amount budgeted is what is actually spent.
- Since location and accessibility explains much of the variations in the under-five mortality rate, it is therefore necessary to provide the share of the population where health centres and schools are lacking with adequate health and education resources. The UN has a world standard on possible distance coverable by patient to the nearest health and education facilities.
- With many efforts from international donor and organizations, immunization records did not capture lot of the variations in under-five mortality rate. Therefore, re-evaluation and thorough supervision should be carried out on the in-and–end processes of this scheme.

- Efforts should be made in reducing the mortality rate so as to ensure that the Child primary school enrolment could be improved upon. Since primary school enrolment and public education expenditure are positively related, budgetary provisions to finance primary education should be improved

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