

Budgetary Allocation Trends for Public Secondary Schools Infrastructure: (Analysis of Students Population and Other Demographics)

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Abstract

There ordinarily exist a considerable correlation between demographics and infrastructure development. There is now a massive growth of high schools in Nigeria; the most pressing for this sector today is to meet the new infrastructure needs of an increasing number of students. Gaps in population requirements for infrastructure are manifest in overcrowding, overstretching and decadences. This research sets out the key trends of budgetary and population analysis of public secondary schools. The essence of the analysis was to ascertain the truism that “demographics and budgetary allocation correlate considerably and to ascertain what extent it applies to chosen parameters within the study location and the time series. Research findings establish that the key trends between the parameters did not constitute good basis for capital funding. The research concludes that student population and other demographics were not relevant parameters that determined budgetary allocations within the time series of the study and subsequently could not be used as a basis to predict effective budgetary allocations beyond the study period. The study recommends further exploratory studies on other empirical parameters and trends that could form basis for undertaking effective budgetary allocations.

Keywords: Physical Infrastructure, Budgets, Budgetary Allocations, Secondary Schools & Demographics

INTRODUCTION

Efficient budgetary systems and allocations form the fulcrum upon which the survival and sustenance of public and private institutions are based (Mac-Barango and Mbamali 2015). Physical infrastructures including secondary schools are financed through budgetary allocations, adopting budgeting processes.

The physical infrastructure of Nations enhances economic growth and development, contributing towards the Gross Domestic products and other relevant economic indices.

Seeley's (1983), assertion supports the above, observing that the physical infrastructure constitutes the capital stock of an economy, further revealing that physical infrastructure stock of physical infrastructure for the educational subsector of the economy includes schools and associated facilities for primary, secondary and tertiary institutions. Anago (2001), is also in agreement pointing out that physical infrastructure is a fundamental variable in National development, that domestic product, fixed capital formation, the absorption of labour or the

generation of employment. Udegbumam (2002), see physical infrastructure as a variable that plays a crucial role in any well functioning national economy. An adequate and well maintained public infrastructure has been of great importance in stimulating economic development. Hildebrandt (2000), cited in Onwusonye (2010), have also collaborated, observing that infrastructures generally have potentials in the drive of economic growth as well as through its goods and services to penetrate and nourish the routes of most human and serves as multiplier that affect healthy economics.

The existing correlation between physical infrastructure and economic growth and development has been published by various economic organization as well as individuals. Izquierdo and Monnet (2004), revealed the existence of a correlation between infrastructure and economic activities infrastructure investments have a remarkably effect on economic development. Results obtained when applying models like the Cob-Douglas yield a media value of 0.30, this implies that public investment equivalent to 100% of the public stock would lead to a private production of 300%. In a related perspective, the (World Economic Forum 2010) results of a study on Global competitiveness (2010-2011), using 12 determinants, as basis towards the establishment of “pillars” to measure the economic competitiveness of 133 countries established that investing in infrastructure constitutes one of the main mechanisms to increase income, employment, productivity and consequently, the competitiveness of the economy. The second basic pillar in that report is infrastructure. World Bank (2006), cited in Delmon (2011), emphasizing the role of infrastructure in the economies of Nations and development revealed that poor infrastructure impedes a nation’s economic growth and competitiveness. According to Willoughby (2004), as cited in Delmon (2011), has observed that insufficient infrastructure also represents a major cause of loss of quality of life, illness and death.

There is however a plethora of problems and snags which have bedeviled capital funding/ budgeting for secondary schools physical infrastructure development. The capital intensive nature as well as the long gestation, the uniqueness of the production process of each product and the differentials in the characteristics of production sites further exacerbates the situation. The prevalent situation can be summarized as an educational subsector that is crisis prone as a result of underfunding, overcrowding and an ever increasing population which have led to inadequate infrastructural facilities shortages in the number of schools and decadence.

Uji and Sumaila (1996), have reported that population explosion, resultant of rural-urban migration is a factor responsible for pressure on Urban infrastructure, pointing out also that the occurrence of slums in the third world has been on the increase, these migrants would be expected to soon cause total collapse of the Social Service. Mac-Barango (2006), however further revealed, that though the above assertion is made in reference to the situation of shelter, the truism of the statement lies in the fact that population explosion and overcrowding irrespective of where they occur have the propensities to catalyze infrastructure decadence.

Tell (2003)’s Survey Conducted in Port-Harcourt (Nigeria), buttressed inadequacy in Physical infrastructure development in public schools in relation to population. The survey further revealed that “out of 1,000 respondents, 85.5% showed preference for private schools, only 14.5% showed “acceptance for public schools because of financial limitations. First Rivers State development plan as well as the 1992 progress report, indicated great deficiencies in physical infrastructure development in relation to the demanding population for Secondary schools. The trend in Rivers State did not establish significant departure from

the National trend. Budgetary allocations statistics as presented by Tomori and Fajana (1979), indicated that in the 1960s the budgetary allocation appeared to serve the population then. The trend has since changed from early 1980s to date, when the combined budgetary allocations (capital and recurrent) are less than budgetary allocations for capital investments alone in the period 1960s to 1970s. Ukwoma and Abubakar (1996) and Salim (1998), observed that underfunding for capital development that has led to endless delay, overcrowded classrooms and in adequacies and shortages in the number of schools and facilities. Ajisegiri (2004) and Shuaib (2006), observed inadequate capital funding in the areas of laboratories, workshops, communicational and recreational facilities, Karani and Okebukula (1997) cited in Ibeneche (2009), reported that the educational subsector faces challenges of underfunding which has manifested in infrastructural inadequacy and quality drop. The budgetary trends as published by the department of budgets, ministry of economic planning (2000-2007), also established unfavourable allocations that are negatively skewed towards capital allocations for educations for education subsector and by extension secondary schools. This trend threatens the survival and sustenance of secondary schools. These deficiencies have to be addressed because of the roles secondary schools plays in national development: Rhodes (2010), points out its ability in enhancing the mental capacity of individuals and the attainment of an optional state of mind. Berg (2011), Mereno and Cudara (2005) reveals its role as the second tier in a formal educational setting and knowledge as well as its ability to carve out and create social Economic benefits, link between primary, tertiary education and the labour market. Cornel (2011), reveals the derivable potentials of Secondary Schools gaining the right education secondary schools also serve as a bridge for young people from the world of school to the work of work. (Education for all Global Monitoring Report (EFA 2011). The period of the study (2000- 2007), gives further impetus; it is the beginning of a new era of democratic dispensation. The results of this research commences a process of development the research develops a frame work; that guides government in the management of its resource. Ibeneche (2009), has posited that government needs to restructure the way it does work; reforms & regulations will be informed by a frame work that connects policy with government income & expenditure.

The compendium of literature on capital budgeting in the public sector includes a number of qualitative analysis and case studies, but there appears a relative dearth of empirical work that would determine whether and how the existence of capital budget affects capital spending, using empirical analysis as well as a conceptual frame work. Public secondary schools serve as models, providing the basis and necessary guidelines and standards for private schools to follow. The results of this research could be applied to other states (locations) with some modifications. There is therefore an urgent need for the research to begin to analyze budgetary allocations, for capital funding with a view to exploring possibilities for using demographics as appropriate parameters in budgeting for secondary schools physical infrastructure. This research begins to contribute to this agenda through an appraisal of the impact of demographic variables (students' population, male population, female population, male teaching, and female teaching) on budgets for development of physical infrastructure of public secondary schools in Rivers State of Nigeria. The following defines the scope, limits and bounds of the research within which established relationship hold. The study period is 2000-2007, this represents a new era of democratic dispensation, with expected changes in budgetary processes and procedures and thus allocation for physical infrastructure development. The budgetary allocations within the period, did not include for capital disbursement from interventionist agencies such as the education trust fund (ETF) and other foreign grants from donor agencies; those disbursement were occasional and selective. ii. The budgetary allocations within the period are influenced by the revenue from federal account

(that is oil revenue and other sources of government internally generated revenue (both federal and state). The study location is Rivers State of Nigeria. The research draws from the previous studies on budgetary allocations. See for example, the research work of Idiake (2003), conducted in Oyo State of Nigeria. The result of the research established that allocations of funds to secondary education did not appear to have been carried out with due consideration to students' enrollment, number of schools and number of available classrooms in the research location within the period under reviews. This, the author explains has probably resulted to the inadequacy of building infrastructure prevalent in the state post primary schools. Mac-Barango & Mbamali's (2015), research undertaken in Rivers State of Nigeria on existing relationships between budgetary parameters, established that none of the relationships, i.e. (total education budget versus secondary school total budget, total education budget versus secondary school capital budget, education capital budget versus secondary school total budget and education capital budget versus secondary school capital budget were significant. In recent years a number of studies have specifically addressed the relationship between budgetary procedures and outcomes using quantitative tools. They did not specifically address capital spending; nevertheless the models developed in these studies provided a contextual foundation for this research. For example Porteba 1995, cited in Plotnikova (2005) found a statistically significant positive effect of a capital budget on capital spending, and a significant negative effect of a no-borrowing role, other statistically significant findings include a negative effect of per-capital income and a positive effect of federal grants per capital on state capital spending.

The structure of the paper is as follows: It analyzes empirical relationships on the budgetary allocation parameters and the demographic parameters for secondary schools. The research also is developed from a conceptual framework, which forms a basis for the review of the related literature as well as an analytic process and procedures for the observed parameters; both budgetary and population demographics. Third, it summarized the research methodology adopted. Next it presents the results on the analyses of the parameters, establishing the relationships. Finally, it draws conclusions from the research findings of the analyzed parameters and offers recommendations.

THE CONCEPT OF BUDGET: AS AN ECONOMIC AND MANAGEMENT TOOL

The budget is an important tool for planning and management of the resources of government as well as private organizations. The budget is an important concept in macro-economics. Lipsey (1981), sees the budget as the main measure by which the essential resources of men and materials are allocated for the accomplishment of almost or governmental goals. Lipsey further revealed that budgeting is synonymous with management, since both are concerned with systematic, intelligent planning and control of resources. The budgetary allocation process for purposes of having efficacy should be undertaken with caution. The budget is a fiscal instrument, which adopts a plan format and indicates the proportion or sections of medium programmes of government to be implemented during the particular physical year, taking due cognizance of the anticipated resource picture. (Adebayo, 1981). Aiyedum 1996, cited in Idiake (2003), posits that government budgets deal with allocation, of scarce resource among the various agencies in order to cater for the people. These resources are sometimes not sufficient to serve the needs of the people; there is therefore a need to use: the allocation of process as a tool for achieving the allocation of national resources which is efficient in the economic sense. Government budgets invariably affects the distribution of income, that is, the purchasing power of different sections of the populace. Porteba 1995 cited in Plotnikova (2005), has asserted that the very existence of a capital budget positively affects capital

spending and that capital budget is an investment that specifies: investment amounts and targets. The higher the level of investment, the greater the need for a capital budget in order to co-ordinate and simplify the investment process. These variables are endogenously determined.

(Okongwu, 1986), recognizing the place of the budget as an economy tool for planning and management as well Nigeria reliance mainly an oil export, rather than a multiple rector of exports for foreign exchange resources, posited that it would seem that care should be taken in financial planning and budgeting because of uncertainties inherent in the oil market. Akinpelu (2008) has revealed that differences exist in the public and private capital expenditure patterns. For the government and corporate organization, construction capital budget is designed to formulate a time-phased funds requirement and the sources from which these funds are to be allocated. The client or government capital budget include the expenditure on preliminaries, procurement on Land, client supply resources, consultant fees, contractors payment and the cost of working capital. A contractor's budget on the other hand is resources cost and sales revenue oriented.

BUDGETING FOR SECONDARY SCHOOLS PHYSICAL INFRASTRUCTURE

The budgeting for secondary schools physical infrastructure is one the trade-offs which government can opt for in the course of allocating resources towards the accomplishment of its objectives in a particular year. Due cognizance are usually given to considerable variables and factors during budgeting exercise for secondary schools physical infrastructure. UNESCO (1970), identifies the variables of population, population growth and density, enrolment of students, increase in the number of subjects offered by schools and increase in national, state and Location government population as relevant variables to be considered in the course of budgeting for secondary schools physical infrastructure. Bathurst and Butler's (1980), have identified the following variables: the need for new schools, the replacement of war-damaged and obsolete buildings, to movement of population from city to new suburbs, the creation of new towns, a general increase in the number of school children, rise in birth, new education concepts and charges in leaving age as relevant basis for discussion on the influencing factors for consideration for the provision of secondary schools physical infrastructure. According to Fadayomi (1983), variables such pupils, teachers, building and equipment cost (both recurrent and capital expenditure), Supplementary data for the calculation of forecasting of demography and economy are, Useful for designing and evaluating appropriate policies and programmes for further development of education in society. Adeboyeji (1987), has emphasized that meeting the population demand, basis facilities and conducive environment are veritable variables that enhance effective and quality educational development. Therefore infrastructure and classroom construction must be done with due considerations to these variables.

Financing as well as the mode and procedures of allocating capital funds, are potent variables for consideration during the planning of educational systems and meeting the requirements of physical infrastructure: Capital financing/ budgeting allocation exercise is in turn guided by an analytic process. Bathurst and Butler's (1980), have concluded that apart from a common motivation to meet the requirements during the considerations for the provision of physical infrastructure, the common denominator to all decision making is the expenditure of money. In short finance acts as the frame work in which all decisions are made.

The Analytic process during a budgetary allocation exercise fundamentally involves economic as well as financial measures targeted towards the accomplishment of objectives of government in a particular year. These variables serve as determinants for proper realistic estimates. Mogbo (2001), corroborating has also revealed that wrong appraisals of the constitutes during a budgeting exercise for infrastructure, in the public sector is a major cause of poor performance that arise from inadequate budgeting exercise and that budgetary financing correlates with physical infrastructure. Anyadike (2002), sees budgetary planning as a tool for the rational allocation of resources, and that allocation exercise through the adoption of models form a good basis for the selective implementation of compositing development programmes to achieve set objectives. A couple of variables influence the rationalization process of allocation which, according to Akinpelu (2008), include the structure and pattern of public expenditure, the growth rate of government expenditure arising due to upward movement of the country's population the rising demand for certain public goods and the need of government to be the source of increased saving and capital formation etc. Bathurst and Butler (1980), have advanced an array of variables which influence the aggregate capital programme of government as well as serve as basis for financial control during infrastructure development: Cost Limit for individual and total scheme, expenditure limit, their applicability and the integration of individual contracts into the overall capital program. The overall capital programme of government is a function of the stage, type and the levels of other capital projects. Dikko (1999), identifies the following as the Economic variables for consideration during analytic process during budgeting exercise: the impact of macro – economic variables of exchange rate, interest rate, duties and taxes. Others include Location peculiarities, population Land constraints, equipment.

THE IMPACT OF POPULATION AND OTHER DEMOGRAPHIC VARIABLES ON BUDGETARY ALLOCATIONS

Students' enrolment (that is student population) constitutes a potent source of impact on budgetary allocations. There would seem a massive growth of high schools in Nigeria. The most pressing for this sector today is to meet the new infrastructure needs for an increasing number of students. The study of budgetary allocation and population trends for the provision of sustained infrastructure is beginning to occupy a center stage in the educational sub sector. Idiake (2003), reporting on the budgetary allocation and population trend of secondary schools infrastructure in Oyo state of Nigeria, has observed that the amount budgeted for education has not marched the astronomical rise in student enrolment over the period under consideration with accompanying need for more schools and classroom blocks. This is evidenced by the deplorable conditions of school buildings, high population density, the portioning of auditorium for classrooms and the lack of laboratory blocks. Idiake, further emphasized, revealing that the present level of educational development in the state needs critical examination, with the aim to determine if planning of resources are done with due consideration to variables (number of schools, population of students, number of available classroom, classroom rehabilitation and construction) the education subsector. In a related perspective, Porterba (1995) and Crain, (1998) as cited in Plotnikova (2005)'s headings form a basis for discussion on an array of other demographic variables that influence capital budgeting for physical infrastructure: The fraction of population below 18 and that above 65, further revealing that in states with a higher fraction of population below 18 years, spending on schools may be higher in response to higher population projections. States may also spend more on state hospitals or on Nursing homes when they have a higher proportion their population over 65. Ashauer, 1990 cited in Plotnikova 2005 identifies other demographic variables which impact on capital budgeting for infrastructure and these and include, fraction

of home- owner in the total house hold, the percentage of population living in metropolitan area, the percentage of the state population that are living in Urban area (i.e. is urbanized); population density as well as the concentration of the infrastructure needs.

RESEARCH METHODOLOGY

This research is a synthesis of literary reviews, field studies and data analytics. In this context, this work draws from the study of Mac-Barango and Mbamali (2015), which posited that literary reviews on budgeting and budgetary allocations derive their premise from a theoretical background that adequate budgetary allocations form the basis for physical infrastructure. The theory guided the choice of the empirical parameters, the analysis of data as well as the interpretations and implications of the results.

The statistical technique of regression, both (simple and multiple) were employed for the purpose of analysis. Relationships between budgetary and demographic parameters were established with a view to evaluate how the outcome impacted on physical infrastructure development. The demographic parameters were also tested to evaluate and establish trends between and amongst the various variables. Regression analysis is the most widely used tool when the objective is to describe the nature of the relationship between a dependent and a set of independent variables for given data, as regression statistics calculated from data are the best estimates of the true population parameters. (Giventer, 1996). Attempts in this research were made to pull data on single year cross-section basis into a panel combining both cross-sectional and time-series data. This approach was also adopted by Plotnikova's (2005), who pooled a data set of 1992-1996 annual cross sections into a panel combining both cross-sectional and time-series data. This increases the sizes of the data set and shows a much larger set of control variables in that research. In addition, panel data contain a larger number of data points which yields more regression estimates. Panel data is also used in this study because a cross-sectional study does not control for the potential annual variability of capital expenditure due to contingencies or political factors.

The field studies focuses on the proportion of capital budget set aside for physical infrastructure, in relation to students' population and other demographic statistics of school. The following were its parameters of interest. The field study obtained data through secondary source for both the budgetary and demographic parameters for the study time series. The population of the study is 244 secondary schools in 23 local government areas of the state (Rivers State of Nigeria). The entire 244 schools were samples; this made the adoption of a particular sampling technique unnecessary. The data for the analysis were obtained through secondary sources. Data on budgetary parameters were obtained from published data, from the ministry of economic planning (depart of budget). Data for the demographic parameters were obtained from the school's management from the annual register of the 244 schools. Oral interviews were conducted to complement, reviews on literature and on some instances to buttress, clarify and highlight some variables that influence budgetary allocations for physical infrastructure. Relevant websites were also searched to obtain relevant statistical data and literature relating to the research focus. Descriptive analysis was also employed for the purpose of establishing trends that illustrate and explain the outcomes and rhythms between and amongst variables or features of the dependent and independent variables over the time series (2000-2007). For instance, the demographic parameters were used to predict values of the budgetary parameters i.e. the total student's population was used for the prediction of the total capital budget for secondary schools. The level of significance of the tested parameters was fixed at 5 percent; this also

helps in setting the critical regions for the acceptability or rejection of the results of the established relationships. The mean values of the parameters of the established relationships formed the basis for analysis and subsequently deriving the straight line equation. Transpositions of the variables to their exponential formats, Quadratic roots were considered in attempts to find better fits for the data collected. The statistical computer package (SPSS), was used for the data analysis.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

Tables (4.1 to 4.3), present the values of Data of the research components used for analysis. See Appendices for details.

PRESENTATION OF RESULTS OF RESEARCH COMPONENTS

Table 4.4: Results of Simple Correlation Analysis between Budgetary and Demographic Parameters.

| Ana No | Variables | | Type of Model | Observations | | | | | Inferences | | |
|--------|--------------------|----------------------|---------------|--------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------|--------------------|--------------------------|-----|-----------------------|
| | X | Y | | Regression Equation | R ² | F _{cal} | F _{tab} | P _{value} | Strength of Relationship | Rmk | Action on hyp |
| 1a | Total Student Popn | Total State Budget | Linear | Total State Budget = 294698.8 – 0.863 Total Student Popn | 41.9% | 4.332 | 5.99 | 0.083 | Very weak | NS | Accept H ₀ |
| 1b | Total Student Popn | Total State Budget | Quadratic | Total State Budget = 460045.4 – 2.6864 Total Student Popn + 4.64 x 10 ⁵ Total Student Popn ² | 43.0% | 1.885 | 5.79 | 0.245 | Very weak | NS | Accept H ₀ |
| 2a | Total Student Popn | State Capital Budget | Linear | State Capital Budget = 2298373 – 0.700 Total Student Popn | 45.2% | 4.950 | 5.99 | 0.068 | Very weak | NS | Accept H ₀ |
| 2b | Total Student Popn | State Capital Budget | Quadratic | State Capital Budget = 4000260 – 2.576 Total Student Popn + 4.77 x 10 ⁶ Total Student Popn ² | 47.0% | 2.221 | 5.79 | 0.204 | Very weak | NS | Accept H ₀ |

Table 4.5: Results of Correlation Analysis Amongst Budgetary and Demographic Parameters.

| Ana No | Y | Variables | | | | | | Observations | | | | | Inferences | |
|--------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------|--------------------|------------|---------------|
| | | X ₁ | X ₂ | X ₃ | X ₄ | X ₅ | X ₆ | Regression Equation | R ² | F _{cal} | F _{tab} | P _{value} | Rmk | Action on hyp |
| 3 | Total State Budget | MSP | FSP | MTP | FTP | MNTP | FNTTP | Total State Budget = $-5 \times 10^{11} - 1756688 \text{MSP} + 8301473 \text{FSP} - 2 \times 10^9 \text{FTP} + 8 \times 10^8 \text{MNTP} + 2 \times 10^9 \text{FNTTP}$ | 99.0% | 40.76 | 19.3 | 0.024 | SS | Reject Ho |
| 4 | State Capital Budget | MSP | FSP | MTP | FTP | MNTP | FNTTP | State Capital Budget = $-6 \times 10^{12} - 1 \times 10^8 \text{MSP} + 2 \times 10^8 \text{FSP} - 1 \times 10^{10} \text{FTP} - 1 \times 10^9 \text{MNTP} + 2 \times 10^{10} \text{FNTTP}$ | 99.9% | 281.86 | 19.3 | 0.004 | SS | Reject Ho |
| 5 | Annual Education Budget | MSP | FSP | MTP | FTP | MNTP | FNTTP | Annual Education Budget = $8 \times 10^9 - 17.405 \text{MSP} - 92496.9 \text{FSP} - 2 \times 10^7 \text{FTP} + 1 \times 10^7 \text{MNTP} + 1 \times 10^7 \text{FNTTP}$ | 44.6% | 0.323 | 19.3 | 0.867 | NS | Reject Ho |
| 6 | Education Capital Budget | MSP | FSP | MTP | FTP | MNTP | FNTTP | Education Capital Budget = $6 \times 10^9 + 53475.66 \text{MSP} - 137844 \text{FSP} + 1 \times 10^7 \text{FTP} - 6698701 \text{MNTP} - 8864639 \text{FNTTP}$ | 81.0% | 1.703 | 19.3 | 0.410 | NS | Reject Ho |
| 7 | Sec Schs Budget | MSP | FSP | MTP | FTP | MNTP | FNTTP | Sec Schs Budget = $-8 \times 10^9 - 3412.7 \text{MSP} + 159808.7 \text{FSP} - 5 \times 10^7 \text{FTP} + 2 \times 10^7 \text{MNTP} + 4 \times 10^7 \text{FNTTP}$ | 94.9% | 7.393 | 19.3 | 0.123 | NS | Reject Ho |
| 8 | Sec Schs Capital Budget | MSP | FSP | MTP | FTP | MNTP | FNTTP | Sec Schs Capital Budget = $-2 \times 10^9 - 25055.4 \text{MSP} + 21161.27 \text{FSP} - 959130 \text{FTP} - 4125956 \text{MNTP} + 1 \times 10^7 \text{FNTTP}$ | 98.5% | 26.79 | 19.3 | 0.036 | NS | Reject Ho |

DESCRIPTIVE ANALYSIS: Figures 4.1 and 4.2 show the descriptive charts of the analysis between/amongst the research components. Educational demographic variables and the budgetary allocations to public secondary schools in Rivers State 2000-2007.

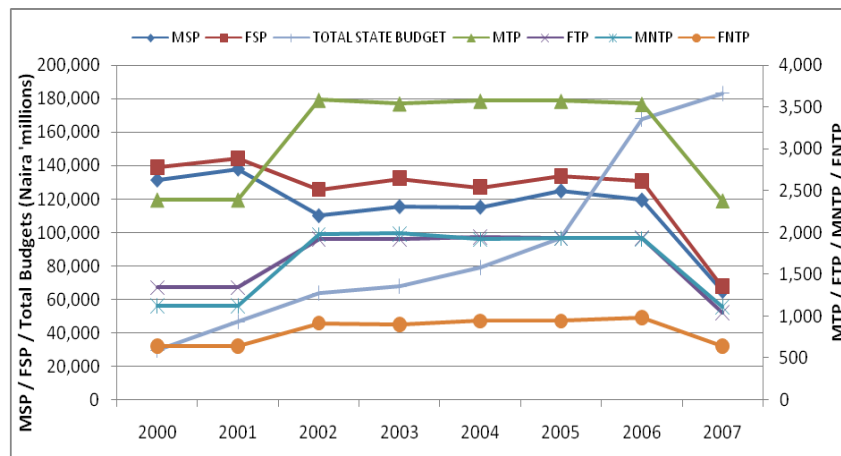


Figure 4.1 Comparison of trends in Educational Demographic Variables and the Total Annual Budgets of Rivers State.

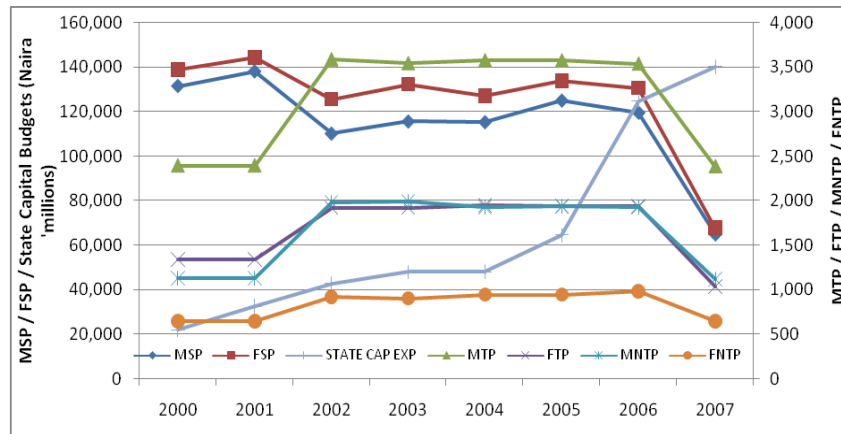


Figure 4.2 Comparison of trends in Educational Demographic Variables and Annual Capital Budgets of Rivers State

DISCUSSION OF RESULTS OF THE TESTED PARAMETERS: (Inferential Statistics)

Tables 4.4 and 4.5 present the results of the correlation analysis on the budgetary allocations and demographic parameters for public secondary schools (2000-2007). The results of the tested relationships on the parameters established as follows: **Simple Regression Analysis between Budgetary and Demographic Parameters;** (i.e. the Total Students Population and the Total Budget did not establish any significant relationship. (See Table 4.4).

Total students population and the capital budget for the state did not also establish any significant relationships. The independent variables of the derived linear equations from simple regression cannot be predicted from the dependent variables. Further analysis, involving the transpositions of the established simple linear equations were undertaken. The results of the quadratic equations among the variables did not also establish predictive models as was the case with earlier linear ones.

MULTIPLE REGRESSION ANALYSIS BETWEEN BUDGETARY AND DEMOGRAPHIC PARAMETERS

The analysis as presented in Table 4.4 examined the relationships between and amongst the (a) the Budgetary Values (as dependent variables) and values of the demographic components (as independent variables). The analysis established that: (1) There were significant relationships between the variables. (ii) The R-Square values of the derived equations were 99 and 81 percent and P values were between 0.004 and 0.41. (iii) In the regression equations several of independent demographic variables of (MSP, FSP, MTP, FTP, MNTP and FNTP) on an aggregate level, correlated positively, although without definitive trend with several of the dependent budgetary parameters. In the Descriptive Charts (figures 4.1 & 4.2) a cross section of the annual demographic parameters versus the budgetary parameters established the same trend. (2) The dependent budgetary parameters of the total state budget, state capital budget, annual budget for education, capital budget for education, secondary schools budget for schools can be predicted from the independent demographic variables of (Male students population, Female student population, Male teaching population, Female teaching population, Male non teaching population and Female non teaching population) for the examined relationships as presented in table 4.5. (3) Although the outcome of the analysis

between the variables established statistical significance, the derived equations of the relationships as presented in table 4.5 cannot be used for predictive purposes in real life situations. (4) There are evidences that the values of the research parameters used for the analysis. (i.e. the demographic statistics were not imputed in the derivation of the budgetary parameters as seen from the raw values of budgetary allocations over the time series of the research. This is a big snag to the predictability function of the derived equation.

Descriptive Analysis: Figures 4.1 and 4.2 show descriptively a cross section of the annual demographic parameters versus the budgetary parameters that established the same trend as the inferential statistics. Comparison of trends in secondary schools demographics variables and total annual budgets of Rivers State (fig. 4.1) showed a trend that the total state budgets rose consistently over the study period in a similar pattern as those of the independent demographic variables (MSP, FSP, MTP, FTP, MNTP, FNTP). There were however declines in the values towards the end of the study period. The values of the parameters exhibited constant trend within the periods (2001 to 2006): the comparison of trends in secondary schools demographic variables and annual capital budgets of Rivers state, see (fig. 4.2), showed a trend that the capital budgets, rose consistently over the study period. All the independent values (MSP, FSP, MTP, FTP, MNTP, and FNTP) experienced an initial rise up to 2001, maintained constant values within the period (2001 – 2006) and a drop towards the end of the study period.

SUMMARY OF DISCUSSIONS ON RESEARCH FINDINGS

The results of the equations arising from the inferential statistics using **Simple Regression** of the established relationships i.e. the budgetary and demographic parameters were all weak and non significant. The results of the equations derived using **Multiple Regression** among budgetary parameters and demographic parameters showed significance; this implies that on aggregate levels the dependent variables of the (total state budget, capital budget for the state, the annual budget for education, capital budget and capital budget for secondary schools) can be predicted from independent variables of (Male student population, female student population, male teaching population, female teaching population, male non teaching population and female non teaching population). The derived equations from the multiple regressions though indicated positive linearity and established significance have the following snags in real life situations. Neither students' population/enrolment nor other secondary schools demographics formed the basis for budgetary allocations within the research period and location. The predictability functions of the derived equations (models) of the relationships are likely to be limited. The characterized arbitrariness in the budgetary allocations procedure within the research period, the traditional incremental line budgeting technique would seem responsible for the observed limitations of the derived relationships/equations of the variables. The results of this research is in agreement with that of Mac-Barango and Mbamali (2015), which established that capital budgetary allocation for the secondary schools did not correlate significantly with total budget of the same location and period. In that study several of the relationships established between budgetary allocations for physical infrastructure development did not establish significance; the predictability functions of the equations were also limited. This study also supports other empirical researches on budgetary and resource allocations for physical infrastructure development. Idiake's (2003) work on the analysis between the number of schools available, classroom and education capital budget did not establish significant relationships.

An extensive literature review reveals strong indications that efficient budgetary systems and allocation form the basis upon which the financing, survival and sustenance of public and private organizations are based. Several literary postulations though not tested within the confines of this research have supported the adoption and desirability of reforms in budgetary regime/procedure for secondary schools physical infrastructure development.

CONCLUSION AND RECOMMENDATIONS

This research concludes that (i) The established relationship between the research parameters were not significant (ii) Student population/enrolment within the research period did not form the basis for budgetary allocation. (iii) They were not relevant parameters that determined the budgetary allocations. (iv) The predictability function of the derived equations using the students' enrolment and other demographic variables as basis for budgetary allocations are therefore likely to be limited. The raw values of the budgetary allocations were products of the traditional incremental line technique; this has probably resulted to the inadequacy in budgetary allocations in the educational subsector and consequently to secondary schools capital funding.

The research recommends the exploration and adoption of an innovative budgetary regime that considers other appropriate demographic parameters which could possibly form the basis for future needs assessment and subsequently funding for secondary schools physical infrastructure. The study also recommends undertaking further studies on budgetary allocations and demographics for other educational sectors as well as subsector of the economy.

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APPENDICES

Table 4.1: Present the values of the raw data of the research components used for the analysis. (Rivers State Annual Budgets Parameters 2000 - 2007).

| Year | Total State Budget ₦ | State Capital Budget ₦ | State Recurrent Budget ₦ | Total Education Budget ₦ | Capital Budget for Education ₦ | Recurrent Budget for Education ₦ |
|------|-------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------------|-------------------------------------|
| 2000 | 29,822,499,102 | 22,134,908,741 | 7,687,590,361 | 3,074,745,261 | 1,311,000,000 | 1,763,745,261 |
| 2001 | 46,854,000,000 | 32,607,191,053 | 14,246,908,173 | 838,904,173 | 69,467,666 | 144,227,507 |
| 2002 | 63,951,135,583 | 42,819,922,598 | 21,131,212,985 | 1,614,288,034 | 1,427,550,000 | 186,738,034 |
| 2003 | 68,124,299,624 | 48,090,307,337 | 20,033,992,287 | 2,206,888,743 | 1,990,050,000 | 216,838,743 |
| 2004 | 7,936,977,180 | 48,211,785,777 | 31,157,990,403 | 3,005,803,108 | 2,811,122,900 | 194,574,108 |
| 2005 | 96,750,000,000 | 64,575,751,373 | 32,174,248,627 | 2,355,601,952 | 2,156,675,000 | 198,926,952 |
| 2006 | 168,030,823,479 | 1,248,043,287,155 | 43,226,494,764 | 2,074,870,327 | 1,866,200,000 | 208,670,327 |
| 2007 | 183,384,098,500 | 140,146,098,324 | 43,283,000,176 | 2,942,677,456 | 2,723,700,000 | 218,977,456 |

Source: Ministry of Economic Planning, Budget Department.

Table 4.2: Rivers state annual budgetary allocations of some budgetary parameters for secondary schools (2000 - 2007).

| Year | Secondary School Total Budget ₦ | Secondary School Capital Budget ₦ | Secondary Schools Recurrent Budget ₦ | School Board Personal Cost ₦ | Secondary Schools Overhead Budget ₦ |
|------|------------------------------------|--------------------------------------|-----------------------------------------|---------------------------------|----------------------------------------|
| 2000 | 1,412,258,068 | 350,550,000 | 1,055,708,068 | 1,037,519,709 | 18,188,359 |
| 2001 | 2,773,134,464 | 150,221,666 | 2,622,912,798 | 2,429,288,484 | 179,970,735 |
| 2002 | 3,246,912,756 | 300,000,000 | 2,946,912,756 | 2,751,288,484 | 195,624,314 |
| 2003 | 3,209,257,032 | 15,000,000 | 3,194,257,032 | 2,917,076,017 | 54,831,015 |
| 2004 | 1,154,499,752 | 696,454,000 | 458,045,752 | 224,406,575 | 233,639,177 |
| 2005 | 3,259,437,928 | 629,000,000 | 2,630,437,928 | 235,936,966 | 244,020,804 |
| 2006 | 4,084,586,339 | 1,290,550,000 | 2,794,033,639 | 2,525,756,591 | 268,277,084 |
| 2007 | 4,258,849,407 | 775,000,000 | 3,483,849,407 | 3,212,414,523 | 271,434,884 |

Source: Ministry of Economic Planning, Budget Department.

Table 4.3: Annual demographic statistics of public secondary schools in Rivers State (2000 - 2007)

| YEAR | TSP | MSP | FSP | TTP | MTP | FTP | TNTP | MNTP | FNTP |
|------|---------|---------|---------|-------|-------|-------|-------|-------|------|
| 2000 | 268,766 | 131,450 | 138,974 | 3,615 | 2,393 | 1,340 | 1,769 | 1,125 | 644 |
| 2001 | 238,385 | 137,996 | 144,465 | 3,729 | 2,393 | 1,341 | 1,769 | 1,125 | 644 |
| 2002 | 235,373 | 110,080 | 125,634 | 5,461 | 3,586 | 1,919 | 2,886 | 1,982 | 920 |
| 2003 | 246,743 | 115,512 | 132,385 | 5,479 | 3,542 | 1,919 | 2,898 | 1,989 | 906 |
| 2004 | 245,463 | 115,194 | 127,091 | 5,506 | 3,575 | 1,947 | 2,918 | 1,922 | 946 |
| 2005 | 258,601 | 124,897 | 133,770 | 5,507 | 3,573 | 1,933 | 2,862 | 1,936 | 946 |
| 2006 | 250,706 | 119,425 | 130,745 | 5,451 | 3,537 | 1,933 | 2,912 | 1,925 | 987 |
| 2007 | 135,249 | 64,822 | 67,541 | 3,423 | 2,383 | 1,036 | 1,755 | 1,114 | 645 |

Source: Secondary Schools Management Board.

Legend: TSP Total Student Population, MSP Male Students Population, FSP Female Student Population, TTP Total Teaching Population, MTP Male Teaching Population, FTP Female Teaching Population, TNTP Total Non Teaching Population, MNTP Male Non Teaching Population, FNTP Female Non Teaching Population.