

# **Determinants of Public Education Expenditures: Analysis for Junior and Senior Secondary Education in Nigeria**

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## **Abstract**

*The aim of the paper is to analyze factors influencing spending behaviors on education. The special focus is given to degree of decentralization tasks related to education. It is believed that local chairmen/governors do not actively influence salaries of the teachers. The revenues or more generally differences in financial statement of local units do not importantly explain the variation in this task. States change the level of salaries according to federal regulations and increase them accordingly. On the other hand they do not decide to change number of teachers, even in case of lowering number of pupils in schools and also deteriorating financial statement due to economic crisis. So in case of more centralized and less flexible task we can observe incremental budget behaviors. The spending on school maintenance and school supplies are more influenced by revenues of local government and would be modified more dramatically, when they are changed. The budget policy in case of more decentralized task seems to be more elastic and more differentiated among government. On one hand this is the result of decentralization and could be visible as representation of real local needs. On the other, it could impose problems of politicians influence on budget policy. In year of election these expenditures are higher than in other years. Base on qualitative study, one can observe also, that in time of crisis "fixed" spending on salaries pushed expenditures for maintenance and school supplies out, it can result important problem in vertical equity of education.*

**Keywords:** Determinants, public, expenditures, secondary education.

## **Introduction**

The level of expenditure on education differ between governments. It raises question about reasons of this variation. This issue is interesting from a public policy perspective since spending on education has a significant positive redistributive effect and because it increases the human capital of the economy and can lead to direct growth effects (Barro, 1991).

Analysis of the determinants of public expenditure on education is reflected in numerous empirical studies. Thus the high estimated rates of return to schooling is

often cited as justification for increased public investment in better quality schools. In developed countries, the evidence from research on the education production function is that the effect of additional expenditure per student is sometimes positive but relatively small (Jenkins et al., 2006). There is more convincing evidence that additional expenditure on improved learning materials and school facilities do have a positive effect on student attainment (Pritchett, 1997).

The aim of this paper is to analyze factors affecting the government spending behaviors on education. The special focus is given to degree of decentralization and more generally elasticity which differ various tasks related to education. Teacher salaries and employment policy in Nigeria is strongly influenced by central regulation, so is more centralized task. This kind of spending is also limited due to political or social reason. Other than employment operational spending are more flexible and less influenced by central regulation in Nigeria. This paper will focus on spending on maintenance and supplies needed for education.

The paper starts by briefly defining the determinants of public spending on education and demand for local public schools. In the next part governments in Nigeria is shown as a provider of education at junior and senior secondary level. There is presented basic information about local tasks related to education with special focus on differences in local flexibility in various tasks. The revenue and spending statistics for different type of local governments are also given.

### Determinants of public spending on education

A substantial body of empirical work has investigated the determinants of spending on education. It should be noted that the causes of differences in the school costs can be justified by objective conditions independent from the authorities, local government and states, but also could be result of a defined local government's policy as follows:

- **Number of students and structure of population**

Studies examining the impact of the fraction of the population of school-age children suggest strong effect on per-child spending. Costs of education will increase with the increase of school population, which is associated both with the need to employ additional teachers as well as an increased number of premises or aids. Increase or decrease in the number of students will, therefore, cause the change in expenditure on education. However expenditure per student not adjusted proportionately to changes in the population of students. Decrease in the number of students means higher expenditure per student in relation to larger cohorts and vice versa, increase the number of students is associated with decreased spending per pupil. Author estimated elasticity of cost per student at one taking into account the change in student population size. Therefore total education expenditures are growing with number of students, but not in proportion to the increase in the cohort. This could be explained by a process of adjustments of demand for education to the supply in the short term, which is related to the limited possibilities of reducing the area of school, employment, and costs, which have no rational justification. The other factor, which seems to influence size and type of changes in total educational spending due to increase or decrease in number of students is modification of



structure of population. A central issue in interpreting these results arise from differences in the "demand" for educational spending, mediated through the political process. Harris (2001) referring to the median voter model presented that the main cause of decline in spending per pupil were the conflict between old and young. As a result of competition for a larger share of voters in the budget, there is a conflict between age groups in the area of spending on education.

- **School Network**

The variation in the population density constitutes a significant variation in the public demand on secondary education. Consequently, it can be expected that the variation in the density is important determinant of total public spending on education. In less-populated communities, where there are large distances between people, the spending related to transport of students are higher. Local government authorities can affect the level of this expenditure when deciding on the location of schools. Forming a network of school local government may consolidate both schools by reducing fixed expenses for the maintenance of schools and reducing employment in the schools. The possibility of rationalization of expenditure is one of the reasons why the authorities eliminate the smaller schools. With the increase in the number of students in the classroom or school, the average cost of school per student fall, which is described as economies of scale. This occurs when fixed costs, which include administrative costs, will decompose to a large number of students. The other type of economies of scale is related with size of class. From the point of view of efficiency local authorities try to allocate resources to reduce spending per student. Lower costs may mean a more numerous class, fewer hours for classes or more hours per teacher. Number of class in a school is associated with the number of full-time job teachers, so the bigger class will be created, the smaller number of teachers the community have to employ. However, comparison of results between studies is difficult, not least because the way in which they control for socioeconomic conditions and school quality (or student outcomes) is very different. In general the presence of economies of scale resulting from the transaction costs depends on whether the organization of work and school management is flexible. If it is possible to freely determine teachers' working time, wages, and outsourcing services to external entities and expand business by renting halls, the economies of scale will be limited. The emergence of constraints in the system of schools is linked to the growing economies of scale.

The other important question is if and how number of schools affect expenditure. Bigger school could mean that there are more schools in particular area and it could create competition among them. More recent contributions have argued that the level of competition between schools affects expenditure on education. On the other hand competition may also increase the schools cost to attract students which does not improve quality education. The larger number of schools is associated with the problem of maintaining smaller institutions where the expenditure per student are relatively high.

- **School and students characteristics**

Schools differ in several ways, for example the general education is cheaper than professional. The type of profession also influence costs e.g. economic schools are



less costly than mechanical. The other source of differences is type and "quality" of students. The costs of pupils with special educational needs and the poor family background are higher than average. These differences will determine costs to school and local government. Falch (2008) confirm that the intensity of work and money spent grows with pupils with special educational needs, as well as from marginalized groups or ethnic minorities. The effect of cost increases due to the need to employ an additional teacher or educator. Some pupils require additional resources in order to provide them with similar access to the curriculum to that enjoyed by the majority of pupils of their age. Environment for lower income individuals are most often associated with higher expenses related to assistance for students, extra academic assistance for meals not charging for certain services. The increase in costs may result from employment of necessary pedagogical support related to behavior problems.

### Measuring the demand for local goods and services

The economic analysis of determinants of government resources allocation is complicated and not obvious task. The classical assumption is the median voter model. The idea of this model is, that we could analyze how the government spends money in the same manner like in classical microeconomic models of individual spending decisions. The other determinants are related to socio-economic characteristics of society, which help to understand preferences of median voter. Important are also information about population size, to estimate the impact of congestion. The output of local goods in these studies were estimated as a value of spending for particular public services, which helps to avoid problems related to measurement of public production.

The critics of usefulness of median voter in analysis of government allocation decision comes mostly from political economy. The idea, of median voter seems to suit better in direct democracy.

In reality of representative democracy, the politicians decide about public spending and to understand this spending we need to estimate politician's preferences (Sorenson 1995). The other problem, which destroy efficacy of median voters fiscal illusion are taxes or more generally local government's revenues like grants, and shared taxes that do not act like prices at private market. Additionally in practice, governments are responsible not for one task but they are multi-task, they impose fiscal illusion and potential rationality as basis for voter's decisions. The fly paper effect is exemplification of these problems. It was found that the public expenditures response for public grants is more significant than for increase of private incomes or local tax revenues. This effect is called "fly-paper effect" because "money sticks where it hits" (Inman; 2008). The voters, due to lack of proper information – fiscal illusion, does not have the possibility to control the budget, and the decision about public spending is made by and for self-interested government. That is why the analysis of government fiscal decisions should be focused on governors and bureaucrats perspectives and try to understand their preferences (Oulasvirta L. 1997). The basic assumption is that bureaucrats aim is to maximize their income and finally public budget as well, also politicians who try to maximize re-election odds tend to oversize public budget.



The superior exhibition of this characteristics of local councilors is political business cycle or electoral business cycle. Public authorities spend more on items visible for voters (and increase deficit and indebtedness) in pre-election period and generally spend less after election. What is interesting in such behaviors are much more visible in new democracy. This explains the local governments spending decisions which also take into account political dimension is punctuated equilibrium theory of budget policy. It is noticed that, like in nature, in budget policy one could observe long periods of stability when the changes in budgets (spending) are not important. But those periods are interrupted by rare periods of dramatic changes. It was noticed, that important are different kind of frictions, which make budgetary process (whole, or for particular tasks and sources of finance) complicated and difficult. For example where there are many diversified participants, and due process to transaction costs is complex, the changes are difficult and rare. The example of this situation is bureaucratization which create difficult changes. We could also look at different kind of tasks and spending related to them. Those, were exist strong and well organized group of interest, like school and childcare have stable and in average stronger growth in expenditures compared to others like roads and libraries (Mortensen, 2005).

Looking at the sub-sovereign government as provider of public goods we need to analyze, the other kind of frictions too like frictions which are related to degree of decentralization. Even when task is defined as local, very often different kinds of central regulations influence its production. Those limits in autonomy, could be related to political, budget, input-output autonomy and also to monitoring and evaluation systems. If there are more and more strict limits then the degree of decentralization is lower and frictions for local policy are harder. To take into account political characteristics of local spending the variables which influence them are:

- ❖ socio-economic characteristics of locality (which explain the structure of budget, especially in situation where spending are- even partly-defined by central law),
  - ❖ the local councilors socio- and party-characteristics,
  - ❖ number of years to new election,
  - ❖ local revenues—those which are defined by local politicians (local taxes),
  - ❖ transfers,
  - ❖ last year expenditures (as budget theory suggest), but its need to be collated with type of spending
  - ❖ type of spending, we need to distinguish goods with different levels of frictions- social or legal- among others different degree of decentralization
- Besides above, there is the need to evaluate characteristics of analyzed good, and those variables which affects its production.
- **Local finance and local Education in Nigeria**

The most important, but not the single source of financing local governments spending for education is general grant-educational subvention, transferred by central budget.



Those subvention is calculated according to number of students in every sub-sovereign unit. It takes into account also the type of schools, student's special requirements, type of local governments, in addition number and type of teachers, grows every year, but unfortunately the spending grows even faster. We could say that different local governments have differently decentralized revenues. These revenues are influenced by economic situation of the country.

There are also not defined minimum level of all local spending related to education. As was mentioned, there are very strict rules related to salaries and generally work conditions of teachers, but there are no given standards for example about number of pupils per teacher or size of class. Those lack of clarity in financial obligation of federal and government is important reason for differences in local policy related to education. As visible, the expenditures related to salaries are far less diversified than school maintenance and supplies spending. This observation confirms our expectations about role of current local decisions in those two kinds of expenditures. Expenditures for maintenance even less important in structure of education's spending, are more flexible than salaries and better represents problems of governments' demand for education.

On one hand these differences in local spending for education as an exemplification of decentralization of education, Lack of flexibility is the most important part of spending for education related to teachers' salaries, raises questions about real dimension of this decentralization and is related to horizontal but also vertical equity. Those question is especially important in time of public financial crisis. The other problem, which also need to be mentioned here is demographic changes. What's more in situation of inflexible teacher salaries and hiring policy (due to law but also political and social reasons), even when number of teachers is decreasing, it is less dramatically than decrease in number of pupils.

During individual interviews all respondents also mentioned problems of teacher's remunerations as most important and inflexible factor influencing spending in education. Besides salaries, local governors noticed, that other guaranteed by law teachers privileges burdened budgets like obligatory social insurance fund or special healthful vacation. As one respondent from a local government said: "...nobody asked me how much I want to pay teachers, only the directors gives table, and I have to pay". The possible cost reduction in this category is related to teachers' relieve. All respondents mentioned, that it is difficult operation. Generally in analyzed local units, strategy is to forfeit employment of new teachers but not to dismiss old. One noticed that firing is a costly operation. First from the social point of view. "... We do not want to do it because it is not humanly possible. And it is dilemma". There are also financial cost, due to obligatory compensation defined at Teacher Chart. The other factor which seems to impact flexibility of employment and remuneration policy is size of sub sovereign unit. Bigger units more often decided to closed schools or merge different entities- and due to this reorganization employment.

Respondents declared more flexibility in spending related to supplies needed for education and also current repairs. On one hand it means, that in time of crisis this is the first category, where spending decrease. As governor from big city



said: "We look for saving mostly in material assets, we could buy less teaching accessories or do less current repairs, but the teaching process need to be done, so we need to hire teachers". On the other hand in better financial situation, spending in this group probably would increase faster, than teachers' salaries.

Quantitative research validate our assumption of differences in local policy due to level of local flexibility or degree of decentralization- in particular expenditures. Employment, and more generally spending related to teachers, which are the most influenced by central government regulations seems to be more stable, and less dependent on financial situation of local units. The maintenance and school supplies- are those categories of spending, where local governors are almost independent so these spending are more decentralized. According to respondent's opinion, the expenditures related to this area are more influenced by financial statement of local government and would be modified more dramatically, when this statement is changed. Unfortunately in time of crisis "fixed" spending on salaries pushed expenditures for maintenance and school supplies out, what could cause important problem in vertical equity in education.

## Conclusion

Education is the example of service which in many countries is in the responsibility, but the autonomy of decision in these sphere is limited. This is also the case in Nigeria, where education is owned and is financed locally. There is central grant calculated due to educational costs, but this is general grant, so can be spent as if it was their own (non-earmarked) local revenue. One could say the revenue autonomy or revenue decentralization of education is limited only by localities general budget restraints.

There are no central standards for local spending for education. So level of spending according to law is related to own local policy. On the other hand these expenditures are limited by different central regulations. In this paper I compared local policy related to tasks where those limitations are different. One could say there are different levels of spending decentralization related to these tasks. Employment and basic level of teachers' salaries is example of rather centralized but still own local task of government in Nigeria. There are given by law minimum levels of teachers' salaries and special rules of their employment. Conversely local units are responsible for this employment and decide about teachers' salaries above this minimum level. School maintenance and supplies needed for education is the case of decentralized task, where there are no strict central regulations. We need to remember that elasticity of spending of mentioned above tasks is influenced also by other than central regulation limits. Due to political or social reasons expenditures related to employment are always less elastic than maintenance.

The aim of this paper was to analyze factors affecting Nigeria governments spending behaviors on secondary education. The special focus was given to degree of decentralization or more generally elasticity which differ various tasks related to education.

The spending on maintenance and current supplies are more influenced by financial condition of local government and would be modified more dramatically,

when the financial situation is changed. The budget policy in case of more decentralized task seems to be more elastic and more differentiated among governments. On one hand this is the result of decentralization and could be visible as representation of real local needs.

### Recommendation

1. Highly qualified personnel should be effectively engaged and utilized to reduce educational wastage and unit cost in the secondary school system.
2. The workforce structure and the principle of unity of command should be strictly observed in the reporting chain of responsibilities. This will justify the personnel cost, high unit cost, improve professional standards and ensure students' learning achievement.
3. The Local Government should device improved means of monitoring and supervising members of staff. This will promote the utilization of educational resources since utilization rate has an inverse relationship with unit cost of secondary education for learning achievement.
4. The school management should put in place programmes to improve student-teacher relations, maintain average class size, good student-teacher ratio in enlarged class size towards reduced cost per students and economic of scale.

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