

The Impact of Economic Crisis on Mathematics Education Curriculum Delivery: A Case Study of South-East Geopolitical Zone, Nigeria

BY

Omokaro Blessing & Akporugo Sunday

Department of Mathematics, Federal College of Education (Technical), Asaba, Delta State
.omobless2014@yahoo.com , liciousmege@gmail.com

Abstract

The purpose of this study was to examine the impact of economic crises on mathematics education in the South-East geopolitical zone, Nigeria. Two research questions and two hypotheses were raised for the study. The design adopted for the study was descriptive survey. The population of the study was 540 which was stratified into three consists of students and teachers, parents/guardian, officials from State Ministries of Education answered questions on if, where and how the crisis had affected the education in South-east , Nigeria. In all, 10 teachers, 10 parents, 10 students and two officials from state Ministries of Education from each state of the South-East geopolitical zone were randomly sampled. The instrument used for data collection was a questionnaire. Mean and standard deviation were used to answer the research questions, while t-test was used in testing the hypotheses. The findings from the study among others indicated that: the economic crisis has drastically affected the rate of government allocation to education sector as well as irregular payment of teachers' salaries has dampened their morals which at the long run hindered their ability to effectively discharge their duties. The study therefore recommended among others that: There is need for diversification of Nigeria revenue sources through improvement in, solid minerals, agriculture and tourism sectors to boost the economy, Teachers should be more innovative in the utilization of some teaching aid and equipment, Concerted efforts and good attempts should be made by education stake holders to maximize their allocated resources by the government and Government should provide the necessary funds to reduce the effects of the crisis on educational development

Keywords: Economic Crisis, Funding, Mathematics Education, Government.

Introduction

Education is regarded as the back bone of any national development; no nation can develop above her educational quality. The importance of education to human development has been well documented, highlighting the catalytic roles of education in national and human capital developments (Fägerlind&Saha, 2016; Griffin, Care & McGaw, 2012). Education is a means of self- development through learning, knowledge, skills, and habits conveyed across generations. Mathematics is very important subject. It is the tool for understanding science, technology and

business so it is a force to be reckoned with in the development of any nation and generally been accepted as foundation of science and technology (Okeke, 2019). Also Asheraft and Kirk (2010) indicated that mathematics is the language of science and foundation of rational development and productivity. To attain self-reliance and economic development, maximum premium must be placed on science and mathematics. This led the federal government of Nigeria to make mathematics one of the core subjects with the following objectives: as to develop interest in mathematics and provide a solid foundation for everyday life. The impact of economic crisis ravaging Nigeria educational sector cannot be overemphasized. The crisis, which has ravaged many economics around the world has caused noticeable imbalance in Nigeria. Besides depleting the country's external reserves, it has led substantially to the crash of the stock market, the erosion of the country's revenue by over 60 percent and the depreciation of the national currency, among others. Okonjo-Iweala (2009) reported that, "Nigeria has been hit by the global economic crisis together with developed and developing countries all over the world. The term economic crisis can be defined as a situation where there is a recession in nation's economic activities, a situation where the world's economy seems to be standing on its head (Kumuyi, 2010). In Nigeria, the educational system is almost completely dependent on government budgetary allocation and with the economic crisis; the sector will no doubt witness its fair share of budget cuts which will affect not only the teachers but also students and families. Teachers' salaries represent around two-thirds of public expenditure on education, which explains why in some countries the first signs of a slowdown had a direct impact on pay (Coombs, 1985). Furthermore, when the economy is in crisis, and graduate unemployment is high, the teaching profession used to be a safer and more attractive choice than other occupations because of the respect given to the profession and regular payment of teachers' salary but nowadays contrary is the case. But significant salary reductions due to economic crisis can also have a negative impact on a country's attempt to attract the best individuals to the teaching profession. As a consequence, countries will find it more difficult to maintain the quality of learning in the future. Apart from this, learners in schools that lack the resources or capacity to transition to online delivery are currently missing learning (Leung & Sharma, 2020).

Learning within the homes could also be a challenge or present challenges for learning. Such depends on parents' educational attainment and other commitments, leaving a greater percentage of the learners' population behind. These problems constitute considerable concerns from all stakeholders in education (Crawford et al., 2020). Ochu (2010) reported that the challenges faced by most of the developing countries which have some serious effect on mathematics education burdened by disappointments and shortfalls in expectations are rooted on social, economic and political factors, which also mutually interact with each other. The global economic crisis has effects on Nigeria economy which has led to depletion of stocks, loss of investment, loss of jobs occasioned by the closing down of many companies, devaluation of the naira, culminating in government inability to fund education, especially in South-East.

Statement of the Problem

The national politics determines the quality of education policies, programs and processes and eventually the products (results or outcomes). Government underfunding and commoditization of education is likely to worsen the crisis in mathematics education. The current economic crisis confronting many governments is creating severe conflicts in educational sector of many nations. On the one hand they had to reduce, their budget deficits to avoid excess indebtedness. On the other hand, they had to promote education firstly to alleviate unemployment as a short run crisis measure and secondly to avoid the deterioration of human capital in the long run. High percentage of national budgets focuses on the public funding, which greatly affect the education sector. Some governments carried out overall budget cuts. These had negative effects on teachers, students and families. Therefore, concerned with this phenomenon, the study was conducted to examine the impact of economic crises on mathematics education in the South-East part of Nigeria

Purpose of the Study

The purpose of this study was to examine the impact of economic crises on mathematics education in the South-East part of Nigeria. Specifically the study sought to:

1. Find out how reduction of government budgetary allocations on mathematics education has negative impacts on teachers in the south-east states.
2. Find out the challenges encountered by teachers as a result of economic crisis on mathematics education in the south-east states.

Research Questions

The following research questions will be formulated to guide the study;

1. To what extent does reduction of government budgetary allocations on mathematics education has negative impacts on teachers in the south-east states?
2. What are the challenges encountered by teachers as a result of economic crisis on mathematics education in the south-east states?

Hypothesis

The following null and alternative hypotheses were used to determine the level of significance at 0.05.

- H₀: There is no significant difference between the mean responses scores of male and female teachers on the impact of economic crises on mathematics education in the South-East part of Nigeria.

H₁: There is significant difference between the mean responses scores of male and female teachers on the impact of economic crises on mathematics education in the South-East part of Nigeria.

METHODOLOGY

Research Design

The study adapted a descriptive survey design, since the opinion of the respondents were collected from the field

Scope of the Study.

The study was focus on the impact of economic crises on mathematics education in the South-East part of Nigeria.

Population of the Study

The population of study was 540 which was stratified into three consists of students and teachers, parents/guardian, officials from State Ministries of Education answered questions on if, where and how the crisis had affected mathematics education in South-east, Nigeria.

Sample and Sampling Technique

The sampling technique used for the study comprises of 10 teachers, 10 parents, 10 students and two officials from state Ministries of Education from each state of the south-east were randomly sampled.

Instrument for Data Collection

The instrument used for data collection was a questionnaire. The respondents were requested to express their opinions on a four point modified Likert response scale of Strongly Agree (SA), Agree (AG), Disagree (DI) and Strongly Disagree (SD) with their weight ranging from 4-1 for positively skewed items and vice-versa for negatively skewed items. The instruments were validated by two experts who certified them fit for the study with a reliability coefficient of 0.74.

Method of Data Collection

Data collected were analyzed using mean and standard deviations and t-test statistics to test the hypothesis.

Analysis and Results of the Study

The results of the study were obtained from the research questions answered through data collected analyzed. Any item with mean score above 2.50 was adjudged accepted, while item with a mean score below 2.50 is adjudged rejected.

Research Question 1: To what extent does reduction of government budgetary allocations on mathematics education has negative impacts on teachers in the south-east states?

Table 1: Mean and standard Deviation results on reduction of government budgetary allocations on mathematics education as negatively affects teachers in the south-east states.

S/N	ITEM	SA	AG	DI	SD	MEAN	SD	DECISION
1.	Due to the economic crisis, mathematics education thus experienced a drop in government allocation	63	34	3	0	3.60	0.55	Accepted
2.	The drop affects the purchase of material, and equipment for effective education delivery	54	39	6	1	3.46	0.64	Accepted
3.	Payment of allowances to teachers has been affected due to the economic down turn	50	37	12	1	3.36	0.72	Accepted
4.	Purchase of books, subscription for journals needed for effective education delivery has been affected with the drop in government allocation	37	36	17	10	3.00	0.97	Accepted
5.	The drop has affected the regular servicing and maintenance of laboratories equipment	54	32	10	14	3.60	0.82	Accepted
6.	The drop has affected the renovation of dilapidated buildings and the construction of new ones	53	21	14	12	3.15	1.07	Accepted

7.	The drop has affected the supply of qualified teachers and other personnel needed for effective curriculum delivery	32	28	29	11	2.81	1.01	Accepted
8.	Lack of training and retraining of education teachers due to drop of government allocation of funds	37	41	16	6	3.09	0.88	Accepted
9.	Teachers are not motivated to be effective in their task of effective education curriculum delivery	35	48	12	5	3.13	0.81	Accepted
10.	Inability of teachers to cope with class size since there are not enough manpower and classrooms	53	34	7	6	3.14	0.86	Accepted
11.	The drop has affected salaries of teachers with adverse effect	75	20	3	2	3.68	0.63	Accepted
	Grand Mean and Std					3.29	0.82	

The results obtained from table 1 above shows that all items were accepted with mean scores ranging from 3.00 to 3.83. This implies that the reduction of government budgetary allocations on mathematics education has negative impacts on teachers in the south-east states of Nigeria because their mean scores were above 2.50 which is the cutoff point.

Research Question 2.What are the challenges encountered by teachers as a result of impact of economic crisis on mathematics education in the south-east states?

Table 2: Mean and standard Deviation results on the challenges encountered by teachers as a result of impact of economic crisis on mathematics education in the south-east states.

S/N	ITEM	MALE						FEMALE						DECISION
		SA	AG	DI	SD	MEAN	SD	SA	AG	DI	SD	MEAN	STD	
1.	Irregular payment of salaries as a result of budget cut has created reduction in teachers morals	33	15	2	0	3.62	0.57	30	9	1	0	3.58	0.54	Accepted
2.	Inadequate teaching aids and lab equipment for effective teaching.	30	18	2	0	3.56	0.78	24	21	4	1	3.36	0.72	Accepted
3.	Lack of payment of allowances to teachers.	27	15	7	1	3.36	0.80	22	22	5	1	3.30	0.74	Accepted
4.	Inadequate staff training through workshops and conferences.	23	16	8	3	3.18	0.91	14	20	9	7	2.82	1.00	Accepted
5.	Inadequate grant to schools for effective teaching and learning.	27	17	1	5	3.32	0.94	26	17	6	1	3.36	0.78	Accepted
6.	Low rate of employment.	32	8	4	6	3.32	1.06	21	13	10	6	2.98	1.06	Accepted
7.	Inadequate construction of new buildings and renovation of dilapidated structures.	16	16	10	8	2.80	1.07	16	12	19	3	2.82	0.96	Accepted
8.	Diversion of educational budget to other sectors.	21	23	5	1	3.28	0.73	14	22	9	5	2.90	0.93	Accepted

9.	Lack of teachers' motivation.	18	25	4	3	3.16	0.82	17	23	8	2	3.10	0.81	Accepted
10.	Lack of man powers and classrooms to cope with class size.	29	14	4	3	3.38	0.87	24	20	3	3	3.30	0.84	Accepted
11.	Inadequate supply of teaching equipment to schools.	31	17	2	0	3.58	0.57	32	17	1	0	3.62	0.53	Accepted
	Grand Mean and Std					3.32	0.83					3.19	0.81	

The results obtained from table 2 above shows that the grand mean and standard deviation for male respondents are 3.32 and 0.83 respectively. While those of female respondents are 3.19 and 0.81 in the same order. The table also shows that all items were accepted with mean scores ranging from 2.80 to 3.58. This implies that the items posed challenges to teachers as a result of economic crisis on mathematics education in the south-east states of Nigeria because their mean scores were above 2.50 which is the cutoff point.

Table 3: Independent Sample t-Test Analysis on the Mean Responses of Male and Female Teachers on the Impact of Economic Crises on Mathematics Education in the South-East part of Nigeria.

Gender	Number of Respondents(N)	Mean	STD	df	t _{cal}	t _{cri}	A	Significance
Female	50	3.32	0.83	98	0.864	1.98	0.05	Reject H ₀
Male	50	3.19	0.81					

Table 3 above reveals the mean responses of the male and female teachers on the impact of economic crises on mathematics education in the South-East part of Nigeria. The result above shows that t_{cal} score of 0.864 which is less than t_{cri} score of 1.98 means the null hypothesis (H₀)

should be rejected. Hence, the alternative hypothesis should be accepted. Therefore, it is clear from the result that there is significant difference in the mean responses of male and female teachers on the impact of economic crises on mathematics education in the South-East part of Nigeria.

Results and Discussion

The findings of the study as presented on table 1 indicate that the economic crisis has drastically affected the rate of government allocation to education sector which were strongly agreed by the ministry of education officials, the teachers and the parents/guardian. The respondents from the students and parents with a mean score of 3.00 also attested that their purchasing power has dropped and as a result, it has affected the purchase of books and educational materials. Ministry of education officials with a mean score of 3.62 agreed to the reduction in recruitment of teachers and other personnel needed for effective education curriculum delivery. The respondents from the students with a mean score of 3.36 indicated that learning environment is not conducive as a result of schools underfunding. This is in agreement with Adikwu (2008) reported lack of funds stands out as the number one problem in the teaching and learning of core subjects. Opataye (2010) investigated that in view of the fact that the sources of revenue of most schools have drastically reduced in this economic crisis, an attempt should be made to maximize whatever has been given. In another view Mbah (2010) reported that due to global economic crisis, the high prices of teaching equipment and materials make them out of reach to most schools in view of the high rate of foreign exchange brought about by unfavourable economic situations. Many of the respondents from the teachers and ministry of education departments agreed that there is a drop in government allocation which is due to economic crisis and it has affected the release of grant, payment of allowances to teachers, purchase of books, subscription for journals needed for effective education curriculum delivery, staff training through workshops, conferences and seminar as well as the rate of renovation of dilapidated buildings. Okafor (2010) reported that this downturn in funding of schools and colleges has complicated matters. The rate of unemployment in Nigeria is embarrassing, the pace of scientific and technological development is slowed down, the improvement and solution on environmental problems for the use and convenience of man becomes elusive. All these points to the economic crisis in the nation which needs to be salvaged. Another major finding of this study is that teachers are not motivated to be effective in their task of effective education delivery. This finding is in agreement with (Igboabuchi, 2010). They express that many teachers due to lack of motivation and prompt payment of salaries and other allowances cannot meet their daily needs due to high cost of living brought about by economic crisis. These conditions bring about divided attention and poor concentration on the teaching job thereby reducing their output. Some even become unnecessarily harsh to students and would not take time to give proper explanation on any concept taught, as students' lose interest in class activities thereby affecting the impartation

of such knowledge. Adamu (2010) maintains that if teachers are motivated enough, they will put in their best and find a way to obtain materials necessary to teach. Also, the table 1 below shows clearly that all the respondents: teachers, parents/guardian, students and officials from the State Ministries of Education were of the consensus that all the existing mechanisms used for education teaching were inadequate due to the financial crisis. This finding is in line with the view of Oyesola (2010), who observes that the problem of effective education teaching is due to lack of equipment and materials, large class size, use of inappropriate teaching methods and lack of students' interest.

The result of the analysis in table 2 above shows that, the irregular payment of teachers' salaries has dampened their morals which at the long run hindered their ability to effectively discharge their duties. The situation is better in Abia and Enugu States. In addition, higher number of respondent agreed that teachers' salaries have been diverted to cater for other sector of public needs. Also, it was noted that due to budget cut, the recruitment of new teachers has taken a downward turn which eventually created more burden for the few available teachers to handle large classes. Renovation and building of new infrastructures slowed down in pace which made learning atmosphere to be non-conducive for effective learning, but still Abia and Enugu States are better. The budget allocation reduction has also culminated in inadequate supply of equipment for qualitative education. This result is in agreement with Ladipo (2016) and Okafor (2010) indicated that "The Nigerian education Sector is in dire straits and requires both public and private sector intervention, if the country is to fulfill its potential as not only a regional power house, but as a global player".

Recommendation

Based on the above, the following recommendations were made:

1. There is need for diversification of Nigeria revenue sources through improvement in, solid minerals, agriculture and tourism sectors to boost the economy
2. Teachers should be more innovative in the utilization of some teaching aid and equipment
3. Concerted efforts and good attempts should be made by mathematics education stake holders to maximize their allocated resources by the government.
4. Government should provide the necessary funds to reduce the effects of the crisis on educational development
5. Ensure teacher salaries are been regularly paid and up to date.
6. Support teachers training and retraining.
7. Ensure adequate provision of equipment and infrastructures.

CONCLUSION

This research considered the impact of economic crisis on mathematics education curriculum delivery. Economic crisis has affected all aspects of education delivery. Education which is the foundation of development ought not to be treated casually by its stakeholders. The findings vividly showed that, the current economic crisis has resulted to a drop in government allocation to educational sector and this has negatively affected the education curriculum delivery. The government and teachers should diversify their revenue base and also be judicious in spending their earnings and allocations in order to overcome this financial crisis.

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