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National Home-Grown School Feeding Programme; A New Paradigm for Enrolment, Attendance and Transition to the Next Level of Education in Bauchi State.

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ABSTRACT

This study investigates the impact of the National Home-Grown School Feeding Programme (NHGSFP) on educational outcomes, specifically enrollment, attendance, dropout rates, and transition to the next level of education in Bauchi State, Nigeria. The NHGSFP aims to provide nutritional support to vulnerable households, thereby enhancing educational access and performance. Utilizing a survey research design, data were collected using a structured questionnaire from 400 respondents across six selected local governments in Bauchi State. The study employed descriptive and inferential statistical analyses, including correlation, regression, and t-test, using SPSS version 23.

The results indicate a strong positive relationship between the NHGSFP and key educational indicators, with a coefficient of multiple determination (R^2) of 0.944, suggesting that 94.4% of the variation in enrollment, attendance, dropout rates, and food security can be attributed to the program. Significant beta weights for enrollment ($\beta_1 = 0.169$), attendance ($\beta_2 = 0.211$), dropout ($\beta_3 = 0.161$), retention ($\beta_4 = 0.206$), and food security ($\beta_5 = 0.189$) were observed, all with p-values less than 0.05, indicating the program's efficacy in improving these areas.

However, the study found no significant difference in the transition rates of students between schools with and without the NHGSFP, attributed to the stability of families enrolling in private schools. These findings emphasize the importance of the NHGSFP in addressing educational challenges in Bauchi State.

Key Words: School Feeding, Enrollment, Attendance, Dropout, Food Security, Transition

Introduction and Literature

Global indices have shown that for almost 25 years, extreme poverty was then steadily declining (World Food Programme, 2020), but nowadays the quest to end poverty has suffered its worst setback. Nigeria Poverty Assessment 2022 shows that sluggish growth, low human capital, labor market weaknesses, and exposure to shocks are holding Nigeria's poverty reduction back. It draws primarily on the 2018/19 Nigerian Living Standards Survey (NLSS), which provided Nigeria's first official poverty figures in almost a decade, as well as the Nigeria Covid-19 National Longitudinal Phone Survey (NLPS) implemented by National Bureau of Statistics (NBS) in collaboration with the World Bank.

In 2018, Nigeria was referred to as the Global headquarter of poverty by the British Government, because Nigeria is currently facing low human capital, labour market weaknesses, and exposure to shocks, which is holding Nigeria's poverty reduction back (World Bank Group, 2022). Their report suggests that at least three types of deep, long-term reforms to foster and sustain pro-poor growth and raise Nigerians out of poverty. These include: (1) macroeconomic reforms (including fiscal, trade, and exchange rate policy); (2) policies to boost the productivity of farming and non-farming household enterprises; and (3) improving access to electricity, water, and sanitation while bolstering information and communication technologies. These reforms together could help diversify the economy, invigorate structural transformation, create good, productive jobs, and support social protection programs as well as other redistributive government policies.

In the same vein, World Food Programme (2020) signified that home grown school feeding programs can significantly contribute to the achievement of the sustainable Development Goals particularly SDG 2 on ending hunger, achieving food security, improved nutrition, and promoting sustainable agriculture; so also, SDG 4 on qualitative education especially to the vulnerable households (children).

It is against these backdrops that School feeding programm is adopted by the Nigerian Government that provided both educational and health benefits to the most vulnerable households (mostly children), thereby increasing enrolment rates, reducing absenteeism, drop – outs and improving food security at the household level (World Bank, 2013). In the same vein, World Food Programme (2020) signified that home grown school feeding programs can

significantly contribute to the achievement of the sustainable Development Goals particularly SDG 2 on ending hunger, achieving food security, improved nutrition, and promoting sustainable agriculture; so also, SDG 4 on qualitative education especially to the vulnerable households (children). These was acknowledged by various Governments and Non – Governmental Organizations, including the African Union, Community of Latin America and Caribbean States and others, are including these initiatives in their quests for achieving food security and implementing the 2030 Development Agenda (McEwan, 2013; African Development Report, 2015; Atta and Manu, 2015; Uduji et al, 2020).

In Nigeria, the initiative of (Home Grown School Feeding Programme) was pilot tested in 2004 starting with 12 states from all over the country based on six geo-political zone (OSHGSFP, 2018) and in 2016 it was officially implemented to provide a nutritious and balanced meal to 5.5 million school children grades 1 to 3 with the sole aims of improve the enrollment of primary school children and reduce the drop-out rate. Official figures show that, it is estimated that the children's drop out is over 30 percent (Taylor and Ogbogu, 2016; Alabede et al, 2020) with poverty master minding these short comings; this programme is built to address the most important basic needs of school children and to provide the nutrition needed to engage successfully with their education (Adebisi et al, 2019; Uduji and Okolo-Obasi, 2021; WFP, 2021).

Bauchi state is the second largest state, after Sokoto state (first) experiencing low enrollment, transition and higher student's dropout in the basic education system in the northern Nigeria (USAID, 2015). This necessitated the initiation of USAID's intervention on basic education in 2010, named 'Northern Education Initiatives (NEI)' with an extension of the program now called Northern Education Initiatives Plus (NEI plus). The project focuses on strengthening the technical and administrative capacity, commitment and accountability of federal, state and Local Government Education Authorities (LGEAs) to provide improved reading skills, increasing access to quality education, using evidence to improve performance e.t.c.

Efforts by both national and international researchers on the impact of school feeding programe, the Programme has been shown to have a positive impact on education outcomes (LIKE Graham et al., 2015; Adebisi et al, 2019; Alabede et al, 2020; Ahmed and Crosdale, 2021; WFP, 2021; Okolo-Obasi & Uduji, 2022). Schools with the feeding programme were recorded to be having higher rates of enrollment and zero or low absenteeism than schools without the feeding programme (Atta and Manu, 2015; Taylor and Ogbogu, 2016; Devereux et al., 2018; Adebisi et al, 2019; Alabede et al, 2020; WFP, 2020; Ahmed and Crosdale, 2021; WFP, 2021; Okolo-Obasi & Uduji, 2022). It provides an incentive to attend school and encourages learners to arrive at school on time. Building on these, one may expect that the SFP advances academic achievements.

Issah et al., (2022) study challenges of school feeding in Ghana, its effect on enrollment and attendance. He found a significant relationship between SFP and enrollment and attendance despite the challenges bedeviling the implementation of the programme. While in his work, he failed to consider the transition to the next level of education. This is missing and needed to be extended. What of if the students, after enrollment absconds, for some time or even dropped themselves non-maturely? What is the impact anyway?

This study served as an extension to his work. We want to consider transition into the next level of education. More so, he uses correlation and regression analysis whereas Analysis of Variance (ANOVA) was also be used as comparative study to bridge the gap established therefrom. The aim of the study is to measure the impact of Home-Grown School Feeding Programme on educational and health benefits to the most vulnerable children in Bauchi state; with specific focus on transition to the next level of education

Hypotheses

H_{01}**:** There is no significant impact between NHGSFP and enrolment, attendance, dropout, food security and transition.

H_{02}: There is no significant difference in the transition of students in school with and without NHGSFO

National Home -Grown School Feeding Programme (NHGSFP) and Its Impact on Educational Development in Nigeria

The NHGSFP has significantly improved school enrollment and attendance in Nigeria. Providing free meals, the program removes a key barrier to education – hunger - which is especially prevalent in poor and rural areas (Adejumo and Ibrahim, 2023). Many children, particularly from low-income families, are often kept out of school due to the high cost of feeding and other household responsibilities. The NHGSFP acts as an incentive for parents to enroll their children in school, knowing that they will receive at least one nutritious meal a day (Okechukwu & Adeola, 2023).

According to Adewale et al. (2023), since the introduction of the NHGSFP, school enrollment has increased by an average of 10% in states where the program has been implemented effectively. Furthermore, school attendance has shown marked improvement, as children are more likely to attend school regularly when they are assured of receiving a daily meal. This improvement in attendance is critical for education sustainability, as it ensures that children are receiving consistent learning, which is foundational for long-term academic success.

Reducing Dropout Rates and Enhancing Retention

Another significant impact of the NHGSFP on education sustainability is its role in reducing dropout rates. Many children in Nigeria, especially girls, are forced to leave school prematurely due to economic pressures or family responsibilities (Ayodele & Ogunleye, 2022). In rural areas, where poverty rates are high, girls are often kept at home to assist with household chores, including cooking and caring for siblings. The NHGSFP reduces the domestic burden on these children, giving them the opportunity to remain in school.

In addition, Adejumo and Ibrahim (2023) highlight that the NHGSFP has been particularly effective in retaining students in early education, which is a crucial factor for education sustainability. Early childhood education is foundational for future learning, and by ensuring that children do not drop out in the early stages of their schooling, the program sets a strong foundation for lifelong learning and educational progression.

School Enrolment and Dropout

In Bangladesh, Ahmed and Billah (1994) in a study found that school-based food distribution in Bangladesh increased enrolment by 20% as against 2%, World Food Programme (1996) recorded 76% increase in enrolment while attendance increased by 95% after introducing a school feeding programme in Pakistan. In the same vein in Ghana, the programme had a high positive and significant impact on school enrolment, attendance and retention (Osei-Fosu, 2011). Ahmed (2004) observed that in Bangladesh, a study by International Food Policy Research Institute on the effect of school feeding programme on enrolment which found that the programme raised school enrolment rates by 14.2% reduced the probability of dropping out of school by 7.5% and increased school attendance.

In Nigeria, the School Feeding Programme has a target of Five (5) million pupils for the Four (4) years implementation period. But after the implementation of the programme, a total of 9,714,340 pupils were incorporated for the program from 53,715 public primary and junior schools (Edeh, 2019). This is far more than the targeted population.

The impact of the programme has been felt significantly with regard to increase in school enrolment. School authorities and other stakeholders including NGOs in the basic education posited that there has been significant increase in school enrolment and attendance since the inception of the programme (WFP, 2019). News Agency of Nigeria (NAN) conducted a survey in southern Nigeria; their report indicated an improved enrolment in Oyo, Ogun and Osun states. The Anambra State focal person confirmed that the programme has resulted in 83% increase in enrolment (Oluwole, 2018). Imo, Enugu, Cross River and Delta States also recorded increase in school enrolment.

Food Security

Alabi (2003) observed that "there is relationship between nutrition and academic performance because past studies on nutrition show that children that are not well fed with balanced diet do have retardation in their growth and mental development". Nutritional and health status are powerful influences on a child's learning and how a child performs in school. The study is not the same with Yunusa (2014) in his work make an emphasis to the effect of lack of nutritious food on child cognitive ability and posited a significant difference between children who take a balanced diet and those who do not. The less nourished children were able to perform less than those as healthy and well-nourished children. When pupils are well fed they are motivated to get into school and it can have significant impact on their nutritional status and development, cognitive capabilities and academic performance. Previous studies have shown that the quality and nutrient components of food affect the development and learning potential of the learners.

Olumuyiwa et al. (2012) in their study assessed the School Feeding Programme in Nigeria and signified that the Nutritional Status of Pupils in a Public Primary School in Ile-Ife, Osun, State, Nigeria. Meals were collected and analyzed for nutrient composition and compared to the requirement for their age group. The mid-arm circumference (MAC) ranged between 15 and 21 mm and the body mass index, (BMI) was within the WHO reference standard for healthy children. They postulate that continuation of the programme would go a long way to preventing malnutrition among the school-aged children.

Yunusa (2014) noted that students in School Feeding Programme have the potential for improving their performance because it enabled them attend school regularly and studied more effectively and in good health with humor sense of belonging.

Methodology

Survey research design was used for the study where part of the population was sampled and studied whereas the result generalized. Inferential method was used to ascertain the extent to which the impact of School Feeding Programme has on enrollment, attendance and transition into the next level of education

Bauchi state is the fifth largest in area and seventh most populous state with an estimated population of over 6,530,000 as of 2016 and according to United Nations population projections, the current metro area population of Bauchi state in 2021 is 7,540,663 people of which 400 will be sampled using Taro Yamane formula. The sampling procedure for the research is multi-stage sampling. At the first stage, Bauchi state will be clustered based on the local governments, that is, each of the local governments in Bauchi state is an independent entity and homogeneous group called cluster which gives a sum of twenty (20) clusters. The second stage of the sampling is non-probability sampling, that is, six (6) local governments in the state will be purposefully sampled with special reference to senatorial districts where two (2) local governments in each of the senatorial district were selected. The last stage is the selection of the final respondents from these six (6) local governments where 400 respondents were randomly selected based on probability proportional to size in each of the clusters.

Data was collected through the structured and closed ended questionnaire that is designed and validated for reliability. The questionnaires were administered to the selected respondents on random basis where they express their beliefs, opinions, attitudes, experience and exposure on the subject matter. Their views were used to measure the impact of the program. The data collected from the participants was analyzed using both descriptive (mean and standard deviation) and inferential analyses (correlation, regression and ANOVA) with SPSS V23.

Reliability Statistics Summary

Item	Cronbach's Alpha	No. of Items	Status
Enrolment	0.987	10	Reliable
Attendance	0.972	10	Reliable
Dropout	0.987	10	Reliable
Transition	0.974	10	Reliable

Source: Pilot Survey, 2024

Result and Discussion

The Impact of NHGSFP on Enrolment, Attendance, Dropout, Transition and Food Security.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.972	.944	.943	.0766681	2.002

Source: Author's Computation using SPSS

ANOVA

Model		Sum of Squares	d.f	Mean Square	F	Sig.
1	Regression	37.649	5	7.530	1281.020	.000
	Residual	2.240	381	.006		
	Total	39.889	386			

Source: Author's Computation using SPSS

The coefficient of multiple correlation, R, shows that a strong and positive relationship of the NHGSFP and all the independent variables, with (R = 0.972). R – square, the coefficient of multiple determination is 0.944. That is about 94.4% of the total variation is explained by the changes in the independent variables indicating that NHGSFP has a significant impact on enrollment, attendance, dropout, transition and food security.

A multiple regression analysis was carried out to assess the impact of these variables. Study shows that if these variables were adequately taken care of, basic education will got enhanced significantly. Result in ANOVA reliably justified the true influence of these variables as the P – value is less than the level of significance (P - value = 0.000 < 0.05), hence impacted positively.

The adjusted R – Squared value is 94.3%, this also shows that there is high relationship between the dependent and independent variables indicating the actual percentage of variation explained by the set of independent variables that actually affect the dependent variable and that the number of predictors in the model. It is slightly lower than R Square, which is expected, indicating that the model is still very effective while accounting for the number of variables.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.200	.045		4.406	.000
	Enrollment	.169	.007	.339	23.485	.000
	Attendance	.211	.009	.291	23.133	.000
	Dropout	.161	.006	.372	28.179	.000
	Transition	.206	.007	.381	30.575	.000
	Food Security	.189	.007	.366	26.039	.000

Source: Author's Computation using SPSS

The simultaneous regression analysis was carried out to ascertain the individual effect of these variables. All the predictors yielded significant beta weights with their varied t – values which are all statistically significant in each case. This implies that there is significant effect of these proxy-variables on the development of basic education. Therefore, the hypotheses formulated on these bases were tested below corresponding to their beta weights:

i. The predictor, enrollment yielded a significant beta weight of $\beta_1 = 0.169$ with its corresponding t-value which is statistically significant since the P – value is less than the level of significance ($P = 0.000 < 0.05$) which form the basis of rejecting the hull hypothesis and concluded that there is significant effect of NHGSFP on enrollment in Bauchi state.

ii. Attendance variable has the value, $\beta_2 = 0.211$ with P- value that is significant ($P = 0.000 < 0.05$) indicating its positive relationship and impact, thereby rejecting the null hypothesis and concluding that there is significant effect on the pupil's attendance in Bauchi state.

iii. The variable dropout has a beta weight of $\beta_3 = 0.161$. The p-value corresponding to this value is 0.000 which is less that the level of significant. That is to say there is a positive relationship. The null hypothesis was rejected based on the analysis made and concluded that there is significant effect on the dropout and absenteeism in Bauchi state.

iv. The predictor, retention yielded a significant beta weight of $\beta_4 = 0.206$ with its corresponding t-value that is statistically significant ($P = 0.000 < 0.05$) which form the basis of rejecting the hull hypothesis established and concluding that there is significant effect on basic education in Bauchi state.

v. The variable food security has a beta weight of $\beta_5 = 0.189$. The p-value corresponding to this value is 0.000 which is less that the level of significant. That is to say there is a positive relationship. It is therefore concluded that there is significant effect of food security and basic education in Bauchi state.

Difference in the transition of students in school with and without NHGSFP

		t-test for Equality of Means				
		T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Transition	Equal variances assumed	.950	379	.342	.0440705	.0463696
	Equal variances not assumed	.936	74.007	.352	.0440705	.0470849

Source: Author's Computation using SPSS

Hypothesis

H_0: There is no significant difference in the transition of students in school with and without NHGSFO

H_1: There is no significant difference in the transition of students in school with and without NHGSFO

Critical Value

At 5% level, $\alpha = 0.05$ and that since it is two-sided test (two tailed test), 0.05. V, the degree of freedom is: $V = n_1 + n_2 - 2 = 301 + 78 - 2 = 379$ Then, the critical value corresponding to the degree of freedom is:

$$t_{\alpha,v} = t_{0.05,379} = 1.645$$

Decision Rule

Reject the null hypothesis if the calculated value is greater than the critical value and accept otherwise.

Since the calculated value (0.950) does not exceed the critical value (1.645), the null hypothesis cannot be rejected at 95 percent confidence. We therefore concluded that there is no significant difference in the transition of students in school with and without NHGSFO. This is the fact that schools without NHGSFP were private and as such, most of their enrollees have come from a relative stable family.

Discussion of Result

The findings from the multiple regression analysis reveal a strong and positive relationship between the National Home-Grown School Feeding Program (NHGSFP) and key indicators of basic education in Bauchi State, including enrollment, attendance, dropout rates, retention, and food security. The coefficient of multiple correlation ($R = 0.972$) indicates that NHGSFP and the independent variables are highly correlated. Moreover, the R^2 value of 0.944 suggests that approximately 94.4% of the total variation in basic education development can be explained by changes in the independent variables. This strong explanatory power highlights the significant impact of NHGSFP on education outcomes, reinforcing the effectiveness of the program in enhancing school participation.

Impact on Enrollment

The significant beta weight ($\beta_1 = 0.169$, P = 0.000) suggests that NHGSFP has a positive and significant impact on school enrollment in Bauchi State. This aligns with global research findings that school feeding programs often serve as an incentive for parents to enroll their children in school, particularly in low-income communities (Alderman & Bundy, 2012; Gelli et al., 2019). Reducing the financial burden on households, NHGSFP encourages school enrollment, thus increasing access to education for children from economically disadvantaged backgrounds.

Effect on Attendance

The results show that attendance has a significant beta weight of ($\beta_2 = 0.211$, P = 0.000), confirming that NHGSFP contributes to improved school attendance. Previous studies have indicated that regular school meals encourage daily attendance, reducing absenteeism and fostering better learning outcomes (Kristjansson et al., 2016). In many cases, school meals provide a key source of daily nutrition, ensuring that students remain motivated and engaged in learning.

Impact on Dropout and Retention

The predictor for dropout ($\beta_3 = 0.161$, P = 0.000) indicates that NHGSFP significantly reduces dropout rates and absenteeism. Similarly, the beta weight for retention ($\beta_4 = 0.206$, P = 0.000) confirms that the program positively influences student retention. Studies by Adelman et al. (2019) and WFP (2020) suggest that school feeding programs contribute to improving student retention by mitigating hunger-related dropouts. Children from food-insecure households are more likely to remain in school when assured of at least one nutritious meal daily.

Food Security and Educational Outcomes

The findings show that NHGSFP significantly improves food security ($\beta_5 = 0.189$, P = 0.000), reinforcing the critical link between nutrition and education. Previous research has demonstrated that school feeding programs enhance cognitive function, concentration, and overall student performance (Drake et al., 2020). Ensuring food security at school addresses short-term hunger, which is a common barrier to learning, and contributes to long-term improvements in child development.

Transition to Higher Education

Interestingly, the study found no significant effect of NHGSFP on student transition (calculated value = 0.950, critical value = 1.645). The lack of significant difference in transition rates between students in NHGSFP-supported schools and those in private schools may be attributed to socioeconomic differences. Private school students typically come from more financially stable families, reducing their dependency on school feeding programs for educational continuity. This finding is consistent with studies that indicate school feeding primarily impacts students from vulnerable households, while those from wealthier families may not rely on such interventions for educational progression (Bundy et al., 2018).

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