

Effect of National Home-Grown School Feeding Program on Low-Income Household Savings in Zing, Taraba State

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Abstract: This research, conducted in Zing, Taraba State, assessed the impact of Nigeria's National Home-Grown School Feeding Program (NHGSFP) on the savings behavior of low-income households. Using a survey methodology and simple random sampling, data was collected from 378 participants through structured questionnaires covering 2018 to 2021. Findings, supported by linear regression analysis, showed that the NHGSFP positively and significantly influenced household savings behaviour, with a coefficient of 1.2781 and a P-value of 0.000, indicating indirect income transfers facilitated by the program. Increased savings from diminishing monthly alimentary expenditures on food can boost incomes, enhance food security, and reduce poverty among school-aged children. The study highlighted the program's role in enhancing savings, food security and poverty alleviation. It recommended prioritizing vulnerable populations, integrating financial literacy, and establishing monitoring frameworks to improve program efficiency.

Keywords: NHGSFP, Low-income household, Savings Behavior, Food Insecurity, Taraba state.

INTRODUCTION

School feeding programs (SFPs) serve as essential safety nets that guarantee children across the globe have access to education, health, and proper nutrition. Malnutrition persists as a critical challenge (UNSCN, 2017), particularly in developing nations, adversely influencing children's health and cognitive capabilities. The interrelated issues of hunger and malnutrition obstruct school enrolment, regular attendance, learning processes, and overall health (WEP, 2008), ultimately resulting in suboptimal educational outcomes (Kristjansson et al., 2016). The prevalence of poverty frequently inhibits children's consistent school attendance.

Initiatives aimed at mitigating nutritional deficiencies encompass school feeding programs, which originated in the 1930s in the United Kingdom (UK) and the United States (US) to foster children's development. These initiatives seek to enhance enrolment rates, diminish absenteeism, and bolster food security (World Bank, 2013) for children hailing from impoverished households. Investments in school feeding have been demonstrated to yield substantial returns in the realms of health, education, and productivity (WFP, 2018), functioning as social safety nets to elevate children's educational results and overall well-being (Chabite et al., 2018).

Furthermore, the school feeding initiatives furnish a consistent source of nutrients to at-risk children, potentially saving up to 10% of the income of economically disadvantaged families (Bundy et al., 2009). Nevertheless, these programs function as income transfers (Alderman & Bundy, 2012), providing support to low-income families, bolstering economic stability, encouraging savings, and facilitating investment in children's education. They also impact household savings by reallocating resources from food expenditures to educational investments (Cheng & Wang, 2022), thereby mitigating the risks associated with poverty.

In an effort to rectify nutritional deficiencies, ensure the enrolment of children from low-income households in schools, and promote consistent attendance, the Buhari administration in Nigeria restructured and reintroduced a national home-grown school feeding initiative in 2016, with the backing of the New Partnership for Africa's Development (NEPAD) and the United Nations Children's Education

Fund (UNICEF) (Olawale & Okafor, 2022). This initiative is integrated within the National Social Investment Program, alongside four additional initiatives aimed at poverty alleviation. It is administered by the Ministry of Humanitarian Affairs and Disaster Management, currently under the leadership of Dr. Betta C. Edu.

The primary objective of the program is to enhance the health, enrolment, attendance, retention, completion, and academic performance of schoolchildren (NHGSFP Report 2017). It ensures the provision of one nutritious meal each school day to primary school pupils, engaging various stakeholders in the processes of food procurement and distribution. The initiative has positively impacted states such as Taraba, by providing nourishment to pupils, supporting local agricultural producers, and generating employment opportunities for culinary staff. Additionally, it fosters community-based poverty alleviation and promotes school enrolment as well as regular attendance. The expenditure per child has risen from N70 to N100 (Olisa, 2022), thus yielding beneficial outcomes for numerous culinary professionals and smallholder farmers (AUDA-NEPAD, 2020).

Nevertheless, the National Home-Grown School Feeding (HGSP) initiative has achieved substantial acclaim for its positive ramifications on nutrition, health, educational success, and the overall enhancement of livelihoods (WFP, 2021). Empirical investigations illustrate that it significantly contributes to the alleviation of poverty, the augmentation of economic activities, and the expansion of income and employment opportunities. Whereas, it plays a critical role in the advancement of income levels (Delbiso et al., 2021; Yoon & Nozue, 2022), the encouragement of savings, and the facilitation of asset accumulation, ultimately improving overall living conditions (Smith et al., 2021; Olaniyan & Okemini, 2020; Zenebe et al., 2018).

Furthermore, the initiative has resulted in improvements in academic performance, effectively addressed issues related to hunger, and motivated economically marginalized families to enrol their children in educational establishments (Belghith et al., 2020; Rajan, 2019). By providing income indirectly, it promotes cognitive growth and reduces child labour, yielding benefits for both parents and their progeny (Aurino et al., 2020). The initiative also alleviates food insecurity, fosters savings, and stimulates the local economy, thus generating a multiplier effect (Cheng et al., 2022; Ghosh et al., 2017).

Despite the myriad benefits associated with the program, several challenges have hindered its overall effectiveness. Among the foremost issues are the irregular provision of a nutritionally adequate diet, inadequate infrastructural support, and a lack of focus on meal distribution that neglects the integration of supplementary empowerment strategies (Barrett et al., 2019; Tripp et al., 2018; Nkala et al., 2020). These challenges have limited the program's potential impact on enhancing the financial savings of low-income families with children who participate in the program (Okolo-Obasi & Uduji, 2022; Farage et al., 2020).

Moreover, school feeding initiatives constitute a crucial opportunity to support economically disadvantaged families by supplying nourishment to children, thus assisting in the conservation of food resources within the household and reinforcing overall food security at the domestic level. Empirical evidence indicates that families with children involved in such programs demonstrate improved food security, as the provision of school meals supplements the limited food supplies available at home. This research endeavor is committed to examining the impact of the Home-Grown School Feeding (HGSP) initiative on motivating parents to enrol their children in educational institutions and on promoting household savings through mechanisms of indirect income transfer. Previous studies have not explicitly explored the implications of NHGSFP interventions on the savings behaviors of low-income households within the specified research area, thereby illuminating a significant gap that this study seeks to address. By investigating the question, "Does the NHGSFP program significantly affect low-income household saving behavior through indirect income transfer?", the findings provide empirical evidence regarding the program's effectiveness in enhancing savings for economically disadvantaged households. This study significantly contributes to the existing corpus of literature by demonstrating the positive outcomes

associated with the HGSF program and underscoring the critical importance of similar initiatives within the context of least developed economies.

LITERATURE REVIEW

THE CONCEPT AND ORIGIN OF SCHOOL FEEDING PROGRAM

School feeding programs provide food to children at schools, primarily through in-school meals and take-home rations. These initiatives aim to boost school enrolment, retention, and reduce social and gender gaps. Recently, there is a trend towards "home-grown school feeding," which promotes sourcing food locally (Oyefade, 2014). Historically, school feeding began in Europe in the late 1700s, with the Netherlands incorporating it into national laws in 1900. By the 1930s, the UK and the US had made school feeding part of their national agendas (Tomlinson, 2007), aiming to improve children's health. Post-World War II, the US extended aid to Austria to combat child malnutrition.

It acts as a safety net, supporting national development by helping disadvantaged families and keeping children in school. They improve nutrition, academic performance, cognitive development, gender equality, and health. Additionally, these programs enhance household income, community development, and poverty reduction (FAO, 2019; WFP, 2020b). In 2020, 388 million children across 161 countries received daily school meals, reflecting increased investment, especially in low-income countries (FAO, 2019; WFP, 2020).

The Home-Grown School Feeding Programme is designed to provide nutritious meals to school children while supporting local agriculture. Definitions vary by context: Munuhe (2014) emphasizes locally sourced food for public schools, the World Food Programme focuses on buying from smallholder farmers, and the African Union Commission highlights economic development and agricultural transformation. The program's goals are to reduce poverty, stimulate local economies, and link school feeding with agricultural production. Countries like Ghana use it to improve school enrolment, child nutrition, and support local farmers. In Nigeria, it connects school feeding with small-scale farmers, aiming to boost food production, create jobs, and stimulate economic activity. Currently, 9.9 million children benefit from the program, receiving free meals that also support local agriculture (Ministry of Humanitarian and Disaster Management, 2021).

NATIONAL HOME-GROWN SCHOOL FEEDING PROGRAM AND LOW-INCOME HOUSEHOLD SAVING BEHAVIOURS

Low-income households are associated with extreme poverty and limited access to essential services, at the same time, they experience hindrances such as a lack of job opportunities and financial services, and exposure to disasters, trying to sustain and improve their means of livelihood. It is crucial to acknowledge that poor households face structural barriers like unfairness and restricted access to resources, as well as individual-level challenges such as insufficient education (Gisselquist et. al. 2019).

School feeding programs in Nigeria, particularly the Home-grown school feeding program (HGSF), significantly impact the economic empowerment of poor households by enhancing food security and stimulating local economies. These programs not only provide immediate nutritional benefits to children but also create a ripple effect that supports smallholder farmers and local food vendors. However, it also plays a significant role in shaping household savings behaviour by influencing educational investments and providing a safety net for vulnerable families due to reduced food insecurity (Alderman & Bundy, 2012). By providing meals, the program motivates parents to send their children to school, further promoting educational engagement and long-term savings behaviour's (Yoon & Nozue, 2022). Whereas, (Cheng et. al., 2022), suggests that due to effect of program on food expenditure, families are enabled to redirect these savings towards educational investments, enhancing children's future earning potentials. Thou, the correlation between participation in school feeding programs and household savings rates is indirect, as these programs primarily act as income transfers to assist low-income households. It has shown to have a positive impact on poor households' savings in various ways. By providing meals to school

children, these programs reduce the financial burden on families, allowing them to allocate their limited resources to other essential needs. This in turn contribute to increased savings among poor households. Academic authorities, including (Granthem-McGregor et al.,1988; Ahmed, 2004; Adekunle & Ogbobu, 2016), contend that such programs can indirectly furnish income to financially constrained households, thereby facilitating enhancements in children's cognitive capacities and educational outcomes, ultimately curtailing child labour and maltreatment. This indicates that such initiatives enhance school engagement among children hailing from low-income and food-insecure households by improving their living conditions, alleviating food scarcity, and generating savings.

EMPIRICAL REVIEW

Research indicates that School Feeding Programs (SFPs) have the potential to alleviate financial burdens on families, thereby facilitating the reallocation of resources towards educational pursuits and investments. In the context of Ethiopia, SFPs have been associated with a reduction in school absenteeism, which in turn enhances educational outcomes and future income prospects. Similarly, in Ghana, the implementation of the program has resulted in a 25% reduction in household expenditures, subsequently providing additional income for families to engage in alternative activities (Mohammed et al., 2023; Tette and Enos, 2020). In a similar vein (Rawlins, Rose, et al., 2019) executed a study examining the ramifications of school feeding programs on both household and community economies through a quasi-experimental framework in Mali. The findings revealed a marked increase in savings for households with children enrolled in these programs, accompanied by a heightened demand for locally sourced food products. Likewise, Bezabih et al. (2019) studied the impact of a School Feeding Program on household food security and investment in rural Ethiopia. Using panel data and propensity score matching, they compared households with children in the program to those without. The findings showed improved food security, leading to increased savings and investments in income-generating activities. Similarly, Maccagnan et al. (2018) investigated School Feeding Programs in Burkina Faso using a quasi-experimental design with propensity score matching. Their study found that participation in the program led to better household food consumption, reduced food insecurity, and allowed households to save by reallocating funds that would have been spent on food.

In the Nigerian context, Ene-Obong & Bassey (2021) undertook a study concerning school feeding programs in the South-South region of Nigeria. This research employed a mixed-methods approach, collecting data from 400 households through both surveys and interviews. The outcomes indicated that the programs alleviated the financial strain on parents, thereby allowing for savings to be redirected towards healthcare, education, or future expenditures.

Conversely, Ebenezer & Umar (2018) performed a study assessing the impact of school feeding programs in Northern Nigeria. Utilizing a quasi-experimental design, they compared households with children enrolled in the NHGSFP to those without. The results indicated that participating households incurred lower food expenses, leading to an increase in disposable income available for savings or investment purposes. In a comparable study, Ogunleye & Ibrahim (2017) focused on the effects of school feeding programs on poverty reduction in Nigeria, specifically within Kwara State. Data was acquired through interviews and surveys involving 300 households. The findings indicated that the program facilitated monetary savings for families by decreasing expenditures on school lunches, thereby indirectly contributing to poverty alleviation. Moreover, Ogunleye & Ibrahim (2017) conducted a separate examination of the impact of school feeding programs on poverty reduction in Kwara State, Nigeria. They employed interviews and surveys with 300 households to assess how the program influenced household spending patterns and savings. The results revealed that the program contributed to reduced expenditures on school meals, enabling families to allocate funds towards other essential needs such as healthcare and business investments. This dynamic indirectly facilitated poverty alleviation by enhancing the financial well-being of low-income households.

THEORETICAL FRAMEWORK

A theoretical framework guides research by clarifying the underlying causes of the research issue (Swanson, 2013). According to Philipsen (2017), it acts as a constraint, focusing on specific variables to aid coherent interpretation of results. This study is anchored in Victor H. Vroom's Expectancy Theory of Motivation (1964), which suggests that individuals' actions are influenced by expected outcomes. The theory has three key elements: expectancy (belief that effort leads to performance), instrumentality (belief that performance results in outcomes), and valence (value placed on those outcomes). Vroom's theory helps explain parental decisions to enrol and keep their children in school, suggesting that economic initiatives providing indirect monetary support can shift behaviour in economically disadvantaged households. The theory posits that the intensity of expectation and the appeal of outcomes influence behaviour. The emotional orientation toward desired outcomes also plays a critical role.

In the context of the NHGSF program, Vroom's theory explains how the program may encourage savings among low-income households. Households may participate due to the expectation of direct benefits, such as reduced food expenses, which can free up resources to be saved rather than spent. Consistent program benefits can lead to better financial management and increased food security, encouraging households to see savings as instrumental for future financial stability. If households value future financial security or investment in needs like healthcare or education, they are more likely to save money freed up by the program, improving overall well-being.

By applying Vroom's Expectancy Theory, it can be argued that low-income households may adopt saving behaviour as they recognize the benefits of school feeding programs. The expectancy of ongoing benefits, the link between these benefits and financial security, and the value placed on savings can motivate long-term financial planning. Thus, this theoretical approach underpins the hypothesis developed on the linkage between the Nigerian home-grown school feeding program and the savings behavior of low-income households.

Hypothesis: Participation in school feeding programs positively affects the savings behavior of low-income households by reducing their food expenses, which enhances financial security and encourages saving.

Demographic factors, such as caregiver age and household size, significantly impact household savings behaviour. The relationship between these factors and the effects of school feeding programs (SFPs) on savings in low-income households is complex. SFPs influence educational spending and investments in children's education, especially in disadvantaged areas. Younger parents tend to allocate more resources to education due to reduced food costs (Yuan et al., 2023; Wang & Chang, 2021), while larger households may limit the benefits of SFPs, leading to fewer savings (Mohammed et al., 2023). These variables enhance the study's internal validity by providing a clearer estimation of SFPs' impact on savings behaviour.

METHODOLOGY

The research employed a survey design, using participatory rural appraisal methods and questionnaires to gather primary data, which was analysed with linear regression. It focused on assessing the effect of the Nigerian National Home-Grown School Feeding Program (NHGSFP) on the savings behavior of economically disadvantaged households in Zing, Taraba State. The study targeted parents of public-school children who benefited from the program. With the consent of village chiefs, data was successfully collected from low-income households. The sample size, determined using Cochran's formula for an infinite population at a 95% confidence level, was 385.

The research relied on first hand data collected through structured questionnaires, designed to address the study's objectives. The questionnaires used a five-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree) and were administered to selected households, with assistance from research aides proficient in the local language, Mumuye, to facilitate communication. This approach ensured that data was specifically tailored to the research problem. Confidentiality and anonymity of

respondents were maintained throughout the process. Data analysis was conducted using Stata 11 version for inferential purposes.

To ensure the validity and reliability of the data collection instrument, a pilot test was conducted. Validity measures how accurately a method reflects the intended construct, producing results that represent real characteristics and variations (Zimbardo & Boyd, 2015). Reliability, as defined by Middleton (2020), refers to the consistency of a measurement, where an instrument yields the same results upon repeated use. The study's Spearman correlation analysis showed a significant positive correlation between dependent and explanatory variables, while Cronbach's alpha for internal consistency was above 0.70, confirming the instrument's reliability (Cronbach & Shapiro, 1982).

The study used linear regression analysis to examine the relationship between the Nigerian National Home-Grown School Feeding Program (NHGSFP) and household savings, while testing study hypotheses. Caregivers' age, household size was included as a control variable. The regression model was defined as: Household Savings = f (NHGSFP, Caregivers' Age, Household Size, Number of School-Age Children) [i]

The detailed regression equation was:

$$H/H \text{ Savings} = \beta_0 + \beta_1 (\text{NHGSFP}) + \beta_2 (\text{School-Age Children in Household}) + \beta_3 (\text{Household Size}) + \beta_4 (\text{Caregiver Age}) + \epsilon_{it} \dots \dots \dots [ii]$$

Here, β_0 is the intercept, β_1 - β_4 are coefficients of the independent variables, and ϵ_{it} represents the disturbance term. The model aimed to show that increases in explanatory variables lead to higher household savings. Analytical methodologies of survey linear regression were used, considering both probability and standard error tests to validate the hypotheses.

H₀: There is no significant relationship between NHGSFP and low-income household savings behaviour in Zing local government area of Taraba state, Nigeria.

Post-estimation assessments, including multicollinearity and normality tests, were conducted to ensure the accuracy and compliance of the survey linear regression with the prerequisites of linear regression. The Akaike Information Criterion (AIC) was also evaluated to assess the model's appropriateness. Additionally, an Added Variable Plot (AVP) was used to validate the linear regression model and examine the relationship between the predictor and response variables.

RESULT AND DISCUSSION

Dependent Variable	Coef	Linearized Std. Err.	t-stat	P > t	95% conf. Interval
H/h Savings					
Cons	2.1886	0.2352	9.30	0.000**	1.7261 2.6512
NHGSFP	1.2781	0.0835	15.32	0.000**	1.1143 1.4423
<i>beneficiariesinh.h</i>	0.0688	0.0462	1.49	0.137	-0.0220 0.1598
<i>h.h.size</i>	-0.0857	0.0455	-1.88	0.061	-0.1753 0.0038
<i>c.giverage</i>	-0.0445	0.0306	-1.45	0.147	-0.1048 0.0157
F (4, 368)	222.08				
Prob > F	0.000				
R ²	0.8260				
Root MSE	0.3649				

Table 1: Summary of Results

Source: Author's computation 2023. Stata 11 version. Note P < 0.05**.

Table 1 presents the linear regression model coefficients analysing the impact of the NHGSF program on the savings behaviour of low-income households in Zing, Taraba State. The model demonstrates strong

predictive accuracy, with a low mean squared error (MSE) and a high R-squared value of 0.83, indicating that 83% of the variability in the dependent variable is explained by the independent variables. A Root MSE of 36% suggests a moderate average deviation between predictions and actual values, showing a well-balanced model performance. The significance of the F statistic confirms the model's overall fit and the appropriateness of the variables used.

The findings indicate that participation in the NHGSFP has a statistically significant and positive effect on the savings behaviour of low-income households, with an estimated coefficient of 1.2781, suggesting a 128% increase in savings behaviour for participating households. However, while a positive correlation exists between savings behaviour and the number of children benefiting from the program, the effect is not statistically significant at the 5% level. Additionally, the model shows a negative correlation between caregiver age, household size, and savings behaviour, with coefficients of -0.0445 and -0.0857, respectively, but both were also statistically insignificant at the 5% level.

TEST OF HYPOTHESIS

Variable	Parameter	P-value	Level of significance	Decision	Conclusion
NHGSFP	β_1	0.000	0.05	Reject H_0	Significance
		S. E (t-Test)	t-statistics > 1.06		
		$\beta_1/S.E$	15.31		

Table 2: Summary of the Probability and the Standard Error Test

Source: Author's computation, 2023, Stata 11 version

A p-value less than 0.05 indicates a statistically significant association between the dependent and independent variables. Additionally, a standard error (t-Test) value of 15.31 supports the validity of the regression coefficient (β_1) confirming the study hypothesis. As a result, the null hypothesis is rejected, affirming that the national home-grown school feeding program significantly influences the savings behaviour of low-income households in Zing, Taraba State, Nigeria, during the study period.

POST-ESTIMATION TEST

Test	Survey Regression model						Decision R.
Model Specification Error (Ramsey reset test)	$F(4, 357)$		$Prob > F$				
	1.53		0.0830				Accept H_0
Multicollinearity test VIF	Mean VIF		2.42				No Multicollinearity
AIC model fitness	<i>Obs</i>	<i>II(null)</i>	<i>II(model)</i>	<i>df</i>	<i>AIC</i>	<i>BIC</i>	Accept
Estimation	3777	-479.84	-150.19	9	318.39	353.78	AIC Model

Table 3: Post-estimation Test Result

Source: Authors Computation 2023, using Stata

The results in Table 3 confirm the absence of multicollinearity within the proposed model. Additionally, probability values from the model specification test indicate that the models are free from specification errors and fit well. The Akaike Information Criterion (AIC) supports the model's suitability, showing a balance between goodness of fit and complexity. The Added Variable Plot (AVP) graph displays a random distribution of data points around the trend line, confirming a linear relationship between predictor and response variables. The consistent spread of points suggests homoscedasticity, meeting a key assumption of linear regression analysis.

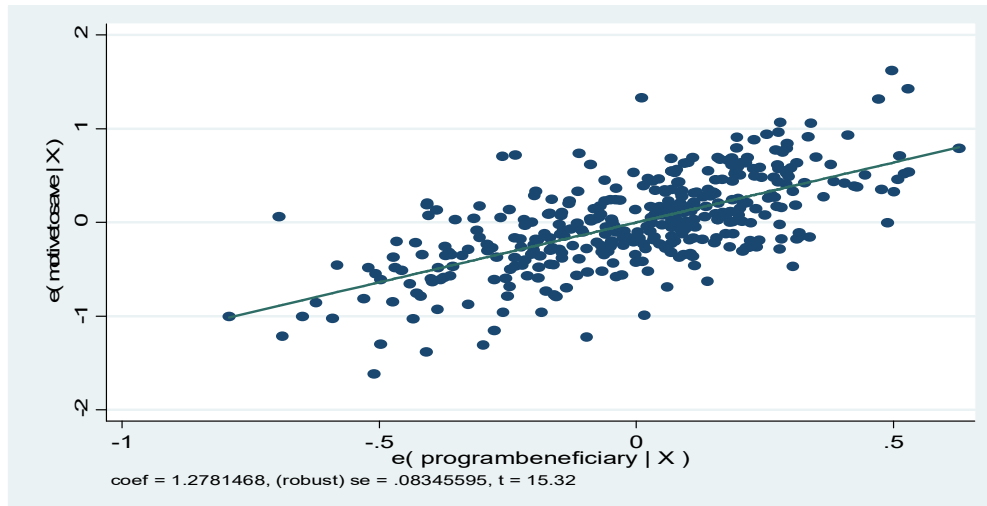


Figure 1: AVP (Added Variable Plot) Graph
Source: Author's Computation 2023, Stata

DISCUSSION OF FINDINGS

The research explores the impact of the National Home-Grown School Feeding Program (NHGSFP) on the savings behaviour of low-income households in Zing, Taraba State, Nigeria. The findings reveal that the program positively and significantly influences savings, indirectly providing income transfers to economically disadvantaged households. This indirect income helps families save, enabling them to allocate funds to essential needs such as healthcare, education, or future investments in productive assets. Evidence from regression analysis confirms that the NHGSFP reduces household food expenses, freeing up resources that can be saved, a trend consistent with previous studies by (Ogunleye & Ibrahim, 2017; Ebenezer & Umar, 2018; Nwokoro & Uche, 2020; Ene-Obong & Bassey, 2021), and others. By lowering food costs, the program incentivizes low-income families to send their children to school, thus enhancing their capacity to save. The outcomes support Vroom's Expectancy Theory of Motivation, where the program serves as a motivator for parents to enrol their children in school, leading to increased savings due to reduced monthly food expenditures.

The research findings show that participation in the national home-grown school feeding program (NHGSFP) has positively influenced the savings behaviour of low-income households. Households involved in the program reported reduced monthly food expenses, allowing for increased savings. By alleviating food insecurity, the program effectively mitigated classroom hunger and supported household financial stability, demonstrating its role in poverty alleviation as part of the National Social Investment Program.

CONCLUSION AND RECOMMENDATION

The research elucidates that the National Home-Grown School Feeding Programme (NHGSFP) augments food security for economically disadvantaged households in Taraba State by diminishing monthly alimentary expenditures, consequently facilitating enhanced savings behaviours. In light of these outcomes, the following recommendations are proffered for the federal government:

- Formulate school feeding programs that prioritize the most financially deprived households, thereby assuring critical support that fosters savings accumulation.
- Integrate financial literacy and income-generating components within the initiative to equip families with the knowledge necessary for making judicious financial decisions.
- Establish robust monitoring and evaluation frameworks to scrutinize the program's influence on household savings and to enhance its overall efficacy.

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