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Effect of Social Protection Programmes on Household Food Consumption in Nasarawa State

Abstract

The paper examined the effect of social protection on household food consumption in Nasarawa State. Primary data was used for the study, which was collected with the aid of survey instrument (questionnaire). A sample of 415 treatment group and same number of sample for the control group were considered in the research. The study adopted a quasi-experimental design and Difference-in-Difference regression model was employed for the data analysis. Results of analysis of the three outcome variables were statistically significant for all components of the social protection programmes (Conditional Cash Transfer, Health Insurance, and N-Power), implying that social protection programmes significantly increased household food consumption in Nasarawa State. The study concluded that social protection programmes are veritable instruments of addressing food insecurity and hunger, and if properly harnessed will lead to achieving the Sustainable Development Goals One and Two in Nasarawa State. The paper based on the findings recommended that adequate resources be made available through more budgetary provisions and releases for the scaling-up of social protection programmes in the State; greater awareness is required on social protection programmes operations in the State, and finally, there is need for institutionalization of social protection policy in Nasarawa State for effective service delivery.

Keywords: Social protection, Household, Food consumption, Nasarawa State

1. Introduction

Social protection operates in three component areas, comprising of social assistance, social security and labour market programmes. These three categories of social protection programmes often work in tandem to address various aspects of social and economic well-being of the people. Social assistance programmes offer immediate relief for those in need, while social security programmes provide long-term financial stability, like subsidies on healthcare services. Labour market programmes on the other hand equip individuals with skills and opportunities to secure employment and improve their economic prospects. In many countries, a comprehensive social protection system includes elements from each of these categories to address the diverse needs of the population. The effectiveness of these programmes can be a significant factor in reducing poverty, enhancing economic stability, and improving overall societal well-being (OECD, 2020).

Bhalla and UNICEF (2018) underscores social protection programmes to be a combination of public and private policies efforts aimed at preventing, mitigating and eliminating economic and social vulnerabilities to poverty and deprivation by improving food security, increase purchasing power and smoothen consumption. In the global development agenda, social protection forms the core and even at the national poverty and vulnerability reduction programmes. This is evidenced in the 2030 agenda for Sustainable Development Goals (SDGs) that highlights the need for social protection for the attainment of the SDGs, especial the target 1.3 which seeks to address the role of social protection in ending poverty in all forms. Nasarawa State is adopting the implementation of these social protection programmes (e.g. Conditional Cash Transfer and N-Power programmes) in collaboration with the Federal Government of Nigeria.

Consequently, household food consumption is the quantity and quality of feeding of the household for the purpose of their well-being that support human capital and serves as input into the socio-economic functioning of the society. Therefore, the amount and kind of resources at its disposal, how it uses these resources, the amount of resources needed to obtain goods and services, tastes, and preferences of the household at a given time determine the well-being of the household (Magrabi, Chung, Cha & Yang, 1991). However, according to the 11th edition of the Global Food Security Index (GFSI) of 2022, it showed that Nigeria ranked 107th (scoring 42.0 points) out of 113 countries globally in the food security index. This suggest that 12.9 percent of the global population in extreme poverty was found in Nigeria (Mojeed, 2023). Likewise, it was

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estimated that 17 million Nigerians to be critically food insecure in 2022, and will increase to 25 million in 2023 at lean period in the month of June and July (Care Evaluation Report, 2023).

Social protection is an initiative that provides consumption or income advancement to the less privileged, protect the weak from threats to their livelihoods, and increase marginalized social standing and rights, all with the goal of mitigating the poor's social and economic vulnerability (Devereux & Sabates-wheeler, 2004). Social protection has a role to play in reducing hunger and increase economic growth. Thus, social protection policies such as the cash transfers are policy instruments that are helpful in building household resilience towards access to food (Bhalla & UNICEF, 2018). Burchi, D'agostino, Pieroni and Scarlato (2018) emphasizes that social protection - cash transfers are known to be effective in addressing hunger and poverty in Sub-Saharan Africa. Although social protection interventions are often introduced as single instrument, such as cash transfer, it has proven to be positively related to household food consumption, it leaves the poor households generally better off than before. Hence, it measures the beneficiaries' enhanced access to food and other social services (Devereux, 2016)

Therefore, the motivation for this study is that adequate and balanced household food consumption is critical for maintaining good health and proper functioning. Nutrient-rich diets are essential for growth and development, and they reduce the risk of diet-related diseases. Household income and socioeconomic status greatly influence the types and quantity of food consumed. But low-income households may have limited access to diverse and nutritious foods, and unable to have a meal at the right time of the day. For example, such low-income households may even skip breakfast despite its importance for healthy living (Ofori-Asenso, Owen & Liew, 2019). Therefore, the importance of household food consumption cannot be over-emphasised because it is a crucial aspect of daily life that directly impacts the health, nutrition and well-being of individual households. It plays a significant role in addressing food security, reducing malnutrition, and achieving sustainable development goals. The general assumption that social protection programmes influences household food consumption positively may not always be the case in all contexts, as some challenges may affect the outcomes elsewhere in Nigeria. So, the need to validate the effect of social protection on household food consumption in Nasarawa State becomes necessary.

The objective of the study therefore is to examine the effect of social protection programmes on household food consumption in Nasarawa State. Thus the study demonstrates how social protection programmes can influence households' food consumption either by the direct cash transfers, indirectly with healthcare subsidy, and paid labour; which allow for long-term transfers to maintain incomes flow and prevent households from falling into poverty. Therefore, the emphasis in pursuing social protection programmes as the tool to addressing the issue of achieving food security that involves supporting not only immediate food needs but also the underlying factors that contribute to long-term access to nutritious food for individual households and communities in the midst of the devastating insecurity situation in Nasarawa State from 2015 to date that has caused several people to be displaced, and their means of livelihood eroded, becomes necessary because it will contribute to achieving the SDGs' objective two (2) of eradicating poverty globally by 2030. It will also provide valuable insights to policymakers and programme administrators. The findings will contribute to the development of more effective and targeted social protection programmes that will improve food security and overall quality of lives in the State.

2. Literature Review and Theoretical Framework

2.1 Concept of Social Protection: Social Protection is conceptualized as a set of policies and programmes aimed at reducing poverty and vulnerability by promoting efficient labor markets, reducing people's exposure to risks, and improving their ability to protect themselves against hazards and interruption / loss of income (Asian Development Bank, 2017). Devereux and Sabates-Wheeler (2004) consider social protection as strategies to lessen the economic and social vulnerability of the poor and marginalized groups. Okon (2018) defined social protection as a programme designed with the potential to protect and improve the nutritional status of target groups in a number of ways such as improved household access to nutritious diets, healthcare, and education, and to make improvements in water, sanitation and hygiene. Owusu-Addo (2016) affirmed that social protection is concerned with preventing, managing, and overcoming situations that adversely affect people's wellbeing, and such policies promote efficient labour markets and reduce people's exposure to shocks, and enhances people's capacity to manage economic and social risks, including unemployment, exclusion, sickness, disability, maternal and child care, old age challenges and emergencies such as flood and violent conflicts. It also facilitates development of roadmap for those who are living below the poverty line in order to get rid of poverty circles that restrict them from both the formal and informal sectors of the economy by providing social assistance to especially those in rural communities who are more vulnerable to shocks and risks (Mustafa & Nishat, 2018; Devereux, 2016).

2.1.2 Concept of Social Assistance: Ajwad, Abels, Novikova and Mohamed (2018) consider social assistance to be non-contributory programmes designed to target poor and vulnerable people in order to help them cope with chronic poverty and destitution. Examples of these programs include: unconditional and

conditional cash transfers, non-contributory social pensions, food and in-kind transfers, school feeding programmes, public works, and fee waivers. They may also include orphanages, equipment for disabled people, and care for elderly people. The Conditional Cash Transfers (CCTs) are given with the requirement that the beneficiary meets certain conditions, and often related to human capital development, such as visiting a health clinic or ensuring children go to school. While the Unconditional Cash Transfers (UCTs) are for the beneficiary to decide how to spend on resources. (Barrientos, 2013)

2.1.3 Concept of Social Security: According to Ajwad, Abels, Novikova and Mohamed (2018); Barrientos (2013), it is contributory programmes designed to help people manage income changes because of old age, sickness, disability, or natural disasters. Examples are the Contributory Pensions Scheme (CPS), Life Insurance, and Health Insurance, like the National Health Insurance Scheme (NHIS) at the Federal level and Nasarawa State Health Insurance scheme (NSHIA) at State level; which are all based on insurance principles.

2.1.4 Concept of Labour Market Programme: Dauda, Adeyeye, Yakubu, Oni and Umar (2019) considers labour market programme as regulation in terms of working hours and wages such as the National Minimum Wage Act, safety in the work place exemplified by the Employee Compensation Act, 2010 and anti-discrimination laws such as HIV and AIDS (Anti-discrimination Act), public works programmes, skill training, micro-financing among others. Labour market standards are legal frameworks aimed at ensuring minimum standards for employment and work and safeguarding of workers' rights. Social insurance and labour market standards tend to benefit the middle and upper quintiles income groups and have a longer-term focus (ILO, 2011;). Similarly, Babajanian, Hagen-Zanker and Holmes (2014) confirm that substantial body of evidence about the positive effects of social protection, labour market programmes have core dimensions of wellbeing, such as food consumption and access to health and education. Ajwad, Abels, Novikova and Mohamed (2018) consider these programmes to be contributory or non-contributory, and are designed to help protect individuals against loss of income from unemployment (passive labor market policies) or help individuals acquire skills and connect them to labor markets (active labor market policies). Unemployment insurance and early retirement incentives are examples of passive labor market policies, which are usually contributory. Training, employment intermediation services, and wage subsidies are examples of active policies, which are usually non-contributory.

2.1.5 Concept of Household Food Consumption: Household food consumption is the level and quality of feeding of the household for the purpose of their well-being that is resourceful to human capital and likewise serves as input into the social and economic functioning of the society (Magrabi, Chung, Cha, & Yang, 1991).

2.2 Literature Review

d'Agostino, Scarlato and Napolitano (2017) evaluated the causal effect of the Child Support Grant (CSG) implemented in South Africa on household food consumption and dietary diversity using National Income Dynamics Study (NIDS) covering 2008, 2010–2011, and 2012. They carried out a regression-discontinuity design to exploit the increase in the age limit requirement for eligibility for the programme. Their findings show that the CSG proved to be effective in increasing total food expenditure per adult equivalent but has not significantly changed the dietary habits of the beneficiary households, nor has the programme resulted in any stronger effect for the most vulnerable subgroups of the beneficiary population. The study does not specifically state the level of changes that occur as a result of the programme but only made generalised statement. Similarly, Sulemana, Francis and Malongza (2018) discovered that a considerable amount of families used the money to buy food for their families in the LEAP programme in Karaga district, Ghana. Sumaila (2023) Findings further revealed that participation in the LEAP programme has a positive impact on beneficiaries, which showed a percentage change in consumption expenditure,

The empirical evidence of social protection programmes impact on food security and intake mostly comes from Latin America, where CT interventions have existed for over two decades (Fiszbein et al 2009). The study reveals a large increased households' food diversity and food expenditure, particularly in high protein contain food, such as animal products. Brugh et al (2018) studied using longitudinal experimental data, found that Malawi's cash transfer programme increased diet quantity and protected beneficiaries against worsening caloric insecurity during lean production seasons. In an earlier study on intervention, Miller, Tsoka and Reichert (2011) found a sizeable influence of the CT on food security and dietary diversity, which promotes beneficiaries' nutritional status. Alatinga, Daniel and Bayo (2019) examines the effects of cash transfers, in particular Ghana's LEAP Programme, on the Sustainable Development Goals (SDGs) and examines the transformative potential of cash transfers by focusing on subjective, relational and psychosocial effects in addition to the reduction in poverty and vulnerability. They argued that giving the LEAP cash alone is not sufficient to address long-term poverty, but it is a necessary condition to serve as an instrument for social and economic transformation. Using a qualitative exploratory research design involving 20 in-depth

interviews and seven focus group discussions, participants reported that LEAP cash had made them better off in both material and psychological dimensions of poverty, increased food security and nutrition and removed financial barriers to access health care.

In similar vein, a cross-country study in sub-Saharan Africa (FAO, 2014), found that beneficiaries were able to use transfers to diversify their food by eating more meals that include fish, oil and fruits, which potentially improved their nutrition. Similar studies in Ghana, Kenya and Zambia found that the transfers empowered households to eat a variety of food that potentially improved their nutritional status and health outcomes (Owusu-Addo 2016). Also, International Labour Organization (ILO), in their 2017 evaluation, reported that the social programmes partially impacts on households’ food consumption (ILO 2017). The Food and Agriculture Organization in its annual qualitative evaluation also saw that the social protection interventions empowered beneficiary households to increase their food consumption and security as well as livelihoods (FAO, 2014).

Burchi, D’agostino, Pieroni and Scarlato (2018) used the synthetic control method to evaluate changes in the trajectories of the prevalence of undernourishment indicators during the 1990s and 2000s for several relevant countries such as Ethiopia, Kenya, Malawi and Rwanda. Their findings show that cash transfers exert a significant effect on access to food but with differences in magnitude. The results of their Robustness analysis using the placebo experiments confirms its soundness. Also, in a quasi-experimental study of the Colombia’s Familias en Acción program, Adato and Bassett (2018) examined the impact of the PSNP on food security, assets, and disincentives for work and private transfers from 2006-2008 can be estimated using covariate nearest neighbor matching estimators. They test for heterogeneity in program impacts by estimating average impacts on all beneficiaries, dosage effects on those receiving high levels of transfers, and incremental impacts on households that also received complementary transfers intended to boost agricultural investment. Their findings show that the PSNP has modest average impacts, improving food security, increasing growth in livestock holdings and improving households’ ability to raise funds in an emergency. However, the program impacts on asset accumulation are greater when higher levels of transfers are received and when participants have access to the PSNP and complementary agricultural services. The implication thus suggests that it is possible to implement large social protection in Africa, but that impacts depend on infrastructure, administrative and design constraints.

However, Handa et al (2014) contended in their study that Ghana’s LEAP programme had no significant impact on household food consumption but identified a cause being the low level of benefits and irregular payments. Likewise, in a survey from the Yama in the West Mamprusi District, Northern region of Ghana.

2.3 Gap in Literature

Several extant literature on effects of social protection programmes on household food consumption have general assumption of full positive relationship, this may not always be the case in all places as a result of some peculiarities in elsewhere, i.e. the geography of the previous studies. So, the need to validate the effect of social protection programmes on household food consumption in Nasarawa State becomes necessary. Therefore, this study has examined the effect of social protection programmes on household food consumption in Nasarawa State.

2.4 Theoretical Framework

The study is anchored on the Livelihood Portfolio theory by de Neubourg (2002). The theory was developed on the basis of the differences in the households’ initial endowments, risk exposures, needs definition and the degree of risk aversion that households assume with different income generating and consumption smoothing strategies or livelihoods portfolio, which is illustrated using the welfare pentagon in figure 2.1

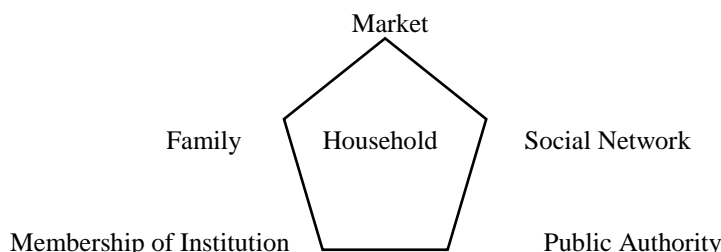


Figure: 2.1 Framework of households’ interactions within the community to satisfy wants Source: de Neubourg (2002)

The welfare pentagon framework explains how households are allow to choose many points of the welfare pentagon space, leading to the satisfaction of their needs. Thus, Livelihood portfolio theory of social protection underpins the results of the differences in the economic activities of households in the welfare pentagon space where some households can satisfy their needs and smooth their consumption, while others are poor and have not enough means to guarantee that their needs are always satisfied. So government have to assist households in providing social protection using various social policy instruments through provision of direct income transfers, subsidizing goods and services and creating employment opportunity for paid work on interim for the purpose of mitigating impact of households' income fluctuations. Therefore, social protection programme interventions on households would lead to increased household food consumption. Thus, household rely on the public authority for policy directions and implementation of social protection programmes that give opportunities to households access CCT, which expands their average expenditure on food consumption; increase number of times beneficiary households consume protein food, and also reduces number of times beneficiary household skipped breakfast meal in a week. Similarly, households depend on the same public authorities to provide the health insurance cover that reduces out-of-pocket healthcare expenses, enables beneficiary households have enough income to expand food consumption. Likewise, the N-Power programme that ensures transfer of income that households expand food consumption through increased food consumption expenditure, increased number of times they consume protein content food, and reduction in number of times household members skipped breakfast meal in a week.

3. Methodology

The study research design is adopting a quasi-experimental design because of its relevance to the nature of the data requirement in achieving the objectives of the study. It is an empirical interventional study used to estimate the causal effect of programmes on target population. Although it may not be possible to convincingly demonstrate a causal link between the treatment condition and observed outcomes if there are confounding variables that cannot be controlled (Rossi, Lipsey & Freeman, 2004). With random assignment, study participants have the same chance of being assigned to the intervention group or the comparison group. As a result, differences between groups on both observed and unobserved characteristics would be due to chance, rather than to a systematic factor related to treatment.

3.1 Population and Description of the Study Area: According to the 2006 census, Nasarawa State had population of 1,869,377 (National Population Commission, 2006). The population of study is 157,829 beneficiaries of the social protection programmes divided into 48,684 beneficiaries of conditional cash transfers, 84,145 enrollees of Health Insurance Scheme and 25,000 beneficiaries of N-Power in the state (State Ministry of Finance and Economic Development, 2022; NASHIA, 2022).

Nasarawa State is one of the six States and Federal Capital Territory (FCT) Abuja in the North Central geopolitical zone of the country, sometimes called the Middle Belt. The State was created in 1st October, 1996, and is located at coordinates 8°32'N and 8°18'E with total land area of 27,117M². The State shares boundaries to the North with Kaduna State, to the south with Benue State, to the South-West with Kogi, to the West with Abuja (Federal Capital Territory), and to the East by Taraba and Plateau State (Federal Republic of Nigeria, 2009). The State consists of thirteen LGAs that is grouped into three National Senatorial Districts: North, West and South (NPC, 2006). The main occupation of the people is farming. Thus, the state economy is agriculture base, which is characterized with the production of varieties of crops. In terms of educational institutions, it has College of Education, College of Agriculture, Science and Technology; State and Federal Polytechnics, a State and Federal Universities (Saikia et al, 2018).

3.2 Sample Size Determination and Sampling Method: The sample size for the study is 439, and is determined using Yamane (1967) formula. The equation for computing the value of a sample size for two groups of equal sample sizes:

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots 3.1$$

Where *n* is the sample size, *N* is the population size, *e* is the level of precision. Given the population of the target group, the sample size will be obtained by substituting values into equation (3.1). Our *N* is known to be 157,829, and *e* is 5% (0.05), thus:

$$n = \frac{157,829}{1+157,829(0.05)^2} = 399$$

Therefore, the sample size of 399 beneficiaries will be considered for the purpose of this study. However, to take care of the likelihood of non-response of questionnaire during data collection, 10% of the calculated sample size (39.9) approximately 40 will be added to the sample size to make up a total sample size of 439 for the study.

Multi-stage sampling technique is adopted for the purpose of distributing the proposed sample size across the three senatorial districts of Nasarawa State. In the use of this multi-stage sampling technique, both

probability and non-probability sampling technique were employed. The use of probability sampling technique enables the target population the equal chance to be selected while, non-probability sampling such as purposive sampling allows the decision of the researcher to prevail with the aim of achieving research objective. Sample population was drawn from households of benefiting communities of the social protection programmes in the selected Local Government Areas (LGAs) of Nasarawa State. The first stage of the sampling process was the selection of LGAs. Two LGAs was selected from each senatorial district of Nasarawa State for proper representation of the sample population, making a total of six selected LGAs for the study. The second stage of sample selection is the random selection of beneficiaries and non-beneficiaries from each of the selected LGAs clusters. This probability sampling technique allowed for the equal chance of selection in each of the clusters in the survey. The selection of respondents was the third stage and respondents were selected proportionately according to the population of the beneficiaries of social protection programmes in the State.

3.4 Methods of Data Collection: A multi-stage sampling technique was used to select two Local Government Areas (LGAs) in each of the three Senatorial Districts in Nasarawa State. This study used survey instrument (questionnaire) for data collection. The questionnaire was administered to respondents from the treatment and non-treatment (control) groups. A total of 439 questionnaires were distributed to treatment (beneficiaries) group, similarly, 439 questionnaire were distributed to the control group, all across the three (3) senatorial districts of the State. 415 questionnaires were completed and returned representing 94 percent success rate. Lists of beneficiaries of social protection programmes in the State comprising of the conditional cash transfer (CCT), Nasarawa State Health Insurance Programme (NASHIA), N- Power, and State Single register (SSR) were collected from their respective coordinating offices in the state. This guided for the random selection of respondents both for the treatment group and control group.

3.5 Model Specification: To estimate the impact of some treatment in a given outcome over time, we calculate the difference in averages between the two groups: those that were exposed to the treatment and those that were not exposed to the treatment. The Difference-in-Difference (DiD) identifies the treatment effect as the difference in changes over time across the two groups. But the problem was how to find the ideal counterfactual for something that just cannot happen in the current time. Impact evaluation is essentially a problem of missing data because one cannot observe the outcomes of programme participants had they not been beneficiaries. Without information of the counterfactual, the next best alternative is to compare outcomes of the treated with a comparison group that has not been treated. However, selection bias is another problem that arise because in reality we do not have the ideal counterfactual. Instead, we consider approximation:

$$D = E(Y_i(1)|T_i = 1) - E(Y_i(0)|T_i = 0) \text{-----}3.2$$

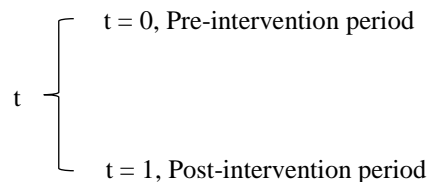
Where

D = Average treatment effect of the programme

T_i = Treatment of the programme intervention

Y_i = Outcome variable

DiD resolves the problem of missing data by considering the outcomes and covariates for beneficiaries and non-beneficiaries in essentially two periods of time. i.e. the pre-intervention and post intervention. Given the two periods of time where the sample is fairly stable, the comparison can be done through estimating the differences. In constructing the DiD estimator given a two period sitting where t is the time variable to be divided as



Consider $Y_t^T = Y_i(1)$ to be the outcome of the programme intervention, and $Y_t^C = Y_i(0)$ be the outcome of the non-treated group, both in the respective time t . The DiD estimator seeks to measure

$$DiD = E(Y_1^T - Y_0^T | T_1 = 1) - E(Y_1^C - Y_0^C | T_1 = 0) \text{-----}3.3$$

Therefore, DiD estimator assumes that

$$E(Y_1^C - Y_0^C | T_1 = 0) = E(Y_1^C - Y_0^C | T_1 = 1) \text{-----}3.4$$

Thus, $E(Y_1^C - Y_0^C | T_1 = 0)$ becomes the proper counterfactual which in practice is used in estimation. Considering the heterogenous effects are time in-variant, so the difference between periods of time cancels the possible bias. Thus the regression model as follows:

$$Y_{i,t} = \beta_0 + \beta_1 T_i + \beta_2 t + \beta_3 T_i * t + \mu_{i,t} \text{-----}3.5$$

Where

Y_i is outcome variable in year 0 (before) and year 1 (after), i, t is the index for individual i and for year t

β_0 is the intercept

β_1 is a variable that indicates intervention, 1 for if they receive the intervention and 0 if not. It does not change over time, it is only indexed by i

β_2 is a variable indicating the year. 1 for year 1 (after) and 0 for year 0 (before)

β_3 is the DiD estimator. This is the estimate of the causal impact of the intervention

$T_i * t$ is the interaction term between the treatment assignment T and the year t

μ_i is the Error term

4. Data Analysis and Presentation of Results

The parameters of impact assessment were household average expenditure of food consumption (HHAIEFC), number of times household members consume protein food in a week (NTHHCPCF), and number of times household members skipped breakfast meal in a week (NTHHSBF). These were the outcome variables considered in the analysis.

From equation 3.5, β_1 is the initial difference, which is the marginal effect of the difference before treatment. β_2 is the baseline change over time, that is, the marginal effect of time for the control group, while β_3 is the treatment effect, which tells us how much is the difference between the treatment and control increase over time from pre-treatment to post-treatment periods. Results are presented base on the social protection programme components:

4.1 Presentation of Results and Discussion of Findings

The assessment of the social protection programmes on household food consumption was on the basis of increased household average expenditure on food consumption, increased number of times household consumed at least 80% protein food contains in a week, and reduction in number of times household members skipped breakfast meal in a week. Table 4.1 is the results of analysis of household average expenditure on food consumption in respect of the social protection programmes interventions in Nasarawa State. The findings show by the analysis, at pre-treatment period, there was no significant difference between the treated and control group given the “t” value and the p-value were not statistically significant thereby satisfying that treatment and control groups had parallel trends in the outcome variable before the treatment. However, at post treatment period, the “t” and “p”-values indicate a highly statistical significant difference in the household average expenditure on food consumption in Nasarawa State. This was further confirmed by the double difference estimate of the “t” and “p”-values. The ‘t’ test results show that the null hypothesis that the difference is equal to 0, is strongly rejected with the F-statistic values of 83.09; 107.91 and 20.19, and p-values of 0.0000; 0.0004 and 0.0000 respectively thereby further supports the conclusion that there is a significant treatment effect on the beneficiaries of CCT, Health insurance and N-Power. The R-squared values 72%, 73% and 74% indicating that the regression model explains a substantial proportion of the variance in household average expenditure on food consumption in Nasarawa State.

From the analysis, it revealed that the treatment have led to a significant change in "HHAIEFC" between the control and treated groups after the treatment, demonstrating social protection -CCT programme effectiveness in in increasing household food consumption in Nasarawa state. Similarly, the treatment appears to have led to a significant change in "HHAIEFC" between the control and treated groups after the treatment, demonstrating social protection Health insurance programme effectiveness in increasing household food consumption in Nasarawa state. Also, the treatment appears to have led to a significant change in "HHAIEFC" between the control and treated groups after the treatment, demonstrating social protection N-Power programme effectiveness in in increasing household food consumption in Nasarawa State. Therefore, the results agree with the conclusion by Sumaila (2023) that social protection programme increased consumption expenditure of the beneficiaries household of LEAP.

Category	Outcome var.	HHAEFC	Standard Error (S.E)	T-Value (t)	Probability Values (P> t)	
CCT Programme						
Pre-Treatment	Control	Approx. 51,000				
	Treated	Approx. 51,000				
	Diff (T-C)	9.531		0.49	0.627	
Post-Treatment	Control	Approx. 60,000				
	Treated	Approx. 60,000				
	Diff (T-C)	179.896		29.92	0.001***	
	Diff-on-Diff Estimate	218.077	8.530	4.49	0.001***	
	<u>Statistical test ("test"):</u>					
	F-Statistic	83.09				0.0000
	R-squared value	0.72				
Health Insurance Programme						
Pre-Treatment	Control	Approx. 1,000				
	Treated	Approx. 1,000				
	Diff (T-C)	-172.848		-0.10	0.891	
Post-Treatment	Control	Approx. 94,000				
	Treated	Approx. 94,000				
	Diff (T-C)	42.659		14.53	0.000***	
	Diff-on-Diff Estimate	100.189	28.207	3.55	0.000***	
	<u>Statistical test: ("test"):</u>					
	F-Statistic	107.91				0.0000
R-squared value	0.73					
N-Power Programme						
Pre-Treatment	Control	Approx. 49,000				
	Treated	Approx. 49,000				
	Diff (T-C)	-182.357		-0.77	0.443	
Post-Treatment	Control	Approx. 52,000				
	Treated	Approx. 52,000				
	Diff (T-C)	35.720		13.03	0.001***	
	Diff-on-Diff Estimate	186.427	20.452	9.12	0.000***	
	<u>Statistical test ("test"):</u>					
F-Statistic	20.19				0.0000	
R-squared value	0.74					

Inference: *** p<0.01; ** p<0.05; * p<0.1

Source: Author's Computation using Stata 14 Version

Table 4.2 is the results of analysis of number of times household members consume protein food in a week (NTHHCPF) in respect of the social protection programmes interventions in Nasarawa State. The findings show by the analysis, at pre-treatment period, there was no significant difference between the treated and control group given the "t" value and the p-value were not statistically significant thereby satisfying that treatment and control groups had parallel trends in the outcome variable before the treatment. However, at post treatment period, the "t" and "p"-values indicate a highly statistical significant difference in the number of times household members consume protein food in a week between the social protection programmes beneficiary households and non-beneficiary household in Nasarawa State. This was further confirmed by the double difference estimate of the "t" and "p"-values. The 't' test results show that the null hypothesis that the difference is equal to 0, is strongly rejected with the F-statistic values of 102.61; 107.91 and 32.02, and p-values of 0.0000; 0.0000 and 0.0015 respectively thereby further supports the conclusion that there is a significant treatment effect on the beneficiaries of CCT, Health insurance and N-Power in terms of number of times household member consumes protein food in a week. The R-squared values 72%, 73% and 74% indicate that the regression model explains a substantial proportion of the variance in household average expenditure on food consumption in Nasarawa State.

On the second outcome variable, which is increased number of times household consumes protein food, the results show that the treatment appears to have led to a significant change in "NTHHCPF" between the control and treated groups after the treatment, demonstrating social protection CCT programme effectiveness in increasing household food consumption in Nasarawa state. Likewise, the treatment appears to have led to a significant change in "NTHHCPF" between the control and treated groups after the treatment,

demonstrating social protection health insurance programme effectiveness in increasing household food consumption in Nasarawa state. Similarly, the treatment also appears to have led to a significant change in "NTHHCPF" between the control and treated groups after the treatment, demonstrating social protection N-Power programme effectiveness in increasing household food consumption in Nasarawa state.

Table 3.2: Number of times household members consume protein food in a week (NTHHCPF)

Category	Outcome var.	NTHHCP F	Standard Error (S.E)	T- Value (t)	Probability Values (P> t)
CCT Programme					
Pre-Treatment	Control	13.001			
	Treated	12.991			
	Diff (T-C)	-0.010		-0.48	0.327
Post-Treatment	Control	10.752			
	Treated	10.786			
	Diff (T-C)	0.034		2.28	0.023**
	Diff-on-Diff Estimate:	0.051	0.005	10.13	0.000***
	<u>Statistical test:</u>				
	F-Statistic	102.61			0.0000
	R-squared value	0.70			
Health Insurance Programme					
Pre-Treatment	Control	12.575			
	Treated	12.568			
	Diff (T-C)	-0.0007		-0.10	
Post-Treatment	Control	14.089			
	Treated	14.116			
	Diff (T-C)	0.028		3.82	0.000***
	Diff-on-Diff Estimate:	0.020	0.002	10.39	0.000***
	<u>Statistical test: ("test")</u>				
	F-Statistic	107.91			0.0000
	R-squared value	0.73			
N-Power Programme					
Pre-Treatment	Control	12.299			
	Treated	12.253			
	Diff (T-C)	-0.046		1.42	0.157
Post-Treatment	Control	12.624			
	Treated	12.653			
	Diff (T-C)	0.029		2.59	0.010**
	Diff-on-Diff Estimate	0.017	0.003	13.52	0.000***
	<u>Statistical test:</u>				
	F-Statistic	32.02			0.0015
	R-squared value	0.54			

Inference: *** p<0.01; ** p<0.05; * p<0.1

Source: Author’s Computation using Stata 14 Version

Table 4.3 is the results of analysis of number of times household members skipped breakfast meal in a week (NTHHSBF) in respect of the social protection programmes interventions in Nasarawa State. The findings show by the analysis, at pre-treatment period, there was no significant difference between the treated and control group given the “t” value and the p-value were not statistically significant thereby satisfying that treatment and control groups had parallel trends in the outcome variable before the treatment. However, at post treatment period, the “t” and “p”-values indicate a highly statistical significant difference in the number of times household members skipped breakfast meal in a week between the social protection programmes beneficiary households and non-beneficiary household in Nasarawa State. This was further confirmed by the double difference estimate of the “t” and “p”-values. The ‘t’ test results show that the null hypothesis that the difference is equal to 0, is strongly rejected with the F-statistic values of 64.39; 144.14 and 21.94, and p-values of 0.0000; 0.0000 and 0.0000 respectively thereby further supports the conclusion that there is a significant treatment effect on the beneficiaries of CCT, Health insurance and N-Power in terms of number of times household members skipped breakfast meal in a week. The R-squared values of 66%, 69% and 67% also indicate that the regression model explains a substantial proportion of the variance in the number of

times household members skipped breakfast meal in a week in Nasarawa State. The treatment appears to have led to a significant change in "NTHHSBF" between the control and treated groups after the treatment, i.e. the treatment group experienced reduction in the number of times their household members skipped breakfast meal in a week. This demonstrated social protection CCT programme effectiveness in increasing household food consumption in Nasarawa state. On the part of Health insurance programme also, the treatment appears to have led to a significant change in "NTHHSBF" between the control and treated groups after the treatment, i.e. the treatment group experienced reduction in the number of times their household members skipped breakfast meal. This demonstrated social protection health insurance programme effectiveness in increasing household food consumption in Nasarawa state. Finally, the treatment appears to have led to a significant change in "NTHHSBF" between the control and treated groups after the treatment of beneficiaries of N-Power programme, i.e. the treatment group experienced reduction in the number of times their household members skipped breakfast meal. This demonstrated social protection N-Power programme effectiveness in increasing household food consumption in Nasarawa state.

Table 4.3: Number of times household members skipped breakfast meal in a week (NTHHSBF)

Category	Outcome var.	NTHHSBF	Standard Error (S.E)	T- Value (t)	Probability Values (P> t)
CCT Programme					
Pre-Treatment	Control	-3.737			
	Treated	-3.679			
	Diff (T-C)	0.058		0.23	0.819
Post-Treatment	Control	0.646			
	Treated	1.847			
	Diff (T-C)	1.201		28.52	0.000***
	Diff-on-Diff	1.143	0.007	8.02	0.000***
	Estimate:				
	<u>Statistical test:</u>				
	F-Statistic	64.39			0.0000
	R-squared value	0.66			
Health Insurance Programme					
Pre-Treatment	Control	-1.589			
	Treated	-1.561			
	Diff (T-C)	-0.028		0.56	0.635
Post-Treatment	Control	0.579			
	Treated	0.581			
	Diff (T-C)	0.002		36.56	0.000***
	Diff-on-Diff	-0.026	0.002	412.01	0.000***
	Estimate:				
	<u>Statistical test:</u>				
	("test")				
	F-Statistic	144.14			0.0000
	R-squared value	0.69			
N-Power Programme					
Pre-Treatment	Control	-0.107			
	Treated	-0.065			
	Diff (T-C)	0.042		0.63	0.527
Post-Treatment	Control	0.486			
	Treated	0.491			
	Diff (T-C)	0.005		18.33	0.000***
	Diff-on-Diff	-0.037	0.008	4.68	0.000***
	Estimate:				
	<u>Statistical test:</u>				
	F-Statistic	21.94			0.0000
	R-squared value	0.67			

Inference: *** p<0.01; ** p<0.05; * p<0.1

Source: Author's Computation using Stata 14 Version

In summary, the study findings have confirmed with the extant studies, like Brugh et al (2018) that CCT programme increased diets quantity and protected beneficiaries against worsening caloric insecurity during lean production seasons. Similarly, it confirm with the findings of Alatinga et al (2019), Sulemana, Francis and Malongza (2018), Kofinti, Koomson, Arkoh, Edward and Ameyaw, (2022), and Sumaila (2023) that social protection programmes increase household food consumption through cash transfers have made beneficiaries better off in both material and psychological, and by percentage change in the beneficiaries consumption expenditure positively, respectively.

5. Conclusion and Recommendation: The beneficiaries of the social protection programmes were evaluated to validate the impact of social protection programmes on the household food consumption in Nasarawa State. It was established that social protection programmes have helped its beneficiaries' households to experience increased food consumption. It therefore, implies that social protection programmes are veritable instruments of addressing food insecurity and hunger, if tackled will lead to the achievement of the Sustainable Development Goals One and Two.

Based on the findings and conclusion, the following recommendations are made:

- i. Adequate resources be made available through more budgetary provisions and releases for the scaling-up of social protection programmes, particularly, the CCT programme where only six (6) Local Government Areas (LGAs) are beneficiaries in the first phase, to cover the remaining seven (7) LGAs in Nasarawa State.
- ii. Greater awareness is required on social protection programmes operations among the beneficiaries to utilize the resources provided efficiently. Also, the general public are to be fully informed on their rights food and be watch dog in the implementation of social protection programmes in Nasarawa State.
- iii. There is need for institutionalization of social protection policy in Nasarawa State for effective service delivery by developing policies and programmes that suit the peculiarities of the State that will address holistically hunger among its citizenry. Also, there should enactment law by the state to enforce the continuation of these social protection programmes in the state, and not just collaborating with the federal government to implement her initiated programmes.
- iv. Nasarawa State Government should run a participatory governance system by engaging stakeholders to freely contribute actively in the implementation of social protection programmes in the state, such as Civil Society organisations, Non-governmental Organisations and the organized private sector.

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