

## Quantitative Analysis of Agricultural Programmes' Effectiveness in Reducing Unemployment Rate in Nigeria

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Unemployment remains a pressing issue in Nigeria, with a significant portion of its population unable to secure sustainable employment opportunities. In recent years, agricultural programmes have emerged as potential solutions to address the challenges of unemployment. This study explores the effectiveness of agricultural programmes in reducing unemployment rate in Nigeria. The agricultural sector in Nigeria holds immense potential for job creation, considering the country's vast arable land, favourable climate, and agricultural resources. However, the sector has been underutilized and faced numerous challenges, leading to high unemployment rates. Agricultural programmes have garnered attention as they aim to revitalize the sector, promote sustainable farming practices, and create employment opportunities for the burgeoning youth population. Consequently, the paper examines the impact of key agricultural programmes such as the Commercial Agriculture Credit Scheme (CACS), Agricultural Credit Guarantee Scheme (ACGS), Nigerian Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), and FADAMA, introduced by successive Nigerian governments at various times in reducing the unemployment rate in the country. Some of these programme though new, are just a transmutation from older ones, with the operations remaining the same. These programmes have demonstrated positive impacts in several ways according to statistics; contributing to the diversification of the economy of Nigeria and reducing the country's heavy reliance on oil revenue. The question is, how effective have these programmes been in reducing the unemployment rate? Therefore, the paper's main objective was to analyse how successful these programmes have been in checking the problem. The study uses the Logit model to investigate the effectiveness of these key Agricultural programmes in curbing the unemployment rate in the country. Data from the Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS) were used in the analysis. The results reveal that, of the four prominent programmes introduced by the government based on participants employed, the Commercial Agriculture Credit Scheme (CACS) had the likelihood or greater probability at reducing the unemployment rate in the country. The study, consequently, concludes that, subsequent programmes should be designed according to the operations and *modus operandi* of CACS and that other programmes should either be upgraded to CACS module or be scrapped since their impact on reducing unemployment is not felt.

**Keywords:** Effectiveness, agricultural programmes, Nigeria, unemployment rate, logit model.

### INTRODUCTION

Nigeria is one of Africa's most populous countries with a population of more than 200 million and one of the most endowed with resources (Adeola, 2011). However, even amid this enormous wealth, social and economic challenges are still very serious with unemployment being one of them. Available data shows that unemployment was not as challenging in the 80s and 90s, as it is today. Although population explosion has contributed to the problem, well-directed policies would have certainly cushioned the impact. Nevertheless, the creation of some programmes by successive

Nigerian governments was aimed at taming the unemployment problem and include(d); the National Directorate of Employment (NDE), National Poverty Eradication Programme (NAPEP), Subsidy Reinvestment and Empowerment Programme (SURE-P), Youth Enterprise with Innovation in Nigeria (YOUWIN), FADAMA 1, 11, and 111, the Need for Power Programme (N-POWER), Agricultural Credit Guarantee Scheme (ACGS), Anchor Borrowers' Programme (ABP), Nigerian Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), and Commercial Agriculture Credit Scheme (CACS). Some of these programmes were created as far back as in the 70s, with

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SURE-P, FADAMA, CACS, NIRSAL, ABP, YOUWIN, and N-POWER, initiated in the 80s and 90s with slight changes in names and mode of operations with democratic governance. Interestingly, 90 per cent of these programmes are agriculture-specific, with the reasoning that more than 75 per cent of Nigerians are in the sector. The question is, have these programmes in any way helped in reducing the unemployment rate?

In 2023, according to the [National Bureau of Statistics \(NBS\)](#), the rate was 9.91 per cent, which is the highest over the thirty-two-year period (1991-2023); many Nigerians are, however, doubtful of this figure considering the realities of the ground. [Udu and Agu \(2005\)](#), were of the view that Nigeria does not have any reliable figures on the unemployment rate. According to the authors, the figures published by NBS, the World Bank, and the CIA World Fact Book are contradictory with marked differences. And, ([Okigbo, 1991](#); [Raheen, 1993](#)), submitted that these differences and inconsistencies are because only recorded open unemployment is published by the official statistics with many key variables not recorded. The incidence of unemployment and/or underemployment in Nigeria especially in the 21st century is widespread, cutting across age groups, educational strata and geographical entities ([Obadan and Odusola, 2010](#)). Be that as it may, it is imperative to examine the impact of some of these programmes on reducing unemployment in Nigeria. Studies such as ([Manggoel et al., 2012](#); [Kemi 2019](#); [Enilolobo et al., 2019](#); [Adegboyega, 2020](#); [Ebere, 2022](#)), critically analyzed the impact of agriculture on the unemployment rate in the country using different approaches and variables. For instance, [Manggoel et al. \(2012\)](#), worked on “agriculture as a mitigating factor to unemployment in Nigeria,” using descriptive statistics and concluded that, the agricultural policy should be modified with consequential improvement in the sector’s investment. [Kemi \(2019\)](#), x-rayed agriculture and employment creation using Dynamic Ordinary Least Squares and observed that value addition in the sector was key to employment generation. [Enilolobo et al. \(2019\)](#), on the other hand, studied the nexus between agriculture and unemployment in Nigeria using Autoregressive Distributed Lag (ARDL) and noted that agriculture negatively impacted unemployment. [Adegboyega \(2020\)](#), used a Cointegration approach to analyze “agricultural financing and unemployment rate in Nigeria,” and noted that the GDP growth rate, the lending rate, and the rural population to total population ratio had a long-run relationship with unemployment and were statistically significant. It follows, therefore, that while these studies were focused on the sector’s impact on reducing the unemployment rate generally, none specifically considered the programmes created by the government for that purpose. Again, the methodology adopted in this study (Logistic regression) is quite different from the studies above. It is consequent on this and arising

from the many social, economic and political issues caused by the menace that this study was conceived.

According to the [International Labour Organization \(ILO\) \(2012\)](#), unemployment is one of the biggest threats to social stability in many countries of the world including Nigeria, with the average global rate at 12.6 per cent. The high rate of unemployment is believed by many to be the principal contributor to the problems of banditry, kidnapping, armed robbery and other social vices that are fast becoming a norm in the country. According to NBS official website ([www.nigerianstat.gov.ng](http://www.nigerianstat.gov.ng)), Nigeria’s official unemployment rate accelerated to 33.28 per cent in the fourth quarter of 2022, and increased marginally to 33.30 per cent in the first quarter of 2023, with attendant inflation at 26.7 per cent. This is the highest rate recorded in the last eight years as the number of unemployed people surged by about 33% or 69 million Nigerians.

**Table 1. Nigeria’s unemployment rate (1991-2023).**

Sr.	Year	Unemployment rate	Annual change
1	2023	9.91	0.05
2	2022	9.86	0.15
3	2020	9.71	1.18
4	2019	8.53	0.07
5	2018	8.46	0.07
6	2017	8.39	1.33
7	2016	7.06	2.75
8	2015	4.31	-0.25
9	2014	4.56	0.86
10	2013	3.70	-0.04
11	2012	3.74	-0.03
12	2011	3.77	-0.01
13	2010	3.78	0.02
14	2009	3.80	-0.02
15	2008	3.82	-0.02
16	2007	3.84	-0.02
17	2006	3.86	-0.01
18	2005	3.87	-0.01
19	2004	3.88	-0.02
20	2003	3.90	0.02
21	2002	3.88	-0.06
22	2001	3.94	-0.01
23	2000	3.95	-0.04
24	1999	3.99	-0.01
25	1998	4.00	-0.02
26	1997	4.02	-0.00
27	1996	4.03	-0.03
28	1995	4.06	-0.03
29	1994	4.09	-0.01
30	1993	4.10	0.01
31	1992	4.09	-0.04
32	1991	4.12	-0.03



Though the global pandemic aggravated the problem, government policies and programmes would have been better directed to controlling the problem. It follows, therefore, that the problem of unemployment in Nigeria is dire irrespective of class, tribe or age bracket and requires a holistic control measure to tackling the problem. It is against this backdrop that the following objectives were set: to assess the number of jobs created directly as a result of the government agricultural programmes interventions and to identify the most successful of the programmes in terms of job creation and their scalability for wider implementation. This paper is, therefore, structured to determine the effectiveness of the programmes towards the reduction of the unemployment rate in Nigeria from 1999-2021.

## MATERIALS AND METHODS

**Study Area:** The study area is Nigeria, located in the West African region and lies between longitudes 2° 40 and 14° 41 and latitudes 4° 16 and 13° 53 North. It has a land area of 923,768 square kilometres, of which 70 per cent is suitable for crop production. There are also a lot of opportunities for livestock production. It is bordered to the north by the Republics of Niger and Chad; to the west by the Republic of Benin, to the east by the Republic of Cameroon, and to the south by the Atlantic Ocean, which forms the southern limits of the Nigerian Territory. The 800km of coastline confers on the country the potential of a maritime power. Nigeria's fertile soils have the potential for high yields of crops such as maize, rice, cassava, yams, vegetables, oil palm cocoa, millet, et cetera. The diverse agro-climatic zones in the country, which range from tropical rainforests in the south to arid and semi-arid in the north; allow for the production of these crops and animals throughout the country. Nigeria is also blessed with several rivers, lakes, and abundant rainfall, providing ample water resources for irrigation. There is also a significant proportion of untapped groundwater potential. The country's huge population of more than 200 million makes it one of the largest markets in Africa; the demand for food products is therefore high, providing a ready market for agricultural products. With a young and energetic population of farmers in its workforce, the potential to drive innovation and productivity in the agricultural sector is a plus for the country. Nigeria also has the potential to become a major exporter of agricultural products, particularly in crops such as cocoa, oil palm, groundnut and cashew nuts, which have high demand in international markets. Government support for the sector has experienced the implementation of various agricultural policies and initiatives such as; CACS, ACGS, NIRSAL, FADAMA, et cetera; all in a bid to increase productivity and reduce the unemployment rate. CACS, for instance, was initiated by the government through the Central Bank of Nigeria in 2009 as part of efforts to boost commercial agricultural activities in the country. The key feature was to

provide credit facilities to agricultural enterprises at a single-digit interest rate. The goal also was to boost commercial agricultural activities in the country, increase output, improve food security, and expand employment generation through increased access to affordable credit for farmers. Like CACS, the ACGS was also created to maximize farmers' access to credit facilities. Initiated more than 40 years ago, the scheme was specifically created to provide credit guarantees to banks for loans granted to agribusinesses. The scheme's goal is to increase access to credit for smallholder farmers specifically, promote investment in the sector and reduce unemployment rate.

Just like CACS and ACGS, NIRSAL was also established to facilitate the flow of finance to the sector and to mitigate risks associated with agricultural lending. Initiated in 2011, NIRSAL provides risk-sharing facilities to financial institutions to de-risk agricultural lending, increase access to finance for smallholder farmers, and promote investment in the sector. NIRSAL's goal is to address the constraints associated with financing agriculture and catalyze the transformation of the sector. Introduced in 1990, the FADAMA project was targeted at improving the productivity and income of smallholder farmers through increased access to irrigation, infrastructure and inputs. Like most projects, programmes or schemes before or after it, the goal, in addition to increasing output, income, productivity, et cetera; has always been to expand the employment generation frontier.

**Model Specification:** The model adopted for the study is the Logit model (also called logistic regression or logit regression). The model is appropriate in a study involving a binary categorical response. In this study, the unemployment rate is assigned a zero (0) or one (1) depending on the deviation of the NBS unemployment rate from the study's target rate of 5%.

Ordinary Least Squares (OLS) regression of  $Y_i$  on  $X_i$  ignores the discreteness of the dependent variable and does not constrain predicted probabilities to be between zero and one. The Linear Probability Model (LPM), which is a form of binary choice model, is simple to estimate and use but has some drawbacks. The two most important being that, the fitted probabilities can be less than zero or greater than one and, the partial effect of any explanatory variable (appearing in level form) is constant. These limitations of the LPM can be overcome with sophisticated binary response models – the Logit or Probit model.

In modelling the factors that affect the “effectiveness of government agricultural programmes” towards reducing the unemployment rate to the desired single digit of  $\leq 5\%$ , the Logit model is specified in a compact form in equation (1) thus:

$$Li(\text{Unem}) = \ln(\text{Pi}/1-\text{Pi}) = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + e \dots 1$$

Where  $Li(\text{Unem})$  is the binary dependent variable-Unemployment,  $\alpha_1-\alpha_4$  represents the vector of explanatory variables and regression coefficients, respectively. The



explanatory variables are; the Agricultural Credit Guarantee Scheme (ACGS-X<sub>1</sub>), Commercial Agriculture Credit Scheme (CACS-X<sub>2</sub>), Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL-X<sub>3</sub>), FADAMA 1,11,111-X<sub>4</sub>. These variables were carefully chosen amongst others because, apart from having many participants/beneficiaries and being the loudest in terms of implementation, the programme's have also been the most pronounced channels that the Federal Government through the CBN have implemented the objective of controlling the unemployment rate.

Equation (1) above defines the conditional probabilities of Unem=1 (That is, Unem. Reduction to ≤ 5%) given (αx). Three different models could be used depending on the functional form of f (αx). They are; the Linear Probability Model, the Logit or the Probit models. In the Linear Probability Model, f (αx) = αx such that the probability function would be equal to αx which could be specified as follows;

$$\Pr(\text{Unem}=1/X) = \alpha x \dots\dots\dots 2$$

However, one of the challenges with the Linear Probability Model (LPM) is that the predicted probability would not be restricted between 0 and 1. As a result, the regression model is not used with binary outcome models or data. The models that apply in this case, are the Logit and Probit models. The difference between the two is the function f(αx); and in how their cumulative distributions function (CDF) are specified. While the CDF of f(αx) in the logit model is of the logistic distribution, that of the Probit model is of the standard normal distribution. It was against this backdrop, that the Logit model was adopted in this study.

For the Logit model, f(αx) is the cumulative (logistic) distribution function (CDF), and could be stated as follows;

$$f(\alpha x) = \mu(\alpha x) = \frac{e^{\alpha x}}{1 + e^{\alpha x}} \dots\dots\dots 3$$

Equation 3 makes the predicted probabilities to be limited between 0 and 1.

Considering therefore CDF of the logistic regression, equations 1 and 3 were estimated to bring out the odds ratios, log of odds, the marginal effect and conditional probability

**Data/ estimation of variables' effectiveness in controlling unemployment:** The data for the study was sourced from the Central Bank of Nigeria (CBN) Annual Reports and Statistical Bulletins, the [National Bureau of Statistics \(NBS\)](#) (Various Issues), and the agricultural programmes' database. The dataset is from 1991 to 2023 and includes the Unemployment rate and the number of Nigerians engaged in the different agricultural programmes. The review period covers more than three-quarters of uninterrupted democratic dispensation in Nigeria, which experienced to a very large extent, the creation of many of these programmes. The unemployment rate, which is the dependent variable was transformed into a dichotomous variable 1 and 0. The latent variable – “effective”, to tame unemployment is an index of the unobserved propensity for the event to occur. The

‘effectiveness’ to control unemployment suffices when the unemployment data has been announced or provided by NBS and other authorised statistical bodies. In arriving at that, the target rate of 5% was subtracted from the actual unemployment rate, as given by the NBS to derive the deviation. According to ([Anyanwu and Oaikhenan, 1995](#); [Samuelson and Nordhaus, 2010](#)), an unemployment rate of ≤ 5% is healthy for any economy hence, the choice of the target rate of 5% for the study. From the deviation, the binary series was then derived such that, when the deviation is positive, it was coded 0, and negative was coded 1. Consequently, if the deviation was positive, it implies that the agricultural programme was “not effective” in reducing the unemployment rate in the country. For instance, in 2023, the unemployment rate as announced by NBS was 9.91%; subtracting our target rate from this gives 9.91-5.00 = 4.91. This is positive and therefore, was coded 0. Similarly, for 1991, the rate was 4.12; subtracting the target rate of 5.00 gives 4.12 -5.00 = - 0.88. This is negative and was accordingly, coded 1. This negative deviation implies that the programme was “effective” in reducing the unemployment rate and should be continued and improved upon. Therefore, the appropriateness or “effectiveness” of these programmes over time was what this study set out to find out. Consequently, the “effectiveness” at reducing the unemployment rate, the dependent variable was coded thus; Y = 0 if Y>0

$$1 \text{ if } Y < 0 \dots\dots\dots 4$$

Where Y is the deviation between the actual unemployment rate and the target rate and takes the value of 0, if it is ≥ 0 otherwise, it takes the value of 1 if it is < 0. Accordingly, the dependent variable is in binary form while other variables, the predictors are continuous in nature.

## RESULTS AND DISCUSSION

**Descriptive statistics:** Descriptive statistics of the variables used in the estimation process are presented in Table 2. This is important because it gives an insight into the dynamics of the data series, providing a further inroad to inferential statistics. Four agricultural programmes were used to test their impact on reducing the unemployment rate in Nigeria.

According to the table, unemployment rate (UNEMP) average at 5.5 percent, reflecting that the unemployment rate for 32 years' period was moderately low. The low range is indicative of the periods of study categorized or coded as 1. NIRSAL recorded an average of 308814.7 beneficiaries, FADAMA had 7125.084.1 beneficiaries, ACGS, 34412.4; while CACS had the lowest mean beneficiaries of 68.8. The distribution of the variables indicate that all are positively skewed except FADAMA. This implies that, there are serious disparities in the employment of participants in NIRSAL, ACGS, and CACS, in the programmes' implementation. Some years had very high numbers, while others recorded



**Table 2. Summary Statistics of Unemployment rate and key agricultural programmes in Nigeria.**

	UNEMP. RATE	NIRSAL	FADAMA	CACS	ACGS
Mean	5.475161	308814.7	7125.084	68.78571	34412.35
Median	3.830000	308814.7	68.78571	30218.00	981423.0
Maximum	32.50000	772334.0	10253.00	109.00000	69062.00
Minimum	3.590000	87200.00	2324.000	51.00000	12439.00
St. Dev.	5.293047	110484.5	1773.228	13.10007	17013.82
Skewness	4.512829	2.122621	-0.611991	1.283534	0.427527
Kurtosis	23.43326	12.02949	3.292603	4.903747	1.961256
Jarque-Bera	644.5165	128.5904	2.045678	13.19320	2.338054
Probability	0.000000	0.000000	0.359573	0.001365	0.310669
Sum	169.7300	9573255.	220877.6	2132.357	1066783.0
Sum Sq. Dev.	840.4904	3.66E+11	94330159	5148.357	8.68E+09
Observations	32	32	32	32	32

**Table 3. Summary statistics of the variables when the unemployment rate is negative (1).**

	UNEMP. RATE	ACGS	CACS	NIRSAL	FADAMA
Mean	3.831600	34032.12	64.73429	287336.9	7019.702
Median	3.810000	23955.00	68.78571	308814.7	7117.940
Maximum	4.560000	69062.00	68.78571	308814.7	10253.00
Minimum	3.590000	12439.00	51.00000	87200.00	2324.000
Std. Dev.	0.196992	18284.77	6.353715	62023.87	1966.136
Skewness	2.590494	0.423520	-1.076646	-2.656534	-0.402842
Kurtosis	9.800046	1.787871	2.505292	8.415488	2.637870
Jarque – Bera	76.12839	2.277849	5.084791	59.95439	0.812775
Probability	0.000000	0.320163	0.078678	0.000000	0.666052
Sum	95.79000	850803.0	1618.357	7183423.	175492.5
Sum Sq. Dev.	0.931336	8.02E+09	968.8727	9.23E+110	92776604
Observations	25	25	25	25	25

very low numbers. These high numbers may have been recorded at the early years of these programmes. In other words, in 32 years of the programmes' existence, most of the years had very few participants. For FADAMA, the reverse is the case. The probability of the Jarque-Bera shows that unemployment rate, NIRSAL and CACS are normally distributed at 1 percent, while FADAMA and ACGS are not. The table also indicates that within the period of study, negative digits unemployment rate (from Logit calculation of 0, 1) was experienced in 25 of the 32 years study period, representing 78.13 per cent; while the positive digits rate was in 7 years, representing 21.88 per cent. In other words, the majority of the periods were largely negative digits' unemployment rate.

In Tables 3 and 4, the distribution of NIRSAL, FADAMA, CACS, and ACGS between the periods of negative and positive digits' unemployment rates are shown; the period of positive digits is denoted as 0 and negative digits as 1. For negative digits' unemployment rates, NIRSAL, FADAMA, and ACGS averaged 287336.9, 7019.702 and 34032.12, respectively. The result also shows that only the unemployment rate and ACGS were positively skewed. CACS, FADAMA and NIRSAL were skewed negatively. The

Jarque-Bera shows a 1 per cent normal distribution for the unemployment rate and NIRSAL, while CACS was normally distributed at 10 per cent.

Similarly, during the period of positive unemployment rate, NIRSAL averaged 398305.3, ACGS, 35996.67; FADAMA, 7564.176; and CACS, 85.66667. The mean unemployment rate at this period was 12.32, which was quite high, and the Jarque-Bera shows that, none of the variables was normally distributed.

Table 5 shows the correlation matrix of the variables. All the variables are appropriately signed according to *a priori* expectations except ACGS which is negatively related to the unemployment rate dependent variable. It implies, therefore, that the impact of ACGS is not as much as to bring down the unemployment rate in the country. The CACS and NIRSAL are significant in their impacts on the unemployment rate and suggest that the programmes have been more meaningful at reducing the rate.

**Log of odds and marginal effects:** Table 6 presents the result for the log of odds. The estimated logit model is the natural log of odds ratio. The signs of the coefficients for ACGS, CACS, NIRSAL, and FADAMA, indicate a positive influence on reducing unemployment. These predictors have



**Table 4. Summary statistics of variables when Unemployment is positive (0).**

	UNEMP. RATE	ACGS	CACS	FADAMA	NIRSAL
Mean	12.32333	35996.67	85.66667	7564.176	398305.3
Median	8.490000	31426.50	90.50000	7604.896	806150.0
Maximum	32.50000	56632.00	109.0000	7705.352	772334.0
Minimum	7.060000	25653.00	51.00000	7326.372	206407.0
Std. Dev.	9.905977	11326.48	20.29450	154.3440	207023.6
Skewness	1.771123	1.106638	-0.735548	-0.526428	1.080395
Kurtosis	4.169530	1.860179	2.880017	2.515438	2.780942
Jarque-Bera	3.478828	1.229536	0.599731	0.648138	1.179250
Probability	0.175623	0.540766	0.740918	0.723201	0.554535
Sum	73.94000	215980.0	514.0000	45385.05	2389832.
Sum Sq. Dev.	490.6419	6.41E+08	2059.333	119110.3	2.14E+11
Observations	7	7	7	7	7

**Table 5. Correlation matrix of the variables.**

	Unemp. rate	ACGS	CACS	NIRSAL	FADAMA
Unemp rate	1	-.001	.705**	.780**	.089
AGCS	.001	1	-.465**	-.342	.341
CACS	.705**	-.465	1	.792**	-.031
NIRSAL	.708**	-.342	.792**	1	-.047
FADAMA	.089	.341	-.031	-.047	1

\*\*Correlation is significant at the 0.01 level (2-tailed)

the likelihood of effectively reducing unemployment if they are well-directed and implemented. The likelihood of reducing unemployment is greater with ACGS and CACS given the higher positive coefficients.

However, the statistical significance of CACS indicates that the probability of effectively reducing unemployment is much higher with CACS than it is with the rest of the programmes. The odds ratio is a concept that is often used to test the relative risk of the Logit model. The odds ratio, estimated with the logistic model, measures the probability that the dependent variable is 1 (successful or effective) relative to the probability that the dependent is 0 (not successful or not effective). The odds ratio in logistic regression is not linear but reflects more realism in life. The

odds ratio for a variable in logistic regression represents how the odds (the probability of success), change with a 1-unit increase in each independent variable holding all other variables constant. The odds ratio in favour of effectively reducing unemployment will increase by 0.0109 per cent  $[(1.000109-1) \times 100]$  with ACGS; 28.50 per cent with CACS; -0.00067 per cent with NIRSAL; and -0.00624 per cent with FADAMA. The most significant of the programmes for checking unemployment is CACS. This is the percentage increase in the odds of success. Re-ordered differently, the odds for CACS are increased by a factor of 1.284 to 1 chance of success in realizing the dependent variable.

Similarly, the probability of reducing unemployment decreases with ACGS and is worse with NIRSAL and FADAMA. The pseudo-R-square (the equivalent of R-

square) shows the amount of variation of the dependent variable explained by the independent variable. The model fits the data very well following the significant level of the  $Prob > \chi^2$  being less than 0.05. This is the equivalent of P-value of the model. The CACS is significant at 5 percent while ACGS, NIRSAL and FADAMA are insignificant.

The marginal effect from Table 6 shows that CACS and ACGS have 0.019 and 0.00000087 per cent probability of reducing unemployment; however, CACS has a greater chance of achieving that. NIRSAL and FADAMA have a decreased probability of controlling unemployment by -0.00000053 and -0.0000049 per cent, respectively. It implies, therefore, that the two programmes are counter-productive to reducing the unemployment rate in Nigeria.

**Policy implications/Limitations:** Government initiatives at curbing unemployment through the introduction of some agricultural programmes clearly show that some of the programmes like NIRSAL and FADAMA did not quite achieve this aim and therefore should be rejigged. A re-design of these programmes with effective social safety nets and support systems for those facing prolonged unemployment will go a long way to improving the goals of these programmes. Again, most of the programmes activities are concentrated in urban centres, but the poorest and most unemployed Nigerians are in the rural areas, re-defining the operations of these programmes by ensuring these are mostly done in the rural areas will greatly reduce the unemployment rate.



**Table 6. Log of odds and marginal effect.**

Unemployment/ ACGS CACS NIRSAL FADAMA

Number of observations = 32

LR chi2(4) = 17.21

Prob > chi2 = 0.0018

Log likelihood = 6.6245452; Pseudo R2 = 0.5651

Unemployment	Odds ratio	Standard error	Z	p>/z/	[95% conf.]	Interval
ACGS	1.001090	0.0000748	1.46	0.144	0.9999627	1.000256
CACS	1.284990	0.1328697	2.42	0.015	1.0491760	1.573589
NIRSAL	0.999993	0.0000121	-0.56	0.579	0.9999695	1.000017
FADAMA	0.999938	0.0006157	-0.10	0.919	0.9987316	1.001145
-cons	0.000001	0.0000001	-2.38	0.017	0.0000000	0.257988

**Marginal effects**

Dy/dx w. r. t: ACGS CACS NIRSAL FADAMA

ACGS = 34412.35 (mean)

CACS = 68.78571 (mean)

NIRSAL = 308814.7 (mean)

FADAMA = 7125.084 (mean)

	dy/dx	Standard error	z	p> / z /	[95% conf.]	Interval
ACCGS	8.70e-06	6.22e-06	1.40	0.1620	-3.49e-06	0.000021
CACS	0.01995	0.014624	1.36	0.0173	-0.008713	0.048613
NIRSAL	-5.35e-07	1.00e-06	-0.53	0.5940	-2.50e-06	1.43e-06
FADAMA	-4.97e-06	0.000049	-0.10	0.9190	-0.000101	0.000914

However, it is important to emphasize that, this study had some limitations. For instance, only the programmes believed to have had more participating Nigerians were analyzed and the conclusions drawn were based on this. This may be erroneous as excluded programmes may have more impact than the ones analysed in the study. For some programmes like ACGS, not all the years were considered. This may have a significant impact on the programmes achievement of reducing unemployment. Also, accessing data from some of the programmes was somewhat difficult as some of the data were not on the Internet and could only be accessed through a series of visits to some of the agencies. In many instances, the records were in tatters. Consequently, further studies on agricultural programmes impact on unemployment should consider all the programmes, in addition to incorporating control programmes outside the sector.

**Conclusion:** The study aimed to investigate how effective some agricultural programmes introduced by the Federal government of Nigeria faired at reducing the unemployment rate in the country over a period of thirty-two years. The analyzed data of the programmes obtained from 1991-2023 as well as the unemployment rate, showed that there was an upward trend in the rate despite the interventions. It can be concluded that, despite the various agricultural intervention programmes introduced by the government, the unemployment rate kept increasing within the period under consideration because the policies of these programmes were not properly directed or not well conceived. The programmes,

except CACS, had no real impact on unemployment even though they were primarily established to create jobs and increase incomes. Based on these findings, the study suggests the following:

- i. That ACGS and CACS should be continued and improved upon as these can reduce the unemployment rate and, that all other existing or newly created programmes should be structured and implemented like CACS which had a real impact on unemployment.
- ii. Agricultural programmes such as NIRSAL and FADAMA should be reformed or replaced.

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