# Nigeria's Public-Private Partnerships and Unemployment

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### Abstract

he paper employs robust least squares regression (RLS) using M-estimation method to explore the dynamics between government-private partnerships represented by funding under the Agricultural Credit Guarantee Scheme (ACGS) and unemployment in Nigeria using data from 1991–2015. Empirical estimates indicate that proportionally increasing agricultural output will directly improve unemployment in Nigeria by more than 100% of such proportional increases. Additionally, for every one percent increase in value of funding under the ACGS, unemployment will improve by about 0.0016 percent at aggregate level. Results indicate that after adjustments, about 94% of unemployment is explained by the selected variables from the RLS estimation. The paper therefore recommends the ACGS be adequately funded and properly managed continuously to ensure not just food security and increased agricultural output but also to significantly reduce unemployment and consequently enhance economic development in Nigeria.

**Keywords:** Public-Private partnership, Agricultural finance, Agricultural output, Unemployment.

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# **Background to the Study**

Nigeria is still largely an agrarian economy providing employment for about 60% of Nigerians in both formal and informal sectors i.e. about 150 million people. This implies the agricultural sector is a major employer of a larger proportion of the Nigerian population. Related to this, it has been established that when growth comes from sectors that most poor people work in such as the agriculture sector in Nigeria, poverty is reduced faster(USAID 2009). However, despite the rapid advancement of Western technology, Nigeria's agriculture remains largely subsistence and about 80% of Nigeria's agricultural output comes from rural farmers living on less than a dollar per day, earned from farming less than one hectare of land (2.47 acres), using local implements, (Tersoo, 2013). In this respect, agriculture which is generally recognized as an effective engine of growth for most agriculture based countries like Nigeria is still under-exploited with huge potential investment opportunities. It is in recognition of this fact that the Federal Government of Nigeria at various periods put in place credit policies and established credit institutions and schemes that could facilitate the flow of agricultural credit to farmers; (Adegeye & Dittoh, 1985). One of such laudable Schemes has been the Agricultural Credit Guarantee Scheme (ACGS), a veritable government-private initiative, which set up a Fund -the Agricultural Credit Guarantee Scheme Fund (ACGSF). The ACGSF was predicated on the unwillingness of commercial banks to finance smallholder farmers due to high default rate on loan repayment and/or high credit risks. This situation was compounded by lack of loan collaterals against default as well as the high cost of credit administration of small value loans to widely scattered rural farmers. These issues make it necessary to evaluate the activities of the ACGS and the performance of the funding provided under it in terms of the effects it has on ameliorating increasing unemployment in Nigeria, on the premise that if citizens are gainfully employed in agriculture with necessary access to finance, there would be increased agricultural productivity and the ACGS will ultimately deliver on its intended objectives.

# Statement of the Problem

Several years after, the problems that necessitated the establishment of the ACGS rather than lessening, have worsened and more significantly, Nigeria's agriculture is still terribly under-funded. Hence, poor funding and implementation continue to limit the ability of the ACGSF to provide credit to the vital agricultural sector. As a consequence, commercial banks continue to be risk averse to the smallholder farmers contending that credit guarantees provided by the government are insufficient to encourage banks to extend funding to these farmers. In fact, at a public forum in April 2011, representatives of some of Nigeria's major banks admitted that their banks are ill-equipped to fund the agricultural sector, (GAIN, 2011). Hence, the dominant smallholder farmers in Nigeria continue to lack access to funding from the formal financial institutions despite agriculture accounting for a significant portion of Nigeria's GDP, even to a greater proportion than the celebrated oil sector. Nigeria being an agrarian economy basically and given the salutary effects of enhanced agricultural production on employment status, an evaluation of the impact of the ACGS is important. Moreover, it has been observed that there is inadequate level of assessment carried out in the agricultural credit scheme fund (Okoroem, 2003). Also, studies abound on the importance of Agricultural Credit Guarantee Scheme, its operations and its contributions to the state economy but hardly any exploration on possible linkages to unemployment status especially in a largely agrarian economy like Nigeria. This study is an attempt to investigate some of the issues.

# **Objectives of the Study**

The main objective of the study is to examine the funding operations of the Agricultural Credit Guarantee Scheme (ACGS) in Nigeria over the period 1991 to 2015. Specifically, the study set to determine how the funding provided by the ACGS has impacted unemployment in Nigeria. The study will also consider how agricultural output (an assumed end product of agricultural funding) has impacted unemployment in Nigeria.

#### Literature Review

# Agricultural Financing in Nigeria

Before the ACGS, the Federal Government had put in place various credit schemes and development institutions to encourage agricultural development including the Nigerian Agricultural and Co-operative Bank (now known as the Nigerian Agricultural Cooperative and Rural Development Bank; Creation of the River Basin Authorities in 1979 throughout the Country; Establishment of both enclave and State wide Agricultural Development Projects throughout the Country between 1972 and 1980 to facilitate among other things the provision of agricultural credit to farmers; Development of State Ministry operations and other government sponsored agricultural credit programmes in the second half of the 1970s; and Development of technical support and agro service establishments that would facilitate the supply of credit to farmers throughout the country between 1976 and 1980.

However, the persistent failure of the support institutions and conventional banks to adequately finance agricultural activities and the need to provide additional incentives to further enhance the development of agriculture to solve the problem of food insecurity provided justifications for the establishment of the ACGS and its Fund the ACGSF by the Federal Government of Nigeria in 1977 with the principal objective to facilitate the provision of credit to farmers by providing guarantees to participating banks for loans granted to farmers in accordance with the Scheme's enabling Act. (Mafimisebi et al, 2008).

# The Concept of Agricultural Credit Guarantee Scheme (ACGS)

Credit guarantee schemes are generally insurance schemes and inherently governmentprivate partnerships set up with the purpose of covering a portion of the losses incurred when borrowers who are considered risky default on loans. The purpose of such schemes is to encourage lending institutions to lend to small businesses with viable projects and good prospects of success, in the absence of adequate collateral or suitable historical record of financial transactions to prove credit worthiness.

The Nigerian ACGS is therefore designed to encourage banks to increase lending to the agricultural sector by providing guarantees against inherent agricultural risks. The ACGS is an initiative of the Federal Government and the Central Bank of Nigeria with the active support and participation of the Bankers' Committee. At the national level, the scheme operates through a Central Implementation Committee (CIC) while at the Federal Capital Territory (FCT) and State levels, the Scheme operates through State Implementation Committees (SICs) instituted to ensure that the objectives of the Scheme are realized. Funds for disbursement under the Scheme are domiciled under the Agriculture Credit Guarantee Scheme Fund (ACGSF) which started operations in April, 1978. The Fund guarantees credit facilities extended to farmers by banks up to 75% of the amount in default net of any security realized. The Fund is managed by the Central Bank of Nigeria, which handles the day-to-day operations of the Scheme. The funding Guidelines stipulate the eligible enterprises for which guarantees could be issued under the Scheme. ACGS funds are disbursed to farmers and agro-allied entrepreneurs at a single-digit effective rate of interest. To access loans under ACGS, applicants (practicing farmers and agro-allied entrepreneurs) approach their banks through the respective State Chapters of Farmers Associations and State Implementation Committees. However, large scale farmers are allowed under the Scheme to apply directly to their banks in accordance with the rules of the Scheme.

Furthermore, as part of its developmental role, the Central Bank of Nigeria (CBN) in collaboration with the Federal Ministry of Agriculture and Water Resources (FMAWR) established the Commercial Agriculture Credit Scheme (CACS) in 2009 to provide finance for agricultural value chains (production, processing, storage and marketing). The primary objectives of this Scheme include to increase output, generate employment, diversify Nigeria's revenue base, raise the level of foreign exchange earnings and provide input for manufacturing and processing on a sustainable basis. The CACS which is a subcomponent of the Federal Government's Commercial Agriculture Development Programme (CADP) is financed through aN200billion Bond raised by the Debt Management Office (DMO). Loans to eligible entities under the Scheme are disbursed at a maximum interest of 9 percent. Any subsidy arising from the differential between this stipulated maximum interest rate and the market rate on all existing loans as well as the administrative expenses of the Scheme are borne by the CBN.

# **Theoretical Review**

Two theories are of relevance to this study i.e. the credit channel theory and the economic additionality theory. The credit channel theory postulates that monetary policy may have an effect on credit supply and demand in an economy since monetary policy works in part by altering credit flows. According to this view, monetary policy shocks affect real economic performance through the supply of credit by financial intermediaries due to shifts in the supply schedule of the financial intermediaries (Bernanke and Gertler 1995, Dobrinsky and Markov 2003). Within this theory, the literature makes a distinction between a "bank lending channel" which pertains to banks only and is related to their dual nature as holders of deposits and generators of loans to firms, and a "broad credit channel" which treats the supply of external funds to firms by all financial intermediaries (Oliner & Rudebusch, 1996 & Hu, 1999).

On the other hand, the economic additionality theory deals with the extent to which additional inputs or actions add to the existing inputs or actions, without replacing any of them, and results in a greater aggregate (Wade 1990, Gillenwater 2012). According to this theory, the improvements achieved among borrowers and in the overall economy which may include an increase in the commercial and economic activities of the borrowers in terms of income/profit, employment and wages for workers, sales, new products development, competitiveness, productivity, output, investment, economic growth and increase in tax revenue for the government would only be possible due to the increased funding as a result of the guarantee provided under the credit guarantee scheme (Green, 2003).

# **Empirical Review**

Table 1 below shows some summarized relevant empirical findings in literature concerning ACGSF.

**Table 1:** Selected Empirical Findings

Author(s)	Country(s)	Investigation	Main results	
Orok & Ayim	Nigeria	Impact on Agricultural	Positive and significant	
(2017)		Sector Development	impact	
Saheed (2014)	Nigeria	Impact on Domestic Food	Impact on Domestic Food Positive and significant	
		Supply	impact	
Enenche et al.	Nigeria	Effect on Production	Inefficiency effects	
(2014)		Efficiency of Rural Farmers   significantly contribute		
			to inefficiencies of	
			ACGSF beneficiaries	
Usman et al.	Nigeria	Impact on Agricultural	Positive and significant	
(2014)		Produce	impact	
Ubah (2008)	Nigeria	Impact on Agricultural	Positive but	
		Output	insignificant impact	
Ugwu and Kanu	Nigeria	Effects of economic reforms	Unsatisfactory Effects	
(2011)		on the agricultural sector	Minimal Contributions	
Efobi &	Nigeria	Contribution of FDI to	Mixed evidence of a	
Osabuohien		sustainable development	relationship	
(2011)				

The importance of agriculture generally is such that both historical and present development experience indicates it is in Agricultural sector that the battle for long term economic development will be won or lost. As such, empirical studies abound on the importance of credit to various aspects of agriculture generally and specifically. For instance, credit has been established to be important to ensure steady agricultural production, improve the sector's performance as well as improve the standard of living of beneficiaries. (Okoroem 2003, Oboh 2006). Hence, the major focus of agriculture policy is usually to establish a system of sustainable agricultural financing schemes, programs and institutions that could provide micro and macro facilities for the small, medium and large-scale producers, processors and marketers (Akhakpe, 2009).

However, public expenditure on agriculture which serves as the bedrock of financing for the sector has consistently fallen short of recommendations and Nigeria's agriculture is abysmally under-financed. It is therefore not surprising that these policies have failed to achieve the set goals of food self-sufficiency, self-reliance, poverty reduction and rural development. In this respect, the Nigeria Agriculture Public Expenditure Review (2008), a collaborative study carried out by the International Food Policy Research Institute (IFPRI) and the World Bank in 2008, revealed that public spending on agriculture was less than 2 percent of federal expenditure during 2001 to 2005. In 2016, the federal government spending on agriculture was about 0.88%; which is even less than 1 percent (CBN 2017).

This is a far cry from the 10% goal set by African leaders under the Comprehensive Africa Agricultural Development Program (CAADP). Furthermore, the decline in agricultural output in Nigeria (especially in the area of export crops) is often blamed on lack of credit to farmers (Olukunle 2002). Hence, adequate capital flow to agricultural sector is a crucial factor in accelerating incremental food production (Okorie 1998).

# Methodology and Data Definition of Variables

The categories of the variables UNE, ASF, PCF and PAR are defined and specified in table 2. The endogenous variable UNE is considered a structural variable and the exogenous variables policy instruments. The choice of variables is motivated by both the background discussion above and the findings in the literature.

**Table 2:** Definition of Variables

Variable	Definition		
UNE	Percentage Unemployment		
ASF	Value of Funding under the ACGS		
PCF	Percentage Change in Funding under the		
	ACGS		
PAR	Percentage Contribution of Agriculture to		
	Real GDP –a Proxy for Agricultural Output		

# The Model and Estimation Procedure Specification of Model

The model to be estimated is of the following form

$$UNE = F(PCF, PAR, ASF) \dots (1)$$

And

$$UNE = C_1 PCF + C_2 PAR + C_3 ASF + C_4 \dots \dots (2)$$

Where C<sub>i</sub>= coefficient to be estimated The other variables are as defined in Table 2 above

# **The Estimation Procedure**

Given the nature of the data, the model is estimated by means of the Robust Least Squares (RLS) regression procedure. Robust Least Squares (RLS) regression using M-estimation method is employed given the nature of the study's dependent variable defined above and the observance of possible data outliers. The advantage of RLS regression is that this approach is not as vulnerable as ordinary least squares (OLS) technique to unusual data and the M-estimation method addresses dependent variable outliers where the dependent variable differs noticeably from the regression model norm. The RLS regression model does this by assigning less weight to observations that would otherwise influence the regression line. In this manner, RLS can also be used to detect influential observations and its standard errors take into account issues of lack of normality, heterogeneity and whether observations may be non-independent.

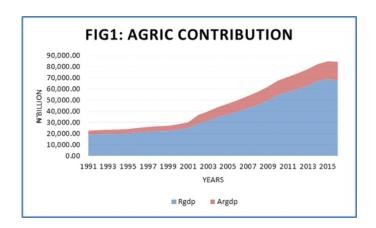
#### **Data Sources**

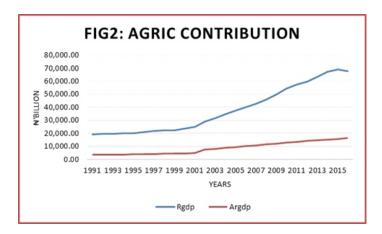
Secondary annual data from 1991 – 2015 is obtained from the Central Bank of Nigeria, National Bureau of Statistics, World Bank, International Monetary Fund and pertinent derivatives there from.

# **Results and Discussions Analysis of Trends**

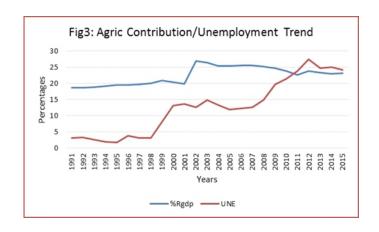
Figures 1 -2 display trends in real gross domestic product (RGDP) and disaggregated real gross domestic product for agriculture (ARGDP) over the study period from 1991-2015. From Figures 1-2, ARGDP held steady in parallel movement to RGDP from 1991 to 2001 where there was a spike as RGDP began to rise significantly; possible due to the boom in oil revenues received by Nigeria. However, as RGDP rose geometrically beyond 2002 up till 2015 covering four growth bands, the increase in ARGDP was noticeably not geometric and remained within one growth band, reminiscent of Nigeria's growth without development which ultimately resulted in economic recession beyond 2015 (Ako 2017).

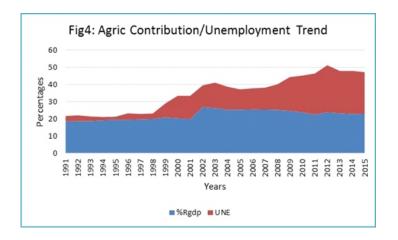
Furthermore, Figure 3 shows trends in the percentage contribution of agriculture to RGDP (a proxy for agricultural output) in light of unemployment while Figure 4 indicate the magnitude of changes involved in the two trends.





From Figure 3, while the agricultural output rose sharply between 2001 and 2002, it has been on the decline since about 2009. On the other hand, unemployment started an upward trend with a noticeable spike in 1998 and again in 2007 to the extent that by 2010, growth in unemployment overtook growth in agricultural output and unemployment still retains this superior growth. Figure 4 aptly captures the magnitude of changes between unemployment and agricultural output and indicates the magnitude of growth in unemployment is much more within the study period.





# **Robust Least Squares Regression Results RLS Estimates**

The result of the RLS regression using M-estimation method is presented in Table 3 below

Table 3: RLS Results Dependent

Variable: UNE

Variable	Coefficient	Std. Error	z-Statistic	Prob.			
PCF	-0.034536	0.008035	-4.298243	0.0000			
PAR	1.069235	0.247036	4.328258	0.0000			
ASF	0.001568	0.000157	9.980919	0.0000			
C	-17.08175	5.259671	-3.247684	0.0012			
Robust Statistics							
R-squared	0.672881	Adjusted R-squared		0.626150			
Rw-squared	0.945528	Adjust Rw-squared		0.945528			
Deviance	172.6395	Scale		2.150220			
		Prob(Rn-so	quared				
Rn-squared statistic	217.7315s	217.7315stat.)		0.000000			
Non-robust Statistics							
Mean dependent var	12.68000	S.D. dependent var		8.417640			
S.E. of regression	4.117965	Sum squared resid 356.1104					

From Table 3, the estimated RLS regression equation is given as:

$$UNE = -0.0345PCE^{***} + 1.0692PAR^{***} + 0.0016ASF^{***} -17.0818^{***} \dots (4)$$

Where: \*\*\*denotes significance at 1%.

This results shows all the exogenous variables are highly significant at 1% level and the weighted R<sub>w</sub> indicate excellent explanation for unemployment by selected variables at 94.6%. The robust  $R_n^2$ -statistic of 217.7315 with *p-value*<.01 indicates the overall model of unemployment is significant at the 1 percent level and that the non-intercept coefficients are jointly statistically significant under this estimation. From the RLS estimates, for every one percent increase in value of funding under the ACGS, on average, unemployment will improve by about 0.0016 percent at aggregate level and for every one percent increase in agricultural output, on average, unemployment will improve by more than 1 percent at about 1.0692 percent at aggregate level holding all other variables constant.

This estimation indicates that increasing the proportion of agricultural output will directly improve unemployment in Nigeria by more than 100% of such proportional increases. Thus, credit finance provided under the agricultural credit guarantee scheme (ACGS) as well as agricultural output tends to improve unemployment in Nigeria at least during the period covered by this study. This is another indication for the imperative of adequately funding agriculture so as to reduce unemployment in Nigeria. This is because if properly managed, the ACGS is capable of not just ensuring food security but could significantly reduce unemployment and consequently enhance economic development in the country.

# **Diagnostic Tests Results**

Fig5: CUSUM Stability Test

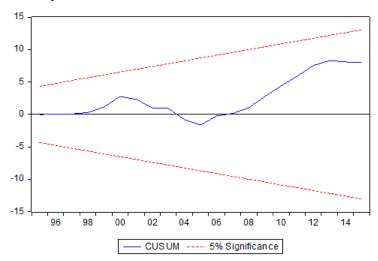


Fig6: RLS Actual-Fitted Residual Graph

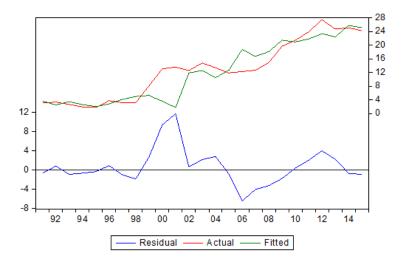


Figure 5 above plots the cumulative sum (CUSUM) from a recursive estimation of the model and indicates model stability in the coefficients as the plot of the CUSUM statistic falls within the critical bands at the 5% significance level for parameter stability. Figure 6 shows actual-fitted plot of OLS estimation and indicate a close fit.

# **Conclusions**

This paper employs the econometric technique of robust least squares (RLS) regression using M-estimation method to explore the dynamics between unemployment, funding

under the Agricultural Credi Guarantee Scheme (ACGS) and agricultural output in Nigeria based on annual data from 1991–2015. Results indicate the significant negative comovement between unemployment and percentage change in funding under the ACGS is indicative of the un-salutary effects of these changes on unemployment and the fact that overall percentage changes in funding under the ACGS have been mostly downward and a significant portion of such downward changes has actually been negative. Evidence indicates the impact of defective agricultural financing policies on unemployment in the past two decades leading to the current crescendo in unemployment levels in Nigeria. The results indicate it is imperative that government adequately funds agriculture so as to reduce unemployment in Nigeria. Results further indicate that after adjustments, about 94% of unemployment is explained by the selected variables from the RLS estimation. Empirical estimates indicate that increasing agricultural output will directly improve unemployment in Nigeria by more than 100% of such proportional increases. Additionally, for every one percent increase in value of funding under the ACGS, unemployment will improve by about 0.0016 percent at aggregate level.

#### Recommendations

The paper therefore recommends the ACGS be adequately funded and properly managed continuously to ensure not just food security and increased agricultural output but also to significantly reduce unemployment and consequently enhance economic development in Nigeria. Furthermore, the current seriously haphazard funding of agriculture under the ACGS which is tantamount to failed monetary policies adversely affecting the credit channel is not just injurious to agricultural production but it also significantly compounds the unemployment situation in Nigeria and should be discontinued completely as not being in the best interest of healthy Public-Private Partnership for sustainable development. Additionally, government should stop neglecting the full implementation of the numerous existing policies to enhance agricultural production in the country. Enhanced agricultural production implies increased agricultural output which in turn will vastly improve unemployment and boost sustainable economic development in Nigeria.

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