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Research Article

Comparative Statistics on the Activities Agricultural Credit Guarantee Scheme Fund (ACGSF) Among Oil Producing States of Nigeria

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Abstract

This paper reviewed the activities of the Agricultural Credit Guarantee Scheme Fund (ACGSF) in the Niger Delta Development Commission (NDDC) covered states for the period 1991 to 2011. The objectives were to compare variation in the number and value of loans guaranteed to these states and to determine the stability or otherwise of the relationship between number of loan beneficiaries and the value of loans guaranteed to beneficiaries with the introduction of the NDDC in 2000. The hypothesis was that the relationship between the value and number of loans guaranteed to farmers in these states under the ACGSF did not undergo structural change with the introduction of NDDC. Time series data were obtained from the Statistical bulletin of the Central Bank of Nigeria (CBN, 2011) for the period 1991 to 2011 on the total number and value of loans guaranteed. They were analyzed using descriptive statistics and inferential statistics, namely; ANOVA and Chow test. Among the findings were: that there was no significant variation in the number and value of loans guaranteed among the nine states in the period under review; that CV were particularly high in value of loans guaranteed for all the states and in both variables for Delta State; that number of loans guaranteed were under 1000 units for all the states in the period reviewed but the value of loan increased dramatically since 2004, thus farmers coverage was low and static; that the null hypothesis of no structural break was accepted for Akwa Ibom, Delta, Imo and Rivers States but rejected for Abia, Cross River, Edo and Ondo States. The conclusion was that ACGSF can do better. It was recommended that ACGSF should minimize variability in annual total value of loans disbursed and that there should be a closer institutional linkage between the financiers of ACGSF and NDDC to facilitate farmers maximization of the benefits from these two institutions.

Keywords: number and value of loans, Guaranteed, coefficient of variation, structural break

1. Introduction

The Agricultural Credit Guarantee Scheme Fund (ACGSF) became operational in 1978, about a year after the Act establishing it was passed. The Scheme is funded by the Federal Government of Nigeria (FGN) and the Central Bank of Nigeria (CBN). It is managed by the CBN. The specific mandate of the ACGSF was to provide security to farmers and operators of agro-allied businesses for loans obtained from commercial banks for agricultural purposes indicated under the scheme. The mandates of the Scheme were designed to further strengthen the battery of institutional arrangements already provided by the federal Government of Nigeria to support agribusinesses financially. This study examined the effect of the Scheme on the stability of credit supplies to farmers in the Niger Delta oil producing states in Nigeria for the period 1991 to 2011.

Crude oil was first discovered in Nigeria at Oloibori, Rivers State in 1956. Commercial exploration and exploitation started in the 1970s. It is truism to say that the number of oil producing states increased with the discovery of crude oil in more states of the federation. At a time, however, these states were observed to belong to a geographically contiguous location in the delta area of River Niger. The block was then naturally christened Niger Delta Oil producing States. Crude oil contributes 42% of Nigeria's GDP. The figure was lower before the 1980s.

As activities in crude oil intensified, agriculture was allowed to slip far to the background by way of neglect of the physical environment and development of the human resource in the area. Over time, the physical environment became increasingly degraded and the inability of the youths to neither eke a living from agriculture nor fit into the emerging crude

oil industry deteriorated. Thus agriculture and other economic activities in the area suffered and the people impoverished.

The first land mark response by the FGN to remedy the situation was to establish a Development Commission for each of the oil producing states. These commissions were to manage special allocation from oil proceeds to each of these states for their even development. This effort was, however, seriously abused by the states government which turned the commissions into an instrument for siphoning money away from legitimate uses by the commission. A national body, the Niger Delta Development Commission (NDDC) was therefore established in 2000 with the specific mandate of facilitating a sustained rapid and even development of the whole area.

At inception, NDDC worked with the nine oil producing states of Abia, Akwa Ibom, Bayelsa, Cross River, Delta and Edo, Imo, Ondo and Rivers States. The operations of the Commission were projected to have positive effects on the economic activities of these states. For agriculture, activities were expected to be expanded and or intensified. Data on the level of expansion and intensification of agricultural activities were, however, not immediately available to the researcher. This notwithstanding, it is reasonable to assume that with the realization of such projections (agricultural expansion and or intensification), increases in demand for institutional credit will ensue and the ACGSF will be a veritable gauge from which to read such up surge in loans disbursements. It is on this premise that this study reviewed the activities of ACGSF in the NDDC states except Bayelsa, to some extent, with the objectives of comparing variation in the number and value of loans guaranteed among these states and of determining the stability or otherwise of the relationship between the number and the value of loans guaranteed. The hypothesis was that the relationship between the value and number of loans guaranteed to farmers by ASGSF in the NDDC states has not experienced structural change since NDDC was established.

Some empirical works have been done on the activities of the ACGSF but from either a national perspective or local government level viewpoint. For example, Isiorhovoja and Chukwuji (2001) and Zakaree (2014) looked at the effect of ACGSF on crop/food output; Isiorhovoja (2013) looked at the direction and patterns of credit disbursement and repayment nationwide. Enenche *et al*., (2014) assessed the effect of ACGSF on income generation and poverty alleviation among rural farmers. Not one study, to the knowledge of this researcher, has been carried out specifically on the effect of the ACGSF in the oil producing states with particular attention to NDDC since its inception. This study bridges this gap.

2. Materials and Methods

Data on the total number and value of loans guaranteed for the period 1991 to 2011 were obtained from Central Bank of Nigeria (CBN) Statistical bulletin (CBN, 2011). The CBN does not have information on farm sizes of loan beneficiaries or on the number of farmers who applied for loans in like manner as the number and value of loans guaranteed. This restricted the scope of the study. Data were analyzed using descriptive and inferential statistics. Analysis of variance (ANOVA) was used to compare means of the variables amongst the states over the period under review. Coefficient of variation was used to compare relative variability in the variables across the states. Coefficient of variation (CV) is unit-free and dimension-free. These qualities enable the comparison of CVs across states. Finally, to enable the application of the Chow test for structural break, year 2002 was chosen as a break point year. The first period was 1991 to 2001 and the second period was 2002 to 2011. The year 2002 was chosen to allow for a lag of two years for the effect of the development efforts of NDDC to be felt. NDDC started operation in 2000. Following Gujarati and Porter (2009), the Chow test for structural break equation was stated as:

$$F = \frac{(RSS_R - RSS_{UR})/k}{(RSS_{UR})/(n_1 + n_2 - 2k)} \rightarrow F_{[k,(n_1+n_2-2k)]}$$ ………………………………….equation 1.

Where:

RSS_R is the residual sum of squares for the whole period under the assumption of no structural break, known as restricted residual sum of squares**,**

RSS_{UR} = sum of residual sum of squares for the two sub periods ie. $RSS_1 + RSS_2,$

n_1 and n_2 are the respective number of observations in the respective sub periods,

k is the number of estimated parameters,

The F ratio degree of freedom is given by k in the numerator and $(n_1 + n_2 - 2k)$ in the denominator.

$RSS_1 + RSS_2$ were extracted from two linear regression models, one for each of the two sub periods, stated as:

Period 1: $Y = \beta_1 + \beta_2 X_1 + e$ ---equation 2

Period 2: $Z = \alpha_1 + \alpha_2 \kappa_1 + \varepsilon$ ---equation 3

Where:

Y and Z are the values of loans for the two respective periods,

$\beta_1 \text{ and } \alpha_1$ are the intercepts for the two respective sub periods,

$X_1 \text{ and } \kappa_1$ are the slope coefficients for the two respective sub periods.

The null hypothesis that there is no structural break between the two periods is accepted if the calculated F value is less than the critical F value read from the F table at the chosen level of significance. The 5% significant level was applied in this study. The study stops short of identifying where the break is, whether at the intercept or slope coefficient (Gujarati and Porter, 2009), assuming there was one.

3.   Results

The ANOVA result indicates that there was no significant variation in the number of loans guaranteed (SS =4616342.24, df = 8, MS = 577042.78, p = 0.169) nor in the value of loan guaranteed (SS =106900000000, df = 8, MS = 13358111950 and p= 0.55) to farmers in the NDDC geographical area of coverage. In other words, any significant difference in the mean values of the two variables among the states was a matter of chance. There was no clear reasoning why results contrary to these should be expected since information on farm statistics were not available, it is only believed that ACGSF was not only trying to avoid allegation of being biased from any states which may feel otherwise. Tables 1 and 2 which show the mean, standard deviation and coefficient of variation (CV) of the variables by state, however, reveal that situations within the states were not similar in terms of variation in both the number of loans and the value of loans guaranteed to farmers.

Table 1. Descriptive Statistics of the Number of loans Guaranteed to farmers 1991 – 2011

Statistics	Abia	Akwa Ibom	Bayelsa	Cross River	Delta	Edo	Imo	Ondo	Rivers
Mean	370.55	345.52	78.53	454.00	735.05	299.05	396.29	319.71	242.00
Std	281.31	202.39	61.56	433.32	1698.98	300.59	346.13	190.92	251.47
CV	0.76	0.59	0.78	0.95	2.31	1.01	0.87	0.60	1.04

Source: Result of data analysis, 2016

Table 2. Descriptive Statistics of the Value of loans Guaranteed to farmers 1991 – 2011 (N'000)

Statistics	Abia	Akwa Ibom	Bayelsa	Cross River	Delta	Edo	Imo	Ondo	Rivers
Mean	46,179.72	82,066.59	15,511.46	61,659.19	102,986.63	67,396.45	64,156.30	29,877.51	47,840.82
Std	74,484.18	145,317.40	16,599.51	87,469.99	254,116.21	128,820.44	116,211.74	33,042.03	86,178.60
CV	1.61	1.77	1.07	1.42	2.47	1.91	1.81	1.11	1.80

Source: Result of data analysis, 2016

Variations in the number of loans were relatively low compared to those in the value of loans. This can be seen by a comparison of Tables 1 and 2. Coefficients of variation (CV) were higher for Delta State in both the number of loans (2.31) and value of loans (2.41) guaranteed. Two other states with CVs greater that one in number of loans guaranteed were Rivers State (1.04) and Edo State (1.01). Akwa Ibom State had the lowest CV in the number of loans guaranteed. The relatively low CV in the number of loans guaranteed to Akwa Ibom, Ondo and Abia States implies cluster of data points around the mean number of loans guaranteed annually over the years. This is something like the number of loans to be guaranteed were fixed. The CVs of number of loans were relatively high for Delta, Rivers and Edo States with the implication that the likelihood of a loan applicant receiving approval was low in these states. The lower the likelihood of a farmer receiving a nod for a loan request the lower the likelihood of a repeat application. This, over time, can make for unhealthy attitude towards the scheme. A line graph (not included) of the number of loans guaranteed over the same period reviewed indicates vividly that the annual total number of loans guaranteed were less than 1000 for each state except Cross River State, in 2007,   Delta State, in 2009 and Edo and Imo States in 2011. A ceiling to the number of loans guaranteed to these states, irrespective of the level of agricultural activities, is therefore deducible. If this is true, NDDC mandate for agricultural development in these states will be hindered.

The CV of the value of loans guaranteed to farmers were equal to 1.07 (Bayelsa State) or higher for all other states (Table 2). As already mentioned, Delta State has the highest CV followed by Edo State and Imo State in that order.

Unlike for the number of loans which was kept under 1000, the value of loans guaranteed increased dramatically since 2004 for all the states. This may have accounted for the relatively high CV in this variable for all the states. Such increases, given the relatively stable number of loans guaranteed will translate into increasing average loan value per beneficiary over time. Good as this may appear; it failed to expand its coverage of farmers. More farmers cannot be reached with loan facility by inundating few with such facility. There is the need to reach out to more farmers by way of loan facilities, if the credit challenge of the sector is to be assuaged.

3.1 Test of Structural break

The result of the test of structural stability in the relationship between the number and value of loans is given in Table 3. Bayelsa State was left out at this point due to small number of data points in the time series. The Table 3 indicates that the null hypothesis that there is no structural break in the coefficients of the two regression models one for each of the two sub periods was accepted for Akwa Ibom, Delta, Imo and Rivers States. Thus the alternative hypothesis that there is structural break is rejected at 5% level of significance. For these states, as can be read from Table 3, the value of the F statistic calculated is lower than that from F table given their respective degree of freedom ($k/n_1 + n_2 - 2k$). Hence the conclusion that although changes might have occurred in the relationship between the value and number of loans guaranteed by ACGSF in the period under review, "no temporary shift" (Green, 2003) in relationship is discernible in these variables with the introduction of NDDC to these states.

Table 3. Result of test of structural break

	A	B	C	D	E	F	G	H	I	J
States	RSS1	RSS2	RSSur	RSSr	k	n_1+n_2-2k	(RSSr-RSSur)/k	(RSSur)/ (n_1+n_2-2k)	(G/H)=Fcal	F Tab 5%
Abia	8503889.005	8119027235	8127531124	28656801222	2	16	10264635049	507970695.3	20.21*	3.63
Akwa Ibom	124862467.4	2.092E+11	2.09325E+11	2.781E+11	2	17	34387568766	12313227204	2.79	3.59
Cross River	910544681.1	66754292972	67664837653	1.168E+11	2	17	24567581173	3980284568	6.17*	3.59
Delta	4141130.494	64140076898	64144218028	64446078339	2	16	150930155.3	4009013627	0.04	3.63
Edo	348490770	9998730828	10347221598	1.158E+11	2	17	52726389201	608660094	86.63*	3.59
Imo	38481384.06	60635223708	60673705092	79368024018	2	17	9347159463	3569041476	2.62	3.59
Ondo	237840873.1	3927180392	4165021265	10900680263	2	17	3367829499	245001250.9	13.75*	3.59
Rivers	9641919.865	76941733705	76951375625	85068592007	2	17	4058608191	4526551507	0.90	3.59

*Significant at 5%

Source: Result of data analysis 2016

There were, however, statistical evidence of structural break for Abia, Cross River, Edo and Ondo States Still on (Table 3). In other words, the null hypothesis of similar coefficients in the linear regression for the two sub periods was rejected and the alternative hypothesis that there is structural break in relationship between the number and value of loans guaranteed was accepted. The implication of rejecting the null hypothesis is that the number-value of loan guaranteed relationship has changed. Such a break could be at the intercept or slope the determination of which is outside the scope of this study.

4. Discussion

Empirical studies on the effectiveness of the ACGSF will continue so long as the challenge of poor access to farm credit subsists. Not because it is the only formal source of credit to farmers but more because it reduces the risk borne by commercial banks in the event of loan repayment default by farmers. High risk of default is a major risk factor that effectively constraints commercial banks willingness to extend loan facilities to farmers. That ACGSF is financed by both the Federal Government and the CBN is an additional reason. These are two veritable institutions which can by their policies and actions change the lot of farmers in Nigeria for good. The inadequacy of credit facilities to farmers in terms of coverage is an urgent need that requires urgent attention from these two institutions. The challenges put on the path to credit by way of bureaucratic bottle neck and requirement of collateral (Ayegba and Ikani, 2013) also needed to be addressed with urgency. The presence of these obstacles may indicate that the commercial banks involved in the scheme, which in the first instance own the money disbursed to farmers as loans under the scheme, may have introduced their traditional posture of unwillingness to give loans to farmers given the high risk of default and the high cost of loan administration into the scheme. There need to be a break from these patterns which did not augur well for

agricultural development. The identified relatively high CVs in especially value of loans guaranteed indicate that lessons may not have been learnt from the effects of poor and or untimely funding of businesses, particularly in agriculture which is still season dependent to a large extent, in this part of the world. This ugly pattern has implications for the success of both the ACGSF and NDDC with respect to the recovery of agriculture in Nigeria. The less reliable this loan source is, as implied by the high CVs, the lower the likelihood of farmers' repeat application overtime. Such resulting negative attitude towards the scheme will definitely not augur well for the effectiveness of the scheme or for the success of agriculture in the NDDC states.

That the population of farmers in Nigeria is 70% of the population (Oloitan, 2006) points to the dynamics of the farmers' population as the nation's population grows; and that the number of loans guaranteed by the ACGS is more or less static will mean that over time, increasing number of farmers will be unreached by loan guaranteed by ACGSF. Most farmers in Nigeria are said to "hibernate" during slack farming season partly because they do not have the financial muscle to engage in irrigation farming. They are thus not fully employed. The likelihood of improvement in the situation is not within sight. There is room for miracles to happen, but first, ACGSF need to review her policies to ease loan access and to also foster closer working ties with NDDC.

5. Conclusion

The effect of rapid agricultural development in the NDDC states, if any, is not indicated by way of demand for institutional loans as represented by the ACGSF. There were no structural breaks in the relationship between value and number of loans guaranteed in four out of the eight states reviewed. However, if in the remaining four states where there were structural breaks, the breaks were increases and not decreases in intercept and or slope coefficients, the issue of rapid and even development pursued by the ACGSF and the NDDC may still be tenable, notwithstanding the fact that the evenness in the spread of the loans was doubtful and the value of loans guaranteed vary widely; two subsisting issues ACGSF need to attend to with dispatch.

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