Effects of International Fund for Agricultural Development (Ifad) Credit Supply On Rural Farmers In Rivers State, Nigeria.

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Abstract: The study evaluated the effect of IFAD credit supply on rural farmers in Rivers State. Data for the study were collected using a structured questionnaire administered to 90 farmer's beneficiaries using a multi-stage sampling technique. The regression result shows that semi-log function gave the best fit with the highest value of coefficient of multiple determination (R^2) of 0.8758 and seven explanatory variables were significant and a significant F-value. The significant variables are farm size, off-farm income, total household labour, and educational level of farmer, gender, farm household size and IFAD credit. The study also shows that IFAD credit impacted positively on the well-being of rural farmers. The IFAD programme has contributed to increase in farm output and income. The study recommended that IFAD and their collaborating government agencies should expand their credit delivery in the study area to enable more farmers benefit from their services. Also training programme should be organized for all farmers in view of the fact that education produced significant influence on the income of the farmers.

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Introduction

Investment expenditure provides the thrust for development. Agricultural development often involves expenditure on capital inputs. These expenditures require funding. Hence, the provision of funds is fundamental to agricultural development (Nwajiuba, 1989). Agriculture is a key sector in the Nigerian economy. Its importance is particularly glaring in a developing economy like Nigeria where land and labour resources are relatively abundant and the industrial sector poorly developed. The contribution of agriculture to overall development especially in the developing countries like Nigeria include provision of increased food supplies, provision of gainful employment, provision of capital and capital formation, increasing foreign exchange for development and increasing rural welfare. The agricultural sector's contribution to economic growth and sustained rural development remains to be fully exploited (FMARD, 2006). The contribution of agriculture to GDP was 64% in 1960, declined 35% in 1988 and presently, the agricultural sector in Nigeria contributes less than 30% to GDP, with crop production accounting for an estimated 85% of this total, livestock for 10% with forestry and fisheries contributing the remaining 5%(Awotide and Akerele, 2010) .

An examination of the Nigerian agricultural sector shows that it is not in a position to finance its own development. Nwagbo (1986) reports that emphasis on the financing problem is rightly founded on the belief that agriculture for various reasons is not in a strong competitive position in relation to other sectors to acquire or obtain investment and productive credit from the usual financial institutions. Farm credits are however important means for improving farm capital investment in Nigeria, without which there may be no progress in the agricultural sector to adequately fulfill its expected roles or millennium development goals (Musa, Hamisu, and Yakubu, 2010).

These roles include achievement of self-sufficiency in the domestic production of food, revival of agricultural export crops production, generation of rural and agricultural employment and improvement of rural income and welfare (Nwaru, 2005). To attain agricultural policy objective, programmes such as the National Accelerated Food Production Programme, the Agricultural Development Programmes, River Basin and Rural Development Authorities, Operation Feed the Nation, the Green Revolution, the National Agricultural Land Development Authority (NALDA), Agricultural Credit Guarantee Scheme Fund (ACGSF), etc were launched (ADP, 2005). Mention should also be made of (NACB) now Nigerian

Agricultural, Co-operative and Rural Development Bank (NACRDB). Yet agricultural policy objectives have not been achieved, as evidenced by the general food scarcity in Rivers State and in the whole country.

Advancing reasons for this sordid situation, Balogun (1986) and Mejeha and Nnanna (2010) attributed this declaring trend of agricultural production to in-efficient traditional practice which is being practiced by small-holder farmers. Supporting this view, Nwaru (2005) and Umeh (2006) stated that Nigerian small-scale farmers are known to be economically weak with little or no capital investment. Consequently, they use low technology tools and methods in their production activities, which in turn lead to reduced output and productivity. In its own contribution, IFAD (2002) opined that causes of food insecurity and famine were not so much failures in food production, but structural problems relating to poverty and to the fact that the majority of the developing world's poor population are concentrated in the rural areas.

Summing up all these views, Okerenta (2005) and Tasie (2008) identified insufficient extension or delivery of production credit to the poor farmers as the most critical factor responsible for the declining trend in agricultural production. It is therefore an irony of circumstance that the small-scale farmers who produce about 85% of food consumed in the country and the agricultural exports are perpetually handicapped by lack of production credit and bedeviled with poverty.

According to Nweze (1990), it was to obviate this sordid situation that successive Nigerian governments have attempted to ridge the credit gap in the agricultural sector through the establishment of various credit programmes. Those supply-led rural finance institutions include the Nigerian, Cooperative and Rural Development Bank (NACRDB), Community Banks (now Micro-Finance Banks), etc were established both to improve growth and equity and to neutralize or mitigate urban-biased macro-economic policies. Unfortunately, most of these financing programmes launched for over two decades have not had impressive impacts.

Among the factors responsible for this lack of significant effect of financing programmes insufficient loan amount and poor loan repayment are considered the most critical Okorie (1986). Another is the inability and unsuitability of the formal credit institutions to adapt to the peculiar needs of the rural small-scale farmers in their socio-economic environment (Ijere, 1986). More frequently, however, these problems simply expose and exacerbate more fundamental weaknesses within the credit system themselves.

To solve the above problems, the Federal Government went into a funding agreement with International Fund for Agricultural Development for the funding of small-scale farmers in Nigeria. The International Fund for Agricultural Development (IFAD), a specialized agency of the United Nations was established as an International Financial Institution in 1977 as one of the major outcomes of the 1974 World Food Conference. The conference was organized in response to the food crises of the early 1970s that primarily affected Sahelian countries of Africa. The conference resolved that an International fund for Agricultural Development should be established immediately to finance agricultural development projects primarily food production in developing countries.

In this context, IFAD was created to mobilize resources for programmes that alleviate rural poverty and improve nutrition. Unlike other International Financial Institutions, which have a broad range of objectives, the Fund has a very specific mandate to combat hunger and rural poverty in developing countries. To achieve this objective, IFAD cooperates and collaborates with government agencies and parastatals such as Agricultural Development Programmes (ADP) and Ministries of Agriculture and Rural Development. IFAD-assisted programmes in Rivers State and Nigeria are generally deemed credible, highly relevant and effective, with positive impact. As a consequence, it is generally accepted that the Fund has a distinct and catalytic role in improving the livelihood of both subsistence and market-oriented small-holder farmers and producers. This believe is supported by ADP, 2005; Mejeha and Nnanna(2010) and Tasie(2008).

Therefore, the broad objective of this study is to evaluate the effects of IFAD credit on the rural farmers of Rivers State. The specific objectives of this study are to examine factors that determine farm income amongst farmers in the IFAD credit programme and describe the effects of IFAD credit on these farmers. Based on these objectives, the hypothesis is that the credit supplies have not improved the farm income of the rural farmers in Rivers State.

Methodology

Rivers State is the study area. This is informed by the fact that agriculture is the major occupation of the people of Rivers Sate. This is induced by the rich soil, which stretches the length and breadth of the state. The climate is essentially tropical humid with an average annual rainfall of 220mm-250mm evenly distributed through its long wet season, which covers the period of eight months (March-November). The period is followed by the dry season spanning the months of November-March. The state is made of 23

Local Government Areas which are grouped into three agricultural zones.

A multistage sampling technique was used. Multi-stage sampling technique involves a procedure whereby the selection of units into the sample is organized into stages. It usually involves a combination of sampling methods. All the three agricultural zones were covered in this study. In stage one; all the IFAD credit beneficiaries were identified. The lists of these farmers form the sampling frame. For stage two, one Local Government area was randomly selected from each agricultural zone. In the third stage, 30 farmers each from the beneficiaries in the IFAD programme were randomly selected. This gave rise to 90 farmer-beneficiaries. Structured questionnaires were used to collect data from both farmers and ADP officials (IFAD credit facilitator). Other sources of data were publications in journals, textbooks, reports and seminar materials. To achieve the objectives of the study, Econometric Techniques (regression analysis), and difference of means were applied on the data.

Factors that determine farm income were ascertained with the regression model. The four functional forms of the model namely, linear, double-log, semi-log and exponential was tried and the lead equation was selected based on the value of R^2, F-statistics and the conformity to a priori expectation. The implicit function was specified as:

GFI = f (LHA, OFI, HIR, HHL, PFI, EDU, GEN, HHS, ICS, U)

Where

GFI = Gross Farm Income. This was measured by the total amount of sales of farm produce in naira.

LHA = Farm size (in hectares). The total land the farmer has brought under cultivation .

OFI = Off-farm income. Total income to the farmer from sources other them his farm in naira.

HIR = Hired Labour (Mandays)

HHL = Total labour from household (Mandays)

PFI = Purchase farm inputs like seeds, seedling, cuttings, agrochemicals including fertilizer in naira.

EDU = Educational level of the farmer. This was measured by the total number of years he spent in receiving formal education.

GRN = Gender of the farmer. A dummy variable (Female = 1; Male = 0).

HHS = Farm household size total number of person that live and feed from the respondents.

ICS = IFAD credit size. This is the total amount of credit extended to the farmers by IFAD and measured in naira farms.

U = Error term

Test for difference between means

The test of the difference between two groups of data (Gross Farm income before IFAD credit supply (x_1) and Gross farm income after IFAD credit supply (x_2)). The range of years before and after IFAD financing was a maximum of two years before obtaining IFAD credit and maximum of two years after obtaining IFAD credit.

This analysis was focused on the difference D (when $D = x_2 - x_1$) between each matched pairs of observations and no on the two groups of sample means, x_1 and x_2. The test was performed as a test of single mean D.

Where $\bar{D} = \sum D/n$

here

$\bar{D}$ = mean of the difference of the matched pairs

N = number of pairs of observation

$D = x_2 - x_1$ for each matched pair

For large samples, D is approximately normally distributed, hence the test procedure is conducted the same way as for large independent samples using z – test. The test statistic is defined as

$$Z = \frac{\bar{D}}{SD/\sqrt{n}}$$

D = sample mean difference between each pair of observation

SD = sample standard deviation of these difference is defined as

$$SD = \sqrt{\frac{\sum D^2 - n\bar{D}^2}{n-1}}$$

Results and discussions

In line with the objective of this study, the results are discussed under the following headings, factors that determine farm income amongst farmers in IFAD credit programme and effects of IFAD credit on the farmers.

Factors that determine gross farm income

Analysis on the factors that determine gross farm income of farmers in IFAD credit programme in Rivers State as represented in Table 1 indicates that semi-log function gave the best fit with the highest value of co-efficient of multiple determination(R^2) of 0.8758 and significant variables and a significant F-value. The R^2 of 0 .8758 implies that the significant explanatory variables explain or influence the criterion variables by 87.58. The significant F-statistics of 62.68, implies that the joint effect of all the included variables were significant.

From the result, the co-efficient of farm size, off-farm income, total household labour, and educational level of farmer, gender, farm household size, and IFAD credit supply were all significant as shown in Table 1:

The co-efficient of farm size was significant at 1% and positive, indicating that the gross farm name is directly related to farm size. This implies the employment of more land resources would lead to higher income. The co-efficient of off-farm income was significant and negative implying an inverse relationship with farm income.

This means that the farmers will most likely favour other employment that gives them higher financial returns. This seems to underpin the current high rate of rural-urban migration that has severely afflicted rural economics in Nigeria. Household labour was statistically significant and positive indicating that the farm income is directly related to house hold labour. Farm operations in River State have remained labour intensive and farmers would rely more on their household labour than on hired labour. This is cost effective in relation to farm income.

Education is significant and positive, indicating a direct relationship with farm income. Education and Training produce a labour force that is more skilled and adaptable to the needs of a changing economy. It helps to unlock the natural talents and inherent enterprising qualities of the farmer. It enhances the farmer's ability to understand and evaluate new production techniques. This translates into higher farm income and productivity. The coefficient for gender is statistically significant and negative. Given that this is a dummy variable (female = 1 and male = O), the male gender generated farm income more than the females. Given the same conditions, male headed farm households will earn more than female headed ones. The coefficient of IFAD credit supply was highly significant and has positive relationship with farm income. This showed a direct relationship between farm income and IFAD credit supply. This implies that farm income increases with increase in credit supplied to farmers. Credit to rural farmers will generate in them the optimism and determination to venture into new fields, increase size of farm, increase productivity and farm income, facilitate adoption of improved farm practices, encourage capital formation, improve marketing efficiency, and improve the living conditions of the rural farmers.

The significant variables and their signs are in line or support the a priori theoretical expectations. The implication of these findings for the rural area is that future policies on rural farmers should take adequate consideration of these variables which have significant affects on rural farmers.

Table1. Regression result of factors that determine gross farm income.

Variables		FUNCTIONAL FORMS		
	LINEAR	EXPONENTIAL	SEMI LOG	DOUBLE LOG
Farm Size	0.5317 2.4735 *	0.000024 2.2184 *	18052 3.1614	0.5700 1.9154 **
Off-farm Income	-1.03562 -0.9525	- 0.000010 -0.4636	- 0.565 -9.3240 *	0.3171 0.7772
Hired Labour	-0.4036 -0.9092	2.2736 1. 1152	-27.249 -0.38	4.6821 1.0253
Total household Labour	1354.08 0.5145	0.2490 1.380	120.911 3.701 *	0.4161 2.4227 *
Input purchased	556.917 0.8672	1.17964 0. 3970	2227889 1.3412	1.486 2.2630 *
Educational level	1569.44 2.6013 *	4.5902 1.783 **	1582779 1.8405 **	9495.355 1.4825 **
Gender	1184.71 -1.675 **	-0.011545 -1.3643	4.9963 -1.9886 **	-11536.99 -2.4363 *

Household size	270.017 0.9645	0.07073 2.2952	4.0268 2.8676	2715326.3 1.495
IFAD credit supply	2540731 1.788 **	0.1898 1.687 **	5.654 3 .1420 *	3272425 1.6160 **
Constant term	2.2318	6.9234	4.6214	10.1135
R^2	0.5423	0 .5245	0.8758	0.8027
F-ratio	10.5318	9.8048	62. 6803	36.1630
N	90	90	90	90

Note: (*) significant at 1%
(**) Significant at 5%
Source: Field survey, 2010

Effects of Ifad credit on farmers beneficiaries

Table 2 shows that all the respondents (100%) farm income and output increased after IFAD credit supply. Also 93.3% of the respondents had the hectares of their farm holding (farm size) increased and 90% of the respondents had their nutritional status increased.

From this study, the important effect of IFAD credit on the farmers is increase in farm income and output which is ranked first, followed by increase in farm holdings which ranked second. Other lower ranked items such as increase in nutritional status, procurement of more working capital (fertilizers, farm implements and improved seeds), ability to meet short-term expenditure (payment of children's school fees and medical expenses), purchase of means of evacuation of farm produce, building and repair of dilapidated buildings had also showed significant improvement after IFAD credit supply as show on table 2.

Table 2: Distribution of farmers based on the effects of Ifad credit.

S/N	Effects	No. of respondents	%	Ranking
1.	Increase in income/output	90	100	1
2.	Purchase of means of evacuation of farm produce	60	66.7	6
3.	Increase in farm holdings	84	93.3	2
4.	Increase in nutritional status	81	90	3
5.	Ability to meet short term expenditure	76	84.4	5
6.	Procurement of more working capital	80	88.9	4
7.	Building and repair of dilapidated buildings	53	58.9	7

Source: Field Survey, 2010

Testing of hypothesis

The credit supplies have not improved the farm income of the rural farmers in Rivers State: that is

H_o: e = O

H_1: e > O

A t- test statistic cannot be used because the sampling distribution is no longer symmetrical but rather skewed. The alternative hypothesis is stated on a greater than basis meaning a right tail test is required. This implies a one-tail test only. So, a Z-test statistic is used.

The result shows the zeal = 38.08

At 5% level of significance

Since the zeal (38.08) is greater than the Z tab (1.658), we reject the null hypothesis and accept the alternative.

Mean of deviation (D)

$$\bar{D} = \frac{\sum}{n} : D \quad \frac{5165000}{90} = 57389$$

Sample standard deviation (SD)

$$SD = \sqrt{\frac{= \sum)^2 - n\bar{D}^2}{n-1}}$$

$$SD = \sqrt{\frac{314615000000 - 90\,(57389)^2}{90-1}}$$

$$SD = \sqrt{\frac{314615000000 - 90\,(329349721)}{90-1}}$$

$$SD = \sqrt{\frac{314615000000 - 296414758900}{89}}$$

$$SD = \sqrt{\frac{182000241100}{89}}$$

$$SD = \sqrt{204497091}$$

$$SD = 14300$$

$$Zcal = \frac{D}{SD/\sqrt{n}} = \frac{57389 =}{14300/\sqrt{90}} \quad \frac{57389}{14300/9.49}$$

$$Zcal = \frac{57389}{1507} = zcal = 38.08$$

Conclusion and Recommendation

The findings of this study suggest that IFAD credit supply has produced positive impact on the income of farm in the study area. This was indicated from the regression analysis and test of difference of means. Some variables namely farm size, off- farm income, household lab our, educational level of farmer, gender, farm household size, and IFAD credit supply were all significant in influencing the farm income of farmers. With increase in income and output, definitely there will be increase in nutritional status and social development. In line with the results, it is recommended that the IFAD and their collaborating government agencies should expand their credit delivery in the study area to enable more farmers benefit from their services. Further; training programme should be organized for all farmers in view of the fact that education produced significant influence on the income of the farmers.

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