

Assessment of Quick Impact Intervention Programme (QIIP) on farmer's income in Osun State, Nigeria

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ABSTRACT

This study assessed 'Quick Impact Intervention Program (QIIP)' a micro credit scheme on income of farmers in Osun State. The study was conducted in Iwo, Osogbo and Ife agro-ecological zones of the State. A three-stage sampling technique was used to proportionately draw 90 beneficiaries and 90 non-beneficiaries from the three agro-ecological zones of the state. The data collected were analyzed using descriptive statistics and Propensity Score Matching model. The research shows that about 26.7% of the beneficiaries receive below ₦50,000 while 51.1% of the beneficiaries of QIIP obtained micro-credit volume ranging from ₦50,000-100,000, and 21.8% obtained above ₦100,000. The mean income of beneficiaries and non-beneficiaries of the programme was ₦560, 365 and ₦ 422,785 respectively from farming activities. The impact of the programme on the income of farmers who benefitted from 'QIIP' shows an increment of ₦110, 122.044 at 1%. It was concluded that QIIP loan scheme has positive impact on the income of farmers in the State. It is recommended that the amount of credit provided to farmers through the programme should be increased in order to increase their farming enterprise and income.

Key words: QUICK IMPACT INTERVENTION PROGRAM, credit, income.

INTRODUCTION

Agriculture is considered as a strong option and fundamental instrument for spurring growth and sustainable development in developing countries. Agricultural activities serve as major source of livelihood among rural dwellers as it provides food, sustainable income, raw materials for industries and employment opportunities for majority of the populace, thereby serving as an engine for economic growth (Food and Agriculture Organization, 2012). Despite this, poverty is a predominant menace in the rural communities and it is the principal cause of hunger and malnutrition in the country. The poverty line estimated

by the CBN (2010), showed that 39.5% of the Nigerian population is poor and 26.5% were found in the extremely poor bracket. Rural poverty is estimated to contribute approximately 85% to national poverty, which is highest among self-employed households, farmers and petty traders.

Therefore, enhancing the income of the rural dwellers becomes very important to reduce the rate of poverty, increase food security and improve income. Micro-credit institutions play a pivotal role in meeting the financial needs of both households and micro-enterprises. Over the years, traditional financial institutions have failed to provide adequate savings and credit services to the poor. In the recent past,

micro-credit institutions and programmes have been developed to fill this gap. Microcredit has been the best instrument to bring about poverty eradication by increasing farmer's income, enhancing access to capital, improving investment capability of farmers and other agribusiness entrepreneurs, smoothing consumption over time and meeting emergency on liquidity needs. Microcredit institutions mobilizes savings to enable rural people accumulate interests on their deposits (United Nations, 2008). Micro-credit has continued to gain popularity among rural developers as a viable tool for improving rural agricultural practices and the diversification of economic activities of small-holder farmers in Nigeria (Ijere, 1998).

Due to the crucial role of credit especially in farming which is believed to be a major channel of increasing rural livelihood. Nigerian government has implemented several Agricultural Credit Programmes over the years. Some of which includes the Nigerian Industrial Development Bank (NIDB) in 1964, Nigerian Bank for Commerce and Industry (NBCI) in 1993, Nigerian Agricultural and Cooperative Bank (NACB) in 1973 and the Federal Mortgage Bank of Nigeria (FMBN). Other credit schemes established includes the Agricultural Credit Guarantee Fund Scheme (ACGFS) and the Rural Banking Scheme in 2002. The programmes were designed to enhance agricultural output; increase farm income, attain self-sufficiency in food production, supply adequate raw materials to industry and generate more employment and reducing rural-urban migration which no doubt should contribute to the livelihood of rural dwellers. Tsado (2004) reported that most of the program failed to achieve the desired objectives because they were top-down in design and implementation, as most of the program could not further be sustained. Some of the failure recorded,

were as a result of deviation from the original focus of the program.

The inability of small scale farmers to obtain improved inputs of seedlings, fertilizers, modern tools, seeds and other agro-allied chemical reduces the productive capacity of the farmers. This further affects income accrued to their agricultural activities negatively. Thus, access to credit would change the way small holder farmers see agriculture and the strategies they utilize. Farmers encounter problems when trying to access credit for their farming activities. They are often regarded as not being credit worthy by financial institutions. Many lending institutions feel reluctant to extend credit facilities to farmers because they lack collateral. They are also faced with some production risks as flooding, disease outbreaks and drought, which make income from farm unpredictable.

Inorder to boost farming income, government established agricultural intervention programmes like 'Quick Impact Intervention Program (QIIP)' which was established on the theory of 'group lending' to meet the credit need of farmers in Osun State. It was formally flagged off on 31st March, 2011. The program focuses on small holder farmers and micro-credit management for cooperative farmers (Osun State Ministry of Agriculture, 2014). Hence, this study seeks to: describe the socio-economic characteristics of rural farmers in the study area; identify the activities of QIIP among farmers in the study area; and assess the impact of QIIP on the income of farmers in Osun state.

MATERIALS AND METHOD

The study was carried out in Osun state. Osun state is located in south-western Nigeria, with capital in Osogbo. Osun State is bounded in the north by Kwara State, in the east by Ekiti and Ondo States, in the south by Ogun State and in the west by Oyo State. The state consists of thirty (30)

Local Government Areas and divided into three Agricultural zones. It exhibits the typical tropical climate with prominent wet and dry seasons with fertile soil which encourages the production of crops and livestock. The rainy season generally occur between April and October while the dry season occurs between November and March. Osun State has tropical humid climate. The mean annual temperature for Osun State varies between 21.1 and 31.1°C. Annual rainfall is within the range of 1,000 mm in the derived savannah agro-ecology to 1,200 mm in the rainforest belt (OSSADEP, 2001). The dominant occupation and economic activities of the people centre's around farming, agro allied productions, trading, and artisanship. The crops produced are Palm oil and kernels,

yams, cassava (manioc), corn (maize), pumpkins, plantain, banana and kola nuts. The sampling frame used for selecting beneficiaries of the scheme was the complete list of farmers obtained from Osun State Ministry of Agriculture comprising 1550 farmers benefitting farmers across the state.

A two sampling technique was employed in selecting a total of 90 beneficiaries (Treatment group) and 90 non-beneficiaries (Control group) proportionately from Iwo, Osogbo and Ife agro-ecological zones of the state. The first stage was the purposive selection of the three agro-ecological zones in the state. The second stage was a proportional sampling of 180 respondents across the state.

Table 1: Proportional selection of farmers across Osun State

Agricultural Zone	Number of Benefitting Farmers (N)	Total number of selected Farmers(n)
Iwo	517	60
Osogbo	534	62
Ife/Ijesha	499	58
Total	1550	180

Source: Field Survey, 2015

Analytical Tool/Techniques

Propensity Score Matching (PSM)

To compare the income of beneficiaries and non-beneficiaries in the study area, propensity score matching (PSM) method was used. The propensity score matching was estimated using Logit regression model and nearest neighbour matching algorithm was adopted using the estimated propensity scores to match non-beneficiaries to beneficiaries of the scheme

The First and second stage of Propensity Score matching is given as:

$$P(x) = \text{pr}(T = 1 / X = x_i)$$

$$ATT = E Y_1(| D = 1) - E Y_0(| D = 1)$$

Where

T = Treatment (QIIP)

P = Propensity Score

Pr = probability of participating in QIIP

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ATT = Average treatment effect on the Treated

Y_1 = income of beneficiaries of QIIP

Y_0 = income of non beneficiaries

X= Independent Variables

X_1 =Marital status (dummy variable; 1=Single, 0=Married)

X_2 =Farming experience (years)

X_3 = Educational Status (0=Non formal, 1=primary, 2=secondary, 3=Tertiary)

X_4 = Gender (dummy Variable;1= Male, 0=otherwise)

X_5 = Age

X_6 = Household Size (Adult Equivalence)

X_7 = Total farm income (Naira)

X_8 = Membership in Cooperative society (dummy variable;1 =member,0=non-member)

X_9 = Extension agent contact (dummy variable; 1=extension visit,0=otherwise)

ϵ = Error term

RESULTS

Table 2 shows the distribution of respondents according to the socio-economic characteristics while Table 3 shows their distribution according to annual farm income.

Table 2: Distribution of respondents according to their socio- economic characteristics

	Beneficiaries (N=90)		Non-Beneficiaries(N=90)		All Farmers (N=180)	
Characteristics	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Age						
≤30	2	2.2	0	0.0	2	1.1
31-45	48	53.4	46	51.1	94	52.2
46-60	40	44.4	44	48.9	84	46.7
Total	90	100.0	90	100.0	180	100.0
Mean Age	43.5		47.1			
Gender						
Female	19	21.1	11	12.2	30	16.7
Male	71	78.9	79	87.8	150	83.3
Total	90	100	90	100		
Marital Status						
Single	6	6.7	2	2.2	8	4.4
Married	84	93.3	88	97.8	172	95.6
Total	90	100.0	90	100.0	180	100.0
<hr/>						
No formal	24	26.7	41	45.6	61	36.1
Primary	15	16.7	23	25.6	38	21.1
Secondary	27	30.0	22	24.4	49	27.2
Tertiary	24	26.7	4	4.4	28	15.6
Total	90	100.0	90	100.0	180	100.0
Household size (AE)						
<3	19	21.1	14	15.6	33	18.3
3-6	47	52.2	64	71.1	111	61.7

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>6	24	26.7	12	13.3	36	20.0
Total	90	100.0	90	100.0	180	100.0

Farming Experience

≤10	18	17.4	7	7.78	25	13.9
11-20	45	40.0	37	41.1	82	45.6
21-30	17	28.7	36	40.0	53	29.4
>30	10	13.9	10	11.1	20	11.1
Total	90	100.0	90	100.0	180	100.0

Farm Size(hectares)

>5	35	38.9	54	60.0	89	49.4
5-10	51	56.7	34	37.8	85	47.3
>10	4	4.4	2	2.2	22	3.3
Total	90	100.0	90	100.0	180	100.0

Mean	5.2		4.1			
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Cooperative Membership

Non-member	0	0.0	54	60.0	54	30.0
Member	90	90.0	36	40.0	126	70
Total	90	100.0	90	100.0	180	100.0

Extension Contact

Access	84	93.3	26	71.1	110	61.1
No Access	6	6.7	64	28.9	70	38.9

Source: Field survey, 2015

Table 3: Distribution of Respondents according to their Annual Farm Income

Farm Income (₦)	Beneficiaries (N=90)		Non-Beneficiaries (N=90)	
	Frequency	Percentage	Frequency	Percentage
< 400,000	14	15.6	16	17.8
400,000 – 800,000	68	75.6	70	77.8
> 800,000	8	8.8	4	4.4
Total	90	100.0	90	100.0
Mean	560,365		422,785	

Source: Field Survey, 2015; ₦ = Naira

Table 4 presents credit received from the programme. 26.7% of the beneficiaries obtained below 50,000 while 51.1% of the beneficiaries of QIIP obtained micro-credit

volume ranging from 50,000-100,000, 17.8% obtained credit between 100,000-200,000 and about 4% of the respondents received above 200,000.

Table 4: Distribution of respondents according to the credit obtained from QIIP (N=90)

Rating	Frequency	Percentage
Micro-Credit obtained		
<50,000	24	26.7
50,000-100,000	46	51.1
10,001-150,000	4	4.4
150,001-200,000	12	13.4
>200,000	4	4.4
Total	90	100.0

Source: Field survey, 2015

Table 5 revealed that the dependent variables have an average effect of 49.5% on the probability of farmers benefitting from QIIP. This shows that the population

has 49.5% chance of receiving intervention with respect to the outcome variable (income).

Table 5: Propensity Score Matching Table

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
Pscore	180	0.495	0.446194	0.0290	0.9694

Source: Field Survey, 2015

Table 6 presents the impact of 'QIIP' on the farm income of the beneficiaries. The Average Treatment Effect on the Treated (ATT) is ₦110,122.044, Average Treatment Effect of the program on the Untreated (ATU) is ₦42,222.81 while

Average Treatment Effect (ATE) is ₦76,172.43.

Table 6: Treatment Table

Variable	Sample	Treated	Control	Difference	S.E.	T-Stat
Farm Income	Unmatched	578922.756	511497.722	67425.0333	23777.8433	3.84***
	ATT	578590.69	468468.647	110122.044	39506.3476	3.79***
	ATU	514171.39	556394.178	42222.8089	-	-
	ATE			76172.4264	-	--

Source: Field Survey, 2015

*, **, *** indicate the coefficients are statistically significant at 10%, 5% and 1% level respectively. T-values are based on Bootstrapped standard error.

Table 7 presents the overall matching effect on the data using the nearest neighbor matching technique. The data

have an average mean bias of 52.1 when unmatched which was reduced by 72.1% after matching.

Table 7: Overall Matching Effect

Sample	Ps R^2	Mean bias	% reduction in biasness
Raw	0.276	52.1	
Matched	0.062	14.5	72.1%

Source: Field Survey, 2015

Figure 1 presents the Propensity Score Distribution and Common Support for Propensity Score Estimation. “Treated: on support” indicates the observations in the treatment group that have a suitable

comparison. “Treated: off support” indicates the observations in the treatment group that do not have a suitable comparison.

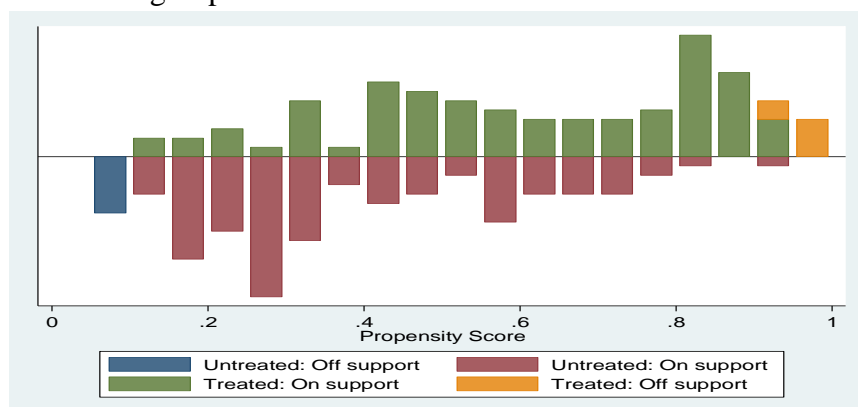


Figure 1: Propensity Score Distribution and Common Support for Propensity Score Estimation

DISCUSSION

Table 2 revealed that 55.5% and 51.1% of the beneficiaries and non-beneficiaries respectively fall within the age bracket of 28-45 years, the mean age of beneficiaries and non-beneficiaries are 42.5 and 47.1

years respectively, which indicate that majority of the farmers, are still in their middle age and are likely to have required strength for farming activities. Typically, young people adopt innovations faster, as older farmers have a tendency to stick to

their old production techniques and they are usually unwilling to accept change (Simtowe and Zeller, 2006). This is likely to be the why younger farmers participated in the program. So as to access the required found to increase their agricultural production. About 84% and 88% of the beneficiaries and non-beneficiaries are married. The distribution of farmers also shows that more than 50% of beneficiaries had at least secondary education while less than 30% of non-beneficiaries had minimum of secondary education respectively. This showed that the beneficiaries are more educated than the non-beneficiaries which agree with Kareem *et al.*, (2008) and Bamiro (2007) that education has implication on agricultural productivity through the adoption of new technology. However, Table 2 also revealed that the modal household size for beneficiaries and non-beneficiaries is between 3 and 6 Adult equivalence. The mean farming experience of the beneficiaries and non-beneficiaries are 18.02 and 22.02 years respectively. About 56.7% of the beneficiaries has 5-10 hectares of land while about 60% of the non-beneficiaries have less than 5hectares of land which is been put to use for agricultural purpose. The mean farm size of the beneficiaries and non-beneficiaries is 5.2 and 4.1 hectares which imply that the beneficiaries cultivated more farmland than the non-beneficiaries, which might have arisen from their access to credit facility that must have enabled them to purchase or lease more land (Zeller *et al.*, 2001).

Table 2 also revealed that majority of the beneficiaries and non- beneficiaries were males. This indicates that farming is dominated by male in the study area. This agrees with the findings of Ipaye (1995) that farming is still regarded as the male occupation. Olaleye (2000) also reported that commercial farming is mostly carried out by males while females involve in light farm operation.

Most of the beneficiaries have access to extension service than the non-beneficiaries. This could have accounted for the reason why the beneficiaries got better information on new development and adopt innovation and techniques faster than the non-beneficiaries. All of the beneficiaries and 70% of the non-beneficiaries were members of cooperative societies as indicated on Table 2. It was discovered that cooperative membership was a platform on which the loan is been disbursed to the beneficiaries. This accounts for the reason why all the beneficiaries were members of cooperative societies.

Table 3 presents the annual income of the farmers in the study area. The beneficiaries and non-beneficiaries of the programme have a mean income of ₦560,365 and ₦422,785 respectively from their farming activities. However, the study revealed that the Average Treatment Effect on the Treated (ATT), which measures the impact of the program on the farmers that benefitted from 'QIIP' shows that there is improvement in the farm Income of the beneficiaries by ₦110, 122.044. The increase in the farm income of the beneficiaries was significant at 1%. Average Treatment Effect of the program on the Untreated (ATU) revealed that if the non-beneficiaries had benefitted from the program, the improvement in their annual farm income would have been increased by ₦42,222.81 while Average Treatment Effect (ATE) shows that if a farmer was to be picked randomly, the improvement in farm income would have increased by ₦76,172.43. Since ATT is greater than both ATU and ATE then it implies that 'QIIP' has positive impact on the livelihood of farmers that participated in the program.

CONCLUSION

The research shows that the activities of QIIP had positive impact of on income of farmers in the state. There was increase in

the income of farmers as a result of participating in the program.

RECOMMENDATIONS

It recommended that the amount of credit provided to farmers should be increased so as to increase their farming enterprise and income.

It is also recommended that agricultural credit agencies should ensure that loans and other farm inputs are disbursed to the beneficiaries at the appropriate time needed, ensure that credit disbursements are timely for farming activities.

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