

Impact of IFAD Rice Value Chain Development Programme on Rice Output and Unemployment Reduction in Benue State, Nigeria

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Abstract

In recognition of the potential role of the rice value chain on socio-economic development, the International Fund for Agricultural Development has been investing in the development of the rice value chain in selected States in Nigeria, among which Benue State is included. This study investigated the impact of the IFAD rice value chain development programme on unemployment reduction among rice value chain participants in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. The study used a sample of 349 respondents comprising 310 rice farmers, 26 rice processors and 13 rice marketers. Data collected were managed using STATA 15 software. Descriptive statistics (tables, percentages, frequencies and charts) and inferential statistics (logistic regression) were used to analyze the data. The study found that the IFAD rice value chain development programme has positively affected unemployment reduction among the value-chain participants in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. This was witnessed through an increase in the number of employees of the value chain participants. Similarly, the study found that the value-chain development programme has positively impacted the rice farm output, processed output and marketed output in the three Local Government Areas. Test of hypotheses using logistic regression revealed that the impact of the IFAD rice value chain development programme on unemployment reduction in Nigeria was statistically significant for rice farmers and processors, but not statistically significant for rice marketers. The study recommended deliberate efforts by the government and rice value chain operators to enhance increased rice output and employment creation in the state.

JEL: E24, O13, Q10.

Introduction

The value chain concept has gained global attention due to its numerous impacts across different sectors of the economy. One of the sectors affected most is the agricultural sector. The main idea underlying the value chain framework globally is that it describes the linkages of participants and their value-creating ability that enhance the movement of goods and services from production, processing and marketing to the end users, the number and conduct of participants along the chain determine the efficiency, pricing and returns accruing to each participant at each stage (Global Value-chain Initiative, 2007).

An increase in rice productivity enhances better marketing and unemployment reduction, which indirectly leads to an increase in the value of rice through the rice value chain. This has been the target of the Nigerian government (whose economy is characterized by high unemployment, poverty and food insecurity) over the years. The production, processing, marketing and consumption of rice are moving towards high-value food products. The changes are creating opportunities as well as challenges in production, processing and marketing dynamics (BIRTHAL, 2008). The market for rice in Nigeria is large and characterised by a persistent supply gap. The cradle to fill the supply gap due to ever-present high domestic demand prompts rice imports

in large quantities. Indeed, rice is classified among the top four agricultural imports in Nigeria along with wheat, sugar and fish. It has been reported that the country spends over 356 billion Naira on the yearly importation of rice, out of which 1 billion Naira is used per day (Oyediran, 2016).

The International Fund for Agricultural Development (IFAD) over the years has been undertaking intervention in the rice value-chain in Nigeria through its Value Chain Development Program (VCDP). Benue State is one of the six (6) states in Nigeria that are benefiting from this intervention. The Fund covered five (5) out of the 23 Local government areas in the State, targeting 15,000 smallholder farming households, 1,680 processors and 800 traders. The choice of Benue State for the VCDP lies in its huge potential for rice production. Benue state has an ecological advantage in rice production due to its vast arable and fertile land network. Research from all regions of the federation, the agricultural sector report indicates that Benue state is the fifth largest rice-producing state in the country with an annual production of 341,000 metric tons (Cadoni and Angelucci, 2013). Despite this huge potential, rice production and investment in the rice value chain in Benue are still low. On the productive side, farmers lack access to quality seedlings, modern farm tools, and poor access roads to convey the paddy to the market. At the stage of processing, processors lack access to the state of art facilities to process the paddy into a finished product, marketers on the other hand lack access to finance or credit facilities to buy, store and distribute rice output. The IFAD rice value chain development programme seeks to solve these challenges. The program strongly emphasizes the development of commodity-specific Value Chain Action Plans at the local government level, which serves as the basis for rolling out sustainable activities to reduce poverty and accelerate economic growth. The objective is to sustainably enhance rural incomes and food security.

This is where an investigation into the role of the IFAD value chain development programme becomes imperative. Has the IFAD VCDP increased rice output and reduced unemployment among rice farmers, rice processors and rice marketers in Benue State? Providing answer(s) to this question underlines the basis for this study.

Literature Review

Conceptual and Theoretical Literature

The Rice value chain is a well-coordinated and viable economic chain that starts from the production, processing and marketing of rice, with each stage having peculiar issues associated with it. Porter (1985) sees the value chain as a chain of activities. The product passes through all activities in order and at each activity, the product gains some value.

A person is said to be unemployed when he is healthy, his age limit is within the workforce range, and there is a job opportunity yet he/she refuses to work. Merriam Webster (2018) sees unemployment as a state of being involuntary idle by workers, unemployment occurs when one does not have a job. While Tejvan Pettinger (2017) defined unemployment as a situation where someone of working age is not able to get a job but would like to be in full-time employment.

Theoretically, this research builds on the value chain transformation theory by Hill and the Fei Ranis theory of unemployment. Value chain transformation theory by Hill (1998), identifies three important variables that form the theoretical heart of the value transformation theory. These are unbundling, disintegration and specialization. The theory is anchored on steps taken by a business venture to outsource and unbundle the manufacturing of its products or service for equal or less cost and high efficiency, to render redundant a product or service formerly employed by a supplier through the use of new technology, process improvement etc. and to extract one or more steps in producing a product and provide it at equal or less cost, cost efficiency and greater quality than the industry is capable of providing.

The Fei Ranis theory relates to underdeveloped labour and a resource-poor economy. Development can only take place if the army of the unemployed lying in the agricultural sector whose contribution to output is zero or negligible is reallocated to the modern industrial sector where they are productive at a wage rate equal to the institutional wage. The link between this theory and the value-chain in the study area is that the value-chain of rice in this regard serves as the developed industrial sector which the theory advocated in form of (modern industrial sector) for the creation of jobs for the idle agricultural workers. The developed rice value chain is capable of absorbing the pool of unemployed surplus agricultural workers.

Empirical Review

There is a dearth of the empirical literature on rice value-chain and unemployment reduction in Benue State. Previous attempts have generally addressed rice production and/or unemployment separately without giving consideration to the rice value chain. Few studies that addressed the rice value chain failed to establish its influence on unemployment, especially in Benue State.

Cyprian (2017) deploying primary and secondary data and descriptive statistics, gross margin analysis and stochastic frontier production model were used showed that a gross margin of 2.14 was made per naira borrowed and invested in rice production in the study area. An Assessment of the poverty level among rice millers in Kwande Local Government Area of Benue State Nigeria was carried out by Akighir, Ngutsav and Asom (2011). Utilizing both primary and secondary data from 350 respondents, and with the aid of descriptive statistical tools such as tables, percentages, and poverty measurement indices as well as logit regression, they found that the poverty level of the respondents had improved as a result of involving in rice milling activities.

Inuwa (2011) carried out a profitability analysis of rice processing and marketing in Kano State with data obtained from 120 randomly selected respondents comprising par boilers, millers, retailers, and wholesalers using an interview schedule. Results indicated that the net milling income, value-added and service efficiency of millers were higher followed by wholesalers (₦2,239,086.63, ₦2,239,086.63 and 3.5 respectively) and retailers (₦422,230.77, ₦422,230.77 and 5.65 respectively), with the parboilers having the least. The millers had a Net present value of ₦10,555,709 at 22% and an internal rate of return of 140 which shows that the business of milling can pay back money loaned from the bank at even 140% interest rate.

The understanding of the value chain activities and the opportunities available at each stage tends to create more job opportunities for the unemployed, it is against this backdrop that this research work aimed to bridge the knowledge gap that exists between the rice value chain and the employable opportunities available at each stage of the commodity chain. The uniqueness of this study, therefore, lies in the fact that it represents the first attempt to empirically examine the impact of the rice value chain on unemployment reduction in Benue State.

Methodology

Study Design

This study is a survey design that used a well-structured questionnaire, administered to IFAD VCDP beneficiaries in the three selected local governments (Gwer East, Logo and Okpokwu) which covers the three geo-political zones in Benue state.

Study Population and Sampling

The total population of the study is made up of IFAD beneficiaries such as rice producers, processors, and

marketers in Gwer-East, Logo and Okpokwu local government areas of Benue state. From the records obtained from the IFAD office, Makurdi, the total population comprised 5747 value chain participants across the three local government areas. This includes 4768 producers, 666 processors and 313 marketers across the three Local government areas selected for the study. The sample size of 374 respondents was randomly selected using Taro Yamen's (2004) formula stated as;

$$n = N/1 + e^2 N$$

Where;

n = sample size

N = the total population

e = level of significance

Method of Data Analysis

This study employed both descriptive and inferential statistical tools of analysis.

Frequencies, percentages and graphs were employed to assess any possible differences before and after IFAD intervention at the various stages of the rice value chain. The differences were analyzed concerning the number of people employed and the output of the value-chain participants at the various value-chain stages. To verify the statistical significance of the effect of the IFAD rice value chain development programme on rice output and unemployment reduction in Nigeria, the study employed three logistic regression models, one each for the three rice value chain levels discussed in this study. The three models are stated as follows:

Stage 1: Rice Production

$$FEMP = f(FQ, MKTA, FSZ, IFAD, INC) - - - - -1$$

FQ = the quantity of rice output from rice farming activities,

MKTA = market access,

FSZ = Farm size of the rice farmer,

IFAD = the grant received from IFAD, and

INC = annual income of the rice farmer.

Where:

STAGE 2: Rice Processing

$$PEMP = f(PQ, TPF, IFAD, WHA, TCM, MD, PRT)$$

Where;

PEMP = number of people employed by the rice processors,

PQ = quantity of rice output processed,

TPF = access to transport facilities,

IFAD = IFAD grant,

WHA = availability of warehousing facilities,

TCM = total cost of machinery,

MD = market demand, and

PRT = profit from rice processing.

Stage 3: Rice Marketing

$MEMP=f(BUY, PR, TPF, STR, PRT, IFAD)$

Where;

MEMP = number of persons employed by rice marketers,

BUY = the number of buyers per day,

PR = selling price of marketed rice,

TPF = transport facilities,

STR = storage facilities,

PRT = profit, and

IFAD = IFAD grant.

Results and Discussions

Out of the 374 questionnaires distributed, 349 were retrieved and analysed.

Value Chain Activities of Rice Farmers in the Study Area

Table 1: Distribution of Respondents by Rice Value Chain Activity and Local Government Area (Row Percentage), [Column Percentage]

	Gwer-East	Logo	Okpokwu	Total
Farming	173	78	59	310
	(55.81)	(25.16)	(19.03)	(100)
	[84.80]	[100.00]	[88.06]	[88.83]

Processing	19	0	7	26
	(73.08)	(0.00)	(26.92)	(100)
	[9.31]	[0.00]	[10.45]	[7.45]
Marketing	12	0	1	13
	(92.31)	(0.00)	(7.69)	(100)
	[5.88]	[0.00]	[1.49]	[3.72]
Total	204	78	67	349
	(58.45)	(22.35)	(19.20)	(100)
	[100.00]	[100.00]	[100.00]	[100]

Source: Researchers’ Field Survey, 2021.

Table 1 shows that the sampled rice value chain participants included in the study comprised 310 (88.83%) farmers, 26 (7.45%) processors, and 13 (3.72) marketers. For the farmers, 55.81% were drawn from Gwer-East Local Government, 25.16% were from Logo Local Government Area, and 19.03% of the farmers were drawn from Okpokwu Local Government Area. Out of the 26 sampled processors, 73.08% were from Gwer-East Local Government Area and 26.92% were from Okpokwu Local Government Area, while no processor was found in Logo Local Government Area.

Impact of Rice Value Chain on Unemployment Reduction and Rice Output in Benue State Pre and Post IFAD Intervention

Impact of IFAD Intervention on Rice Farming Activities in Benue State

The indicators considered for the performance of rice farming in Benue State include employment (measured in the number of employees) and farm output (measured in 50kg bags).

Table 2: Farm Output of Rice Farmers in Benue State before and after IFAD Intervention

Farm Output (50kg Bag)	Before IFAD Intervention		After IFAD Intervention	
	Frequency	Percentage	Frequency	Percentage
<10	48	15.48	0	0.00
10 – 50	253	81.61	198	63.87
50 – 100	9	2.90	93	30.00
100 and above	0	0.00	19	6.13
Total	310	100.00	310	100.00

Source: Researchers’ Field Survey, 2021

Table 2 shows a clear differential in the number of 50kg bags of rice produced by sampled rice farmers in Benue State before and after IFAD intervention. There was a fall in the number of rice farmers who produced less than 10 bags from 15.48% before IFAD intervention to 0.00% after IFAD intervention, and a

rise in the number of rice farmers who produced 100bags and above from 0.00% before IFAD intervention to 6.13% after IFAD intervention. However, the majority of the rice farmers produced 10 to 50 bags of rice both before and after IFAD intervention in the study area. The nature of change in the output of farmers after IFAD intervention is presented in the pie chart below

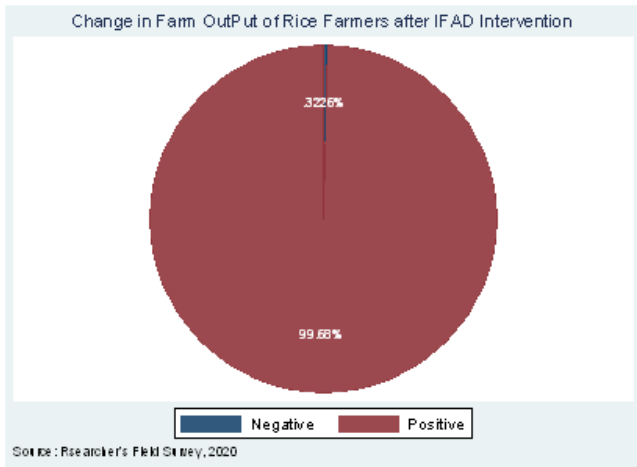


Figure 1: Change in Farm Output of Rice Farmers after IFAD Intervention

As observed in Figure 2, almost all the farm outputs of rice farmers in Benue State experienced positive changes after IFAD intervention, except 0.32% whose farm output declined. This shows that IFAD intervention through the provision of grants to rice farmers has expanded the farm output of the beneficiaries. This is because the IFAD intervention has led to an increase in the farm size of the rice farmers in the study area. Consequent to this, the increase in farm size has increased the rice farm output of rice farmers in the study area.

Table 3: Employment among Rice Farmers in Benue State before and after IFAD Intervention

No. of Employees	Before IFAD Intervention		After IFAD Intervention	
	Frequency	Percentage	Frequency	Percentage
0 – 10	214	69.03	56	18.06
11 – 20	87	28.06	130	41.94
21 – 30	6	1.94	81	26.13
31 – 40	2	0.65	35	11.29
41 – 50	1	0.32	6	1.94
>50	0	0.00	2	0.65
Total	310	100.00	310	100.00

Source: *Researchers’ Field Survey, 2021.*

Table 3 shows that the number of employees of rice farmers in the Study area increased substantially after IFAD intervention. Before the intervention, a majority (69.03%) of the rice farmers had from 0 to 10 employees and none of the farmers had more than 50 employees. However, after the IFAD intervention, the number of rice farmers with 0 to 10 employees reduced by 50.97% of the total sample to 18.06%. After IFAD intervention, the majority (41.94%) of the farmers had between 11 and 20 employees and the number of farmers with more than 50 employees increased from 0.00% to 0.65%.

This indicates that IFAD intervention in the rice farming activities of rice farmers in Benue State has led to

changes in the number of employees.

Graphically, these data are presented in Figure 3. Whether these changes are negative or positive is ascertained in Table 4.

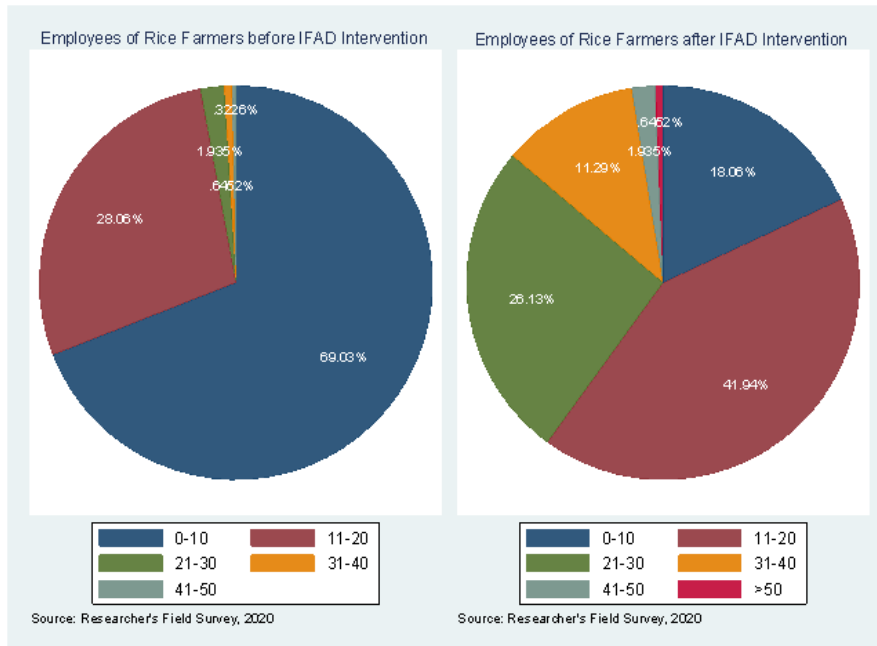


Figure 2: Employees of Rice Farmers in the Study Area before and after IFAD intervention

Table 4: Nature of Changes in the Number of Employees of Rice Farmers in Benue State after IFAD Intervention

Change	Frequency	Percentage
Negative	2	0.65
Zero	1	0.32
Positive	307	99.03
Total	310	100.00

Source: Researcher’s Field Survey, 2020

Impact of IFAD Intervention on Rice Processing Activities in Benue State.

Table 5: Processed Output of Rice Processors in the Study Area before and after IFAD Intervention

Processed Output (Metric Tons)	Before IFAD Intervention		After IFAD Intervention	
	Frequency	Percentage	Frequency	Percentage
<50	25	96.15	17	65.38
50 – 100	1	3.85	6	23.08
>100	0	0.00	3	11.54
Total	26	100.000	26	100.00

Source: Field Survey, 2021

Both before and after IFAD intervention, most of the rice processors in the study area were able to process less than 50 metric tons of rice annually, even though there was a drop in the number of processors in this

category by 30.77% from 96.15% before IFAD intervention to 65.38% after IFAD intervention. On the other hand, no rice processor could process more than 100 metric tons of rice annually before IFAD intervention. However, after the IFAD intervention, about 11.54% of the processors processed more than 100 metric tons of rice annually. This implies that the processed rice output of rice processors in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State increased after the intervention of IFAD. Figure 3 below presents a graphical representation of these data. Assessment of the nature of changes in the processed outputs of the sampled rice processors is aided by data presented in Table 6.

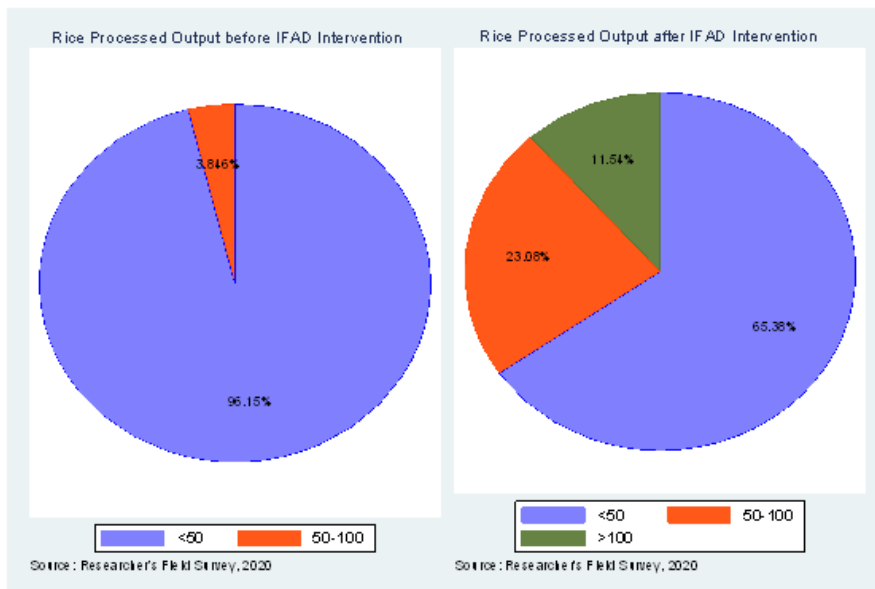


Figure 3: Rice Processed Output before and after IFAD Intervention

Table 6: Nature of Changes in Rice Processed Output before and after IFAD Intervention

Change	Frequency	Percentage
Negative	0	0.00
Zero	0	0.00
Positive	26	100.00
Total	26	100.00

Source: Researchers' Field Survey, 2021

Table 7: Employees of Rice Processors before and after IFAD Intervention

No. of Employees	Before IFAD Intervention		After IFAD Intervention	
	Frequency	Percentage	Frequency	Percentage
0 – 5	21	80.77	3	11.54
6 – 10	4	15.38	12	46.15
>10	1	3.85	11	42.31
Total	26	100.00	26	100.00

Source: Researchers' Field Survey, 2021

The number of employees of rice processors in the three Local Government Areas under study increased after the IFAD intervention. Table 22 shows that 80.77% of the rice processors had between 0 to 5

employees before IFAD intervention, 15.38% had between 6 to 10 employees and 3.85% had more than 10 employees. However, after IFAD intervention, the number of rice processors with 0 to 5 employees dropped by 69.23% to 11.54, processors with 6 to 10 employees increased by 33.77% to 46.15%, and there was a rise in the number of rice processors with more than 10 employees by 38.46% of the total sample. This suggests that the intervention of IFAD in the rice processing activities in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State has led to an increase in employment and a reduction in unemployment in the three Local Government Areas.

The pie charts in Figure 4 are a graphic representation of the information in Table 7.

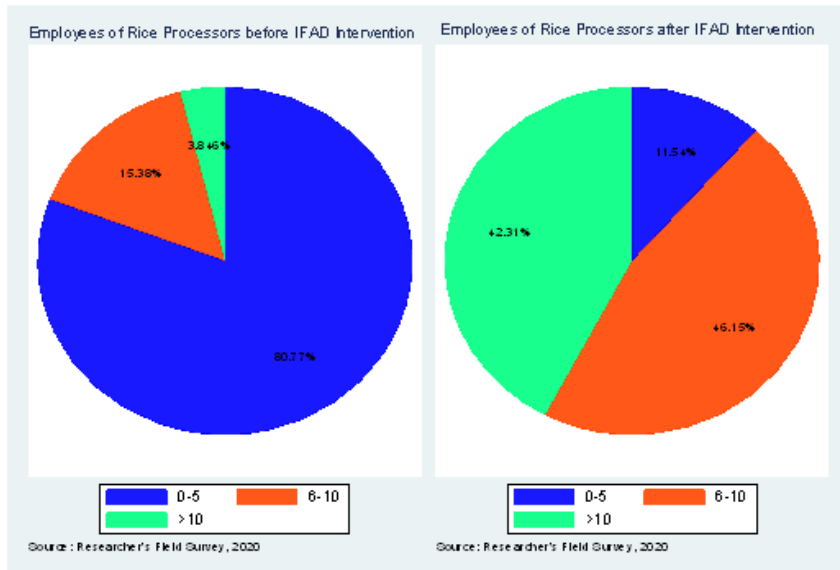


Figure 4: Employees of Rice Processors before and after IFAD Intervention

There are observable changes in the number of employees of rice processors due to the intervention of IFAD, especially with those who had 0 to 5 employees and those who had more than 10 employees.

Impact of IFAD Intervention on Rice Marketing Activities in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State.

In Table 8, the output of rice marketers before and after IFAD intervention are presented. The data therein depicts that rice marketers in the study area have been able to market from less than 50 metric tons of rice annually to more than 100 metric tons. Most of the marketed output was less than 50 metric tons before IFAD intervention. But as the marketers received IFAD grants, there was a rise in the marketed output as the quantity between 50 and 100 metric tons, and more than 100 metric tons increased respectively.

Table 8: Marketed Output of Rice Marketers before and after IFAD Intervention

Marketed Output	Before IFAD Intervention		After IFAD Intervention	
	Frequency	Percentage	Frequency	Percentage
<50	9	69.23	3	23.08
50 – 100	3	23.08	6	46.15
>100	1	7.69	4	30.77
Total	13	100.00	13	100.00

Source: Researchers' Field Survey, 2021

To bring out the changes recorded in rice marketed output after IFAD intervention, the information contained in Table 8 are represented in the pie charts below.

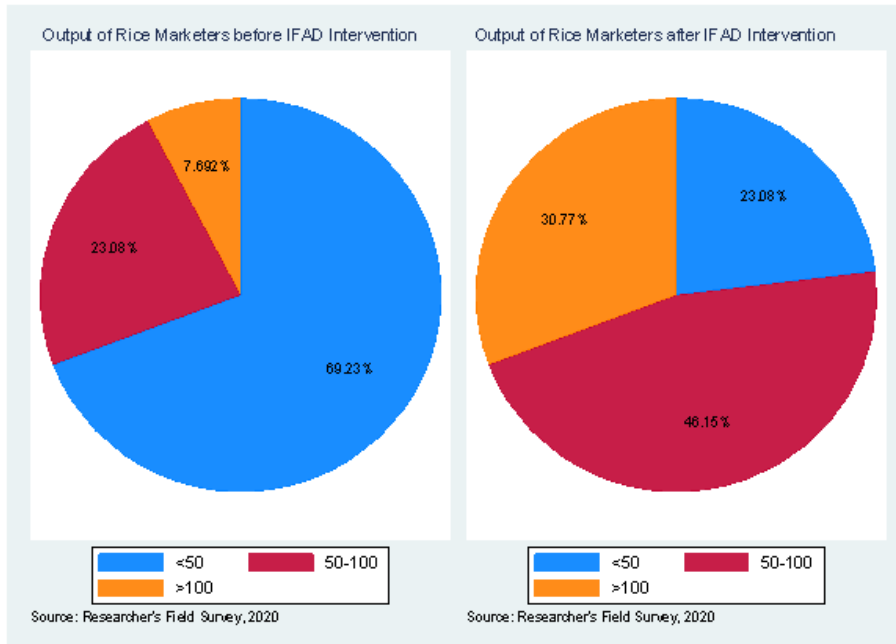


Figure 5: Pie Charts showing Marketers' Output before and after IFAD Intervention

As depicted in Figure 5, there was a positive change in the marketed output of rice marketers in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. This is observed in the rise in the number of marketers that marketed processed rice output over 100 metric tons, and the fall in the number of marketers that sold rice marketed output below 50 metric tons annually.

Table 9: Employees of Rice Marketers in Gwer-East, Logo and Okpokwu LGAs before and after IFAD Intervention

No. of Employees	Before IFAD Intervention		After IFAD Intervention	
	Frequency	Percentage	Frequency	Percentage
0 – 5	11	84.62	3	23.08
6 – 10	1	7.69	5	38.46
>10	1	7.69	5	38.46
Total	13	100.00	13	100.00

Source: Researchers' Field Survey, 2021

It is observed in Table 9 that IFAD intervention has led to an increase in the number of employees of rice marketers in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. This is because there were substantial increases in the number of rice marketers who employed at least 6 persons from 15.38% of the total sample before the intervention to 76.92% of the total sample after the IFAD intervention. This represents a 61.54% rise in the number of rice marketers employing at least 6 workers for their rice marketing activities. As usual, this information is represented in Figure 6.

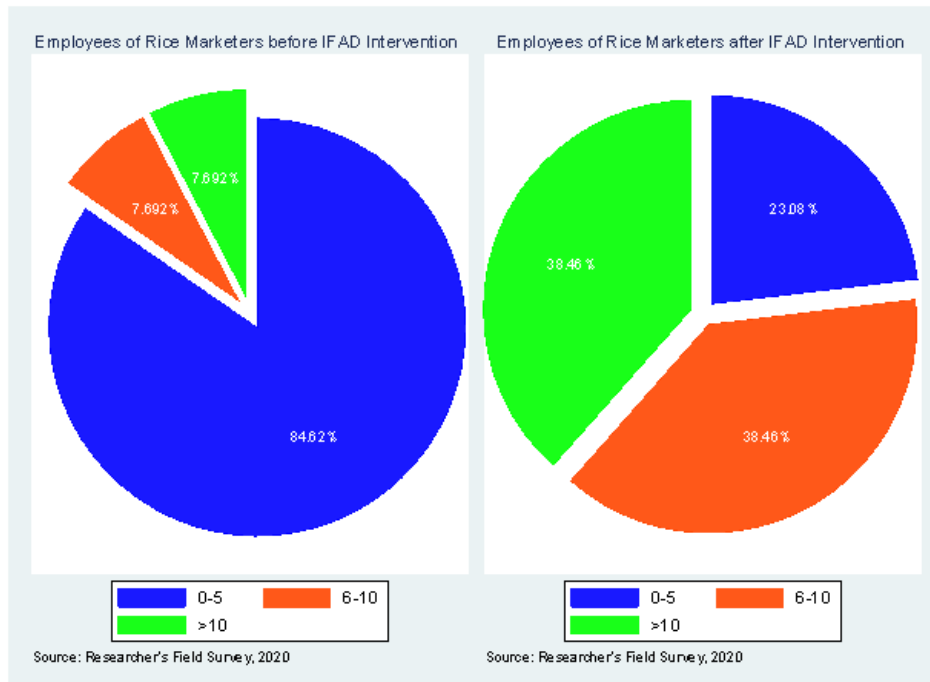


Figure 6: Pie Charts Showing the Number of Employees of Rice Marketers in Gwer-East, Logo and Okpokwu LGAs of Benue State before and after IFAD Intervention.

There is a clear differential in the number of employees of rice marketers in the three Local Government Areas under study. While the number of marketers with less than 6 employees dropped after the IFAD intervention, rice marketers with at least 6 employees increased after the intervention. This means that IFAD intervention in Gwer-East, Logo and Okpokwu LGAs of Benue State has brought about employment creation and unemployment reduction within its catchment area.

4.3 Analysis of Statistical Significance

Logistic regression is used to evaluate the significance of the impact of the IFAD rice value chain on unemployment reduction or employment creation in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. Three models are estimated, one each, for the three hypotheses set in chapter one. These models are estimated based on each of the three rice value chain activities identified in the study. The IFAD grants received by the rice value chain participants is used as a proxy for the IFAD rice value chain development programme.

Evaluating the Significance of the Effect of the IFAD Value Chain Development Programme on Unemployment reduction Among Rice Farmers in Gwer-East, Logo and Okpokwu LGAs of Benue State.

The logistic regression results of the effect of the IFAD grant on unemployment reduction in the study area are presented in Table 25. The farm level model was estimated in logit form and logistic form. Table 10, therefore, contains the logit coefficients and the logistic odds ratios.

Table 10: Regression Estimates for the Farm Level Model

	Coefficient	Odds Ratio	SE	z-statistic	Prob
lnFQ	0.3643396	1.439563	0.8730452	0.42	0.676
MKTA	-0.1276237	0.8801845	1.174444	-0.11	0.913

lnFSZ	1.819928	6.171416	2.23521	0.81	0.416
lnIFAD	2.255977	1.1047711	.9391394	2.40	0.016
lnINC	0.015111	1.015226	1.656935	0.01	0.993
Wald Chi-square	16.82				0.0049

Source: Researcher’s computations using STATA 15.

By the probability values of the z-statistics of the coefficients and odds ratios of the variables in Table 10 above, only the IFAD grant (lnIFAD) has a significant effect on employment creation in Gwer-East, Logo and Okpokwu LGAs of Benue State. This suggests that farm output, market access, and input costs have no significant effect on employment creation in the three local government areas under consideration. The coefficient of lnIFAD is positive (2.255977). This shows that the IFAD grant has a positive effect on employment creation in the study area such that a percentage increase in the IFAD grant is likely to increase employment among rice farmers in the study area by 2.26%. The odds ratio measures the degree of association between exposure and an outcome. An odds ratio of more than 1 depicts that an event is likely to happen due to exposure to another event. This means that employment creation among rice farmers in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State is likely to increase as a result of the IFAD value chain development programme. Thus, the increase in the number of employees of rice farmers in the study area can be attributed to the intervention by IFAD through the donation of grants to the rice farmers.

Evaluating the Significance of the Effect of the IFAD Value Chain Development Programme on Unemployment reduction Among Rice Processors in Gwer-East, Logo and Okpokwu LGAs of Benue State.

Estimates of the impact of the IFAD rice value chain development programme on employment creation among rice processors, using logit regression, are presented in Table 11.

Table 11: Model Estimates of the Impact of IFAD Intervention on Employment among Rice Processors in Gwer-East, Logo and Okpokwu LGAs of Benue State.

PEMP	Coefficient	S.E	z	Prob (z)
TPF	2.883908	1.792547	1.61	0.108
WHA	-2.139097	2.165469	-0.99	0.323
lnPQ	-1.107531	0.7403805	-1.50	0.135
lnIFAD	5.62421	2.790354	2.02	0.044
LnMD	-1.659878	1.777656	-0.93	0.350
LnPRT	4.293243	3.184327	1.35	0.178
lnTCM	-4.943894	2.895586	-1.71	0.088
C	-56.10725	35.51093	-1.58	0.114

Source: Researcher’s computations using STATA 15.

Table 11 shows that the IFAD rice value chain development programme has a positive effect on employment among rice processors in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. The coefficient of IFAD (used as IFAD grant) is positive and statistically significant at a 5% significance level.

This suggests that the positive effect of the IFAD rice value chain development programme on unemployment reduction among rice processors in the three Local Government Areas of interest is

statistically significant.

On the other hand, access to transport facilities, warehouse availability, processed rice output, market demand, profit, and total cost of machinery all have no significant influence on employment among rice processors in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. This shows that among all the possible factors that influence unemployment reduction in the rice value-chain in Benue State, the IFAD rice value-chain development programme stands out as the most important factor. While a per cent increase in IFAD grants to rice processors will reduce unemployment by 5.62%, in the absence of IFAD intervention, employment by rice processors in Gwer-East, Logo and Okpokwu LGAs of Benue State will fall by 56.11%.

Evaluating the Significance of the Effect of the IFAD Value Chain Development Programme on Unemployment reduction Among Rice Marketers in Gwer-East, Logo and Okpokwu LGAs of Benue State.

Results of the logistic model explaining the relationship between the IFAD rice value chain development programme on Unemployment reduction in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State are presented in Table 12.

Table 12: Model Estimates of the Impact of IFAD Intervention on Employment among Rice Marketers in Gwer-East, Logo and Okpokwu LGAs of Benue State.

MEMP	Coefficient	S.E	z	Prob (z)
LnBUY	27.58229	34.9426	0.79	0.430
LnPR	-364.3056	61.44634	-5.93	0.000
TPF	-60.61899	43.29282	-1.40	0.161
LnSTR	-1.412827	4.174524	-0.34	0.735
LnPRT	-86.84752	24.335	-3.57	0.000
lnIFAD	41.02438	42.431	0.97	0.334

Source: *Researcher's computations using STATA 15.*

From the results presented in Table 12, the IFAD rice value chain development programme has a positive effect on unemployment reduction among rice marketers in Gwer-East, Logo and Okpokwu Local Government Areas of Benue State. The positive effect of the IFAD rice value chain development programme on unemployment reduction in the three LGAs is however not statistically significant at a 5% level of significance.

Similar to the IFAD rice value chain development programme is the number of buyers per day. The number of buyers visiting rice marketers in the three LGAs of Benue State can positively affect unemployment reduction. However, this positive effect is not statistically significant.

Against expectation, price, storage facilities, transport facilities, and profit have negative effects on unemployment reduction in the three LGAs of Benue State. This is possibly because these variables are cost-intensive and increasing their amounts would limit the employment of more people by rice marketers in the study area. An increase in profit is likely to negatively affect unemployment reduction in the study area because the increased profit is usually invested in additional capital equipment. Rice marketers may decide to increase their capital stock instead of employing more labour and this is capable of impacting unemployment reduction in Gwer-East, Logo and Okpokwu LGAs of Benue State negatively.

Conclusion and Recommendations

The study concludes, first, that the IFAD rice value chain development programme in Benue State has been effective in creating employment and increasing the outputs among rice farmers, rice processors and rice marketers in Benue State. Secondly, the rice value chain development programme has led to reduced unemployment in Benue State. The IFAD rice value-chain development programme is, therefore, positively related to employment creation and rice output growth in Benue State. The positive relationship is noticeable at all three levels of the rice value chain considered in the study. If the International Fund for Agricultural Development increases funding for its rice value chain development programme in Benue State in particular and Nigeria at large, employment among rice farmers, processors and marketers will increase. At the same time, an increase in the funding for the IFAD rice value chain development programme will boost rice output in Nigeria (especially Benue State) at the farm, processing and market levels.

Based on the findings of this study, the researcher makes the following recommendations. First, more rice farmers in Benue State are encouraged to key into the benefits of the IFAD rice value chain development programme to boost their rice output and reduce unemployment in the State. The unemployed people in Benue State, and in general Nigeria, should engage in the profitable rice value chain as this is likely to solve their unemployment issues.

Second, beneficiaries of the rice value chain development programme should endeavour to put the IFAD grants available to them into judicious and appropriate use to achieve the expected goal of the programme. Not misappropriating the IFAD grant will obviously raise their output and increase employment.

Third, the state and federal governments should complement the efforts of IFAD by initiating and executing similar value chain development programmes aimed at enhancing rice output and unemployment reduction in Benue State in particular and Nigeria at large.

Fourth, IFAD should extend its intervention programme to reach other local government areas in the state and other states that are yet to benefit from the grant; this in the aggregate would create more job opportunities and increase the output of rice in Nigeria.

Finally, IFAD should ensure even distribution of the grants to the three stages of the rice value chain in all local government areas covered to enhance the output of rice. This is evidenced in Logo local government area where no processor or marketer benefited from the intervention.

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