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LESSENING THE PREVALENCE OF POVERTY THROUGH FISH PRODUCTION IN DUTSINMA LOCAL GOVERNMENT AREA OF THE KATSINA STATE, NIGERIA

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ABSTRACT

This study was conducted in the Dutsinma local Government area of Katsina State on the lessening of the prevalence of poverty through fish production. The primary data used were obtained using structured questionnaires administered to eighty (n = 80) fishermen in the study area. Descriptive statistics, Gini coefficient and profitability analysis were employed to analyze the data. The result showed that 53% of the fishermen were young, 100% were males and 85% were married. Some of the fishermen (52%) had a family size of between 1 and 5. Also 53% had acquired Quranic edification. Results from the study exposed those fishermen use their income to re-invest into fishing activities. The Gini coefficient value of 0.53 indicates that there were inequalities in the distribution of income. The poverty status of the fishermen showed that 23% and 35% of them were core poor and non-poor respectively. It was also found that fishing was a profitable venture and 100% of the fishermen were faced with inaccessibility to credit facilities. Therefore, it was concluded that the production of fish in this area may lower the levels of poverty easily of adopted by re-investment in this sector.

Keywords: Aquaculture, Socioeconomics, Investment, Poverty, Fish, GDP

INTRODUCTION

Nigeria being agriculturally driven has two-thirds of its population tangled in Agriculture or Agro allied activities; this sustains a stable support of 35% to 40% of Gross Domestic Product (GDP) between 2008 and 2012 (Oladimeji *et al*., 2013). Fish is a requisite base of food, revenue, occupation and refreshment intended for societies everywhere in the world, it is a very important cradle of animal protein for humans and animals in advanced and emerging nations (Ozigbo *et al*., 2014). Fish provides about one third of the total animal protein to man. Due to its excellent protein quality and affordability, it provides surplus variety and a relatively low-priced meal of the comparable nutritive worth of beef. Fish is therefore competently consumed to complement the mostly little protein content of the typical Nigerian food (Akpabio and Inyang, 2007). Nigeria's fish demand was estimated to be around 3.32 million tonnes as at 2014, also the national fish production for same year was 1 million tonnes (Fishery Committee for the West Central Gulf of Guinea, 2016). It was reported that in 2015, fish production contributed to about half a percent to the Gross Domestic Product (GDP) of Nigeria (CBN, 2015). Some of the most heartbreaking features of the Nigerian economy today are that bulk of people living in Nigeria are prevailing in a state of hardship, whereas the residual paltry minority survives under wealth (Adepoju, 2019). Poverty is a state of being poor, being deprived from prospects as a result of several factors and a state of disparity. It is a state of low remunerations or low consumption where the resources of households are insufficient to offer a socially adequate standard way of life (Agbebi, 2011). In Africa, poverty is determined by the background, strength and established features of the farmers. Investigators have discovered that accessible and affordable healthcare, fishing output and possession of resources lessens poverty amongst rural households in sub-Saharan Africa (Nkpoyen *et al*., 2014; Ndamu, 2016; Musuka and Musonda, 2013; Apata *et al*., 2010; Onyeiwu and Jialu, 2011; Etuk *et al.*, 2015).

Nigeria is blessed with abundant natural resources, but its inhabitants are amongst the modest in the world (Okunmadewa, 2015). Nigeria occurs in absurdity of a rich nation occupied by deprived people. Enormous resources have been devoted to lessen the poverty level by succeeding regimes. Notwithstanding this fortitude geared towards poverty lessening, the existing situations of its people have not seen a substantial progress in the Gross Domestic income Product (NBS, 2013). Nigeria is one of the humblest nations in the world; it has a Human Development Index (HDI) of 0.530 and was placed 157th out of 189 nations (UNDP, 2018). Aquaculture has contributed in the past towards poverty lessening in poor cultures in the few areas of the world in which it is conventionally proficient and it remains so till today (Agbebi, 2011). Several researches were conducted on fish production, profitability of fish farming, socioeconomics of fishing and effects of social capital on poverty alleviation among the fish farming

households (Nwosu and Onyeneke, 2013; Fagbenro, 2005; Adewuyi, 2009; Amaefula *et al*., 2009; Nwosu, 2009 and Felix, 2018 and Adepoju, 2019). However, researches of these kinds have not been done in this study area. It is against this backdrop that this research wants to ascertain how fishing helps in lessening poverty in this area.

MATERIALS AND METHOD

The Study Area Dutsin-Ma Local Government Area is located in Katsina State, Nigeria. It covers an area of 527 square kilometers and its population stood at 230,941 (NPC Projection, 2019). It became a Local Government Area in the year 1976 and the dwellers of the Local Government Area are mostly Hausa/Fulani ethnic group. The main occupation of the populace is agriculture (Katsina State Govt., 2020).

Sampling Procedure

Purposive sampling method was employed to handpick the Local Government Area (Zobe Dam Site). This was done based on the high concentration of fishing activities carried out in the area.

Sample Size and Data Collection

Eighty fish farmers were then selected at random from the fishing areas, which were the sample size for the study. Data used for the study were gotten from both primary and secondary bases. The primary data were composed from the respondents and the secondary data were obtained from related literatures, textbooks, journals, conference proceedings, internet, etc.

Data Analysis

Data generated were scrutinized using different tools of inquiry. The background features of the fishermen and the constraints towards fishing were analyzed using Descriptive statistics. Poverty statuses of the fishermen were scrutinized using Gini coefficient and the profitability was analyzed using Net Farm Income.

Model specifications Gini Coefficient

The Gini coefficient was used to examine the market concentration of fish in the study area. Mathematically, it is represented as follows:

$$GC = 1 - \sum XY \quad \text{(Equation 1)}$$

whereas:

GC = Gini Coefficient, **X** = Percentage of fishermen, **Y** = Cumulative percentage of their sales (Fishermen).

The Gini Coefficient can range from 0 to 1. It is sometimes multiplied by 100 to range between 0 and 100. A low Gini coefficient indicates a more equal distribution, with 0 corresponding to complete equality, while higher Gini coefficients indicate more unequal distribution, with 1 corresponding to complete inequality. Whereas: 0 = Complete equality, which means there is perfect competition. While the equations used in this study to calculate farm income briefed below:

$$NFI = TR - TC \quad \text{(Equation 2)}$$

whereas:

NFI = Net Farm Income, **TR** = Total Revenue **TC** = Total Cost

RESULTS AND DISCUSSION

Table 1 depicted that 53% of the Fishermen were inside the age range of between 35 to 40 years. Onyeneke, (2017) detected that agrarian within the age group of 31 to 50 years were commonly extra inventive, enthused and adaptive. This was in cognizance with the findings of Agbebi, (2011), where he reported that fish farming was also controlled by middle age people; it indicates that the bulk of the fish farmers were young and they have the power to cope with the rigidities of fishing. Outcomes of these findings also exposed that 100% of the fishermen were males. This implied that the religion and culture of the fish farmers vested the responsibility of every household on males; they have to be involved in revenue generating activities so as to take care of their families. Olasunkanmi et al., (2010), Hundeyin-Agoro (2011), Okoye (2009) and Adeniyi et al., (2010) in their studies detected that all over the world, men were commonly involved in fishing but those who helped them in the craft were women.

Table 1: Background Features of the Fishermen

Variables	Categories	Frequency	Percentage
Age (years)	11 – 20	6	7.50
	21 – 30	12	15.0
	31 – 40	20	52.5
	41 and above	42	25.0
	Total	**80**	**100**
Gender	Male	80	100
	Female	0	0.0
	Total	**80**	**100**
Marital Status	Married	68	85.0
	Single	12	15.0
	Total	**80**	**100**
Family Size	1 – 5	41	51.2
	6 – 10	26	32.5
	11 – 15	5	6.3
	16 and above	8	10.0
	Total	**80**	**100**
Level of Education	Qur'anic	40	50.0
	Primary	26	32.5
	Secondary	9	11.2
	Tertiary	5	6.3
	Total	**80**	**100**

Table 2: Fishermen other Sources of Income

Sources	Frequency	Percentage
Mixed Production	70	87.5
Crop Production	40	50.0
Animal Husbandry	30	37.5
Ferrying /Canoe Making	50	62.5
Part-time Job	70	87.5

Table 3: Distribution of Fishermen based on the expenditures of income from fishing

Expenditures	Frequency	Percentage
Household	60	75.0
Personal	70	87.5
Reinvesting in Fishing	77	96.3
Charity	30	37.5

$G = 1 - \Sigma XY = 1 - 0.463506 = 0.536494$

This is in the similarity with the findings of Omitoyin and Sanda, (2013) in their studies; it revealed that 79% of the fishermen were males. This study also revealed that 85% of the fish farmers were married; this shows that utmost of the fishermen were stable settlers in the area. It is also implying that they have family responsibilities attached to them. The study agreed with the findings of Agbebi, (2011) where he reported that greatest of the respondents (59%) were married, indicating that the respondents were early settler in the area and their commercial undertakings spin around the area.

The results also revealed that bulk (52%) of the Fish farmers had a family size of between 1 and 5. This study tallied with the findings of Agbebi, (2011), the result revealed that there were only 6 respondents having a family size of more than 16. This could be due to the fact that enormous family size usually interprets into to greater household tasks and are more risk antagonistic than those having a lesser family size. Bamigboye *et al*, (2018) in their studies discovered that the vast majority (75%) of the family had between 6 and 10 members. This denotes that the sellers had large families that could render assistance them. It also opposes the findings of Dodo and Umar, (2015) in their studies, where they reported that more than seventy (70%) of the retailers had home sizes of between 1 and Fifty (50%) of the wholesalers had family sizes of between 1 and 11. But it was in contrary with the findings of Arthur, (2006) in his study family size and quality of life, the study detected that small household enjoy superior economic and social lives.

This result also discovered that 50% of the fish farmers had acquired Qur'anic education. This agreed with the findings of Oyewo *et al*, (2018) where they reported that majority (80%) of the populace had one form of recognized education. These findings have therefore reflected the importance of education and substantial marketing experience in agricultural businesses; the more an individual is exposed to any form of education the more likely he will have a better understanding of his environment and the business. Oladipo and Adekunle, (2010) in their studies revealed that individuals with advanced educational accomplishment will be faster adopters of innovation.

Table 02 discovered that 88% of the fishermen were involved in mixed production in addition to fish farming. It also revealed that 50% of the fish farmers were involved in crop production. The outcome further exhibited that the fishermen were involved in Animal Husbandry (38%), Ferrying/Canoe making (63%) and Part time job (88%). Agbebi, (2011) in a similar study reported that Bulk of respondents were public servants.

Table 03 discovered that 96% of the fishermen were reinvesting their income into fishing activities. It also showed that 88% of them were spending their income for their personal needs. It was also revealed that 75% of the fish farmers were spending their income on their household. This tallied with the findings of Felix *et al*, (2018), in their studies which revealed that the highest money spent on expenditure was on food (39%) and the smallest money spent was on socials (10%).

Findings from Table 04 revealed that 23% of fishermen were core poor, living on an estimated expenditure of between ₦13,173 and ₦66,690 per annum. It also showed that 30% (moderately poor) of them were living on an expenditure of between ₦69,690 and ₦135,700 per annum. The study also discovered that 35% of the fish farmers were non poor, living on an expenditure of between ₦138,320 and ₦1,067,040 per annum. The poverty index shows an estimated number of households existing below the poverty line (0.5575). The poverty depth was 0.2477 and poverty severity was 0.1410. Adepoju, (2019) in his studies revealed that about 20% of his sampled respondents were core poor and had a monthly Mean Per Capita Expenditure (MPCE) of N5,255.90 ($15). It was observed that the minimum and maximum Per Capita Expenditure (PCE) were N1,820 and N6,839 respectively. Also, it was revealed that 44% were moderately poor and had a Mean Per Capita Expenditure (MPCE) of N9,521.22 ($26.5) and 37% of the respondents were the non- poor families and had a Mean Per Capita Expenditure (MPCE) of N17, 274.99 ($48). Table 05 revealed that the fish market was practically concentrated with a value of 0.536494 signifying the possibility of pure oligopoly and inequality in remunerations among the fishermen. This harmonizes with the findings of Garba, (2013) in his study, Analysis of poultry egg marketing in some selected Local Government Areas of Katsina State, Nigeria. The Gini coefficient analysis showed a concentration in the market with (0.5694) indicating the possibility of pure oligopoly. Also, it tallied with the findings of Maikasuwa and Jabo, (2014) in their studies. Their study exposed a Gini-Coefficient value of 0.5602 and 0.4901 for Sheep and Goats markets. This indicated that Sheep markets were moderately concentrated while those of Goats were slightly concentrated. The concentration ratios show that the two markets exhibit oligopolistic market structures. The findings from this study also contradict with the findings of Oladejo, (2014) where she reported that the value for the concentration ratio was 0.22267 which was very low. The implication of this value was that no firm was dominating the market and the goat market tends towards perfect competition.

Table 4: Distribution of Fishermen's household poverty Status

Poverty Status	Value	Frequency	Percentage
1/3 MPCHE	₦13,173 – ₦66,690	15	18.8
2/3 MPCHE	₦69696 – ₦135700	25	31.2
3/3 MPCHE	₦138320 – ₦106040	40	50.0
Incidence (P0)	0.5575		
Depth (P1)	0.2477		
Severity (P2)	0.1410		

Table 5: Distribution of income and market concentration

Quantity Sold (Kg)	No. of Fishermen	Fishermen % (X)	Cumulative %	Total value of monthly sales (₦)	Percentage of total sales	Cumulative percentage (Y)	∑XY
1 – 1000	15	18.7	18.7	1,300,000	6.3	6.3	0.000561
1001 – 2000	11	13.8	32.5	2,600,000	12.7	19.0	0.02622
2001 – 3000	20	25.0	57.5	3,900,000	18.9	37.9	0.09475
3001 – 4000	18	22.5	80.0	5,200,000	25.2	63.1	0.141975
4001 & above	16	20.0	100	7,600,000	36.9	100	0.20000
Total	80	100		20,600,000	100		0.463506

Table 6: Average Costs and Returns of Fishermen /Annum

Poverty Status	Value	Frequency	Percentage
1/3 MPCHE	₦13,173 – ₦66,690	15	18.8
2/3 MPCHE	₦69696 – ₦135700	25	31.2
3/3 MPCHE	₦138320 – ₦106040	40	50.0
Incidence (P0)	0.5575		
Depth (P1)	0.2477		
Severity (P2)	0.1410		

Table 7: Constraints towards Fishing

Constraint	Frequency	Percentage
Government Policies	50	62.5
Access to Credits	80	100
Storage Facilities	77	96.3
Transportation	50	62.5
Extension Services	65	81.3
Marketing Channels	54	67.5

Table 6 revealed an average income of ₦500,483, average total cost of ₦147,511 and a Gross Margin value of ₦352,972. This revealed that fish farming was a profitable venture. It tallied with findings of Agbebi, (2011) in his studies. The study revealed that the average total expenditure was ₦113,559.95, average total revenue was ₦176,615 and a Gross Margin value of ₦63,055.05. The study also tallied with the findings of Felix *et al*, (2018), where they conveyed that smallholder fish production in the Niger Delta was a gainful investment under the semi- thorough and thorough production systems. But this contradicts the discoveries of Omobepade *et al*., (2015), Emokaro *et al*., (2011) and Adeogun *et al*., (2014).

Results from table 7 discovered that 100% of the fishermen identified access to credit services as a constraint affecting fishing undertakings in the area. It also showed that 96% of them were faced with inadequate storage facilities and 81% were faced with inadequate extension services in the study area. Adepoju, (2019) in his studies revealed that the challenges faced by the core poor farmers were inadequate capital (98.57%), high cost of feed (95.71%), flood (90%), high cost of stocking (88.57%), raiders (87.14%) and insufficient extension service upset fishing activities. While all these factors contributed towards poverty and less interest of the farmers towards fishing practices.

CONCLUSION

The study accomplishes that the bulk (53%) of the fishermen were in the age bracket of 35 and 40 years which was dominated by males (100%) who were married. It could also be seen that 50% of the fishermen had accomplished Qur'anic education. A Gini Coefficient value of 0.536494 was observed signifying inequality in the distribution of income amongst the fishermen. On the poverty status, it could be concluded that 23% of the fish farmers were core poor. The gross margin analysis revealed a value of ₦63,055.05, indicating that fish production was profitable. On the constraints to fish production, the fish farmers (100%) exposed that they were faced with lack of access to credit facilities.

Recommendations

Centered on the empirical outcomes of this study, the recommendations were made as; Fishermen should form cooperatives so as to help themselves and storage facilities should be made available to all of them as an adaptation strategy.

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