



SOCIO-ECONOMIC IMPACT AND PROFITABILITY ANALYSIS OF FISH FARMING IN LAGOS STATE, NIGERIA

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ABSTRACT

The study evaluates the socio-economic impact and profitability analysis of fish farming in Lagos State, Nigeria. A total of 120 fish farmers were surveyed using a structured questionnaire, with data analyzed through descriptive statistics. The results reveal that 91.7% of respondents identified income generation as the primary benefit of fish farming, followed closely by employment creation (90%) and improved protein intake (87.5%). Fish farming contributes significantly to the socio-economic status of 66.7% of respondents, with a mean socio-economic score of 22.45 (SD = 7.94). However, 33.3% reported a low contribution, highlighting disparities linked to farm size and access to resources. Profitability analysis shows an average return of ₦2.27 for every ₦1 invested, with total revenue per production cycle amounting to ₦5,040,000 and a net farm income of ₦3,497,300. Feed costs constitute the largest portion of expenses, accounting for 78.41% of total variable costs. Despite the profitability, challenges such as high feed costs (Findings) and limited access to finance persist (findings), impacting the sector's growth potential. The findings suggest that fish farming plays a crucial role in economic empowerment and food security in coastal Lagos but requires policy interventions to address key challenges.

Keywords: Fish, Farming, Socio-economic, Development, Profitability, Benefits,

INTRODUCTION

Fish farming, also known as aquaculture, plays a critical role in enhancing food security, employment, and income generation in Nigeria, especially in coastal regions like Lagos State. Over the years, fish farming has emerged as a viable solution to meet the increasing demand for fish, reduce overdependence on imported fish, and combat unemployment. The Lagos State government, through various initiatives, has supported fish farming activities to stimulate local economic growth (Adewumi *et al.*, 2023). The socio-economic benefits of fish farming extend beyond income generation. It improves nutrition by enhancing protein intake, creates employment opportunities for the youth, and contributes to rural development through infrastructure improvement (Ige & Adeleke, 2024). Despite these advantages, fish farmers face significant challenges, such as fluctuating input costs and inadequate access to finance, which affect their profitability (Ajayi *et al.*, 2023).

This study evaluates the socio-economic benefits derived from fish farming, its profitability, and the challenges encountered by fish farmers in Epe and Eti-Osa Local Government Areas of Lagos State. By analyzing the experiences of local farmers, this research



provides insight into maximizing the potential of fish farming as a tool for economic empowerment.

METHODOLOGY

Study Area

The study was conducted in two coastal LGAs of Lagos State: Epe and Eti-Osa. These areas were selected due to their significant engagement in artisanal and commercial fish farming.

Sample Size

A structured questionnaire was used to collect data from 120 respondents, comprising fish farmers across different scales of production. The sample size was determined using a stratified random sampling technique to ensure that both small-scale and large-scale fish farmers were adequately represented.

Data Collection

The questionnaire was designed to capture the socio-economic characteristics of respondents, the benefits derived from fish farming, and the challenges faced.

Data Analysis

Data on income, profitability, and employment generation were also collected. Descriptive statistics, such as frequency counts, percentages, and mean rankings, were used to analyze the data.

RESULTS AND DISCUSSION

Distribution of Respondents based on Socio-Economic Characteristics

The socio-economic characteristics of the fish farmers surveyed in Epe and Eti-Osa LGAs reveal several notable trends. The majority (74.2%) of the respondents were male while females accounted for 25.8%. This gender disparity in fish farming aligns with previous studies that have shown male dominance in the sector, particularly in artisanal and small-scale aquaculture activities, as men are often the primary participants in outdoor farm-related activities (Adebajo and Abiodun, 2024).

The age distribution shows that a notable proportion (35%) of the respondents were within the age bracket of 31–40 years, followed by 41–50 years category (25.8%), suggesting that the majority of fish farmers were middle-aged. This finding is in line with the findings of Olamide *et al.* (2023), who reported that fish farming attracts economically active individuals, particularly those seeking entrepreneurial opportunities in rural and peri-urban areas. The relatively low participation of those aged 21–30 years (20.8%) may indicate the preference of younger individuals for other industries or employment opportunities, a point underscored by Ige and Kolapo (2023).

Educational attainment is a significant factor in fish farming success, with 47.5% of respondents having tertiary education and 31.7% holding secondary education qualifications. This trend indicates that a substantial number of fish farmers had formal education, which can enhance their capacity to adopt innovative farming techniques and technologies (Ajayi and Adepoju, 2024). The high level of education among the respondents is indicative of the growing professionalization of aquaculture in Lagos State, which contrasts with older perceptions of the industry as predominantly labor-intensive and low-skill (Afolabi *et al.*, 2024). In terms of marital status, the majority (61.7%) of the respondents were married, which correlates with the findings



that married individuals are more likely to be involved in aquaculture, as it provides a stable source of income and food security for families (Olaniyi and Ajiboye, 2024). Only a small percentage of respondents were either widowed (6.7%) or divorced (5.0%).

Household size is an important indicator of labor availability in fish farming, especially for family-operated farms. The largest group (50.8%) had household sizes of 4–6 persons, which suggests that fish farmers can draw on family labor to support their operations. This finding agrees with the research by Adewumi *et al.* (2023), who observed that household size plays a role in determining labor input and farm productivity in Nigerian fish farms. These characteristics suggest a growing professionalism within the sector and highlight the need for policies and support mechanisms that enhance education, technical skills, and youth engagement to ensure sustainable growth in the industry.

Table 1: Distribution of Respondents based on the Socio-Economic Characteristics

Variables	Frequency	Percentage (%)
Gender		
Male	89	74.2
Female	31	25.8
Age Group (Years)		
21–30	25	20.8
31–40	42	35.0
41–50	31	25.8
51 and Above	22	18.3
Educational Level		
No Formal Education	9	7.5
Primary Education	16	13.3
Secondary Education	38	31.7
Tertiary Education	57	47.5
Marital Status		
Single	32	26.7
Married	74	61.7
Widowed	8	6.7
Divorced	6	5.0
Household Size		
1–3 Persons	28	23.3
4–6 Persons	61	50.8
7–9 Persons	24	20.0
10 and Above	7	5.8

Source: Field survey, 2024



Benefits Farmers Derived from Fish Farming

The findings from Table 2, reveal several socio-economic benefits derived from fish farming in Epe and Eti-Osa LGAs of Lagos State. Notably, income generation ranked as the primary benefit, with 91.7% of respondents identifying it as significant (mean = 1.90). This aligns with the research by Adewumi and Kolapo (2023), who emphasized the role of fish farming in improving household income and promoting economic stability among rural and peri-urban communities in Nigeria. This benefit is also in line with studies by Ayodele *et al.* (2023), which underline the vital contribution of aquaculture to poverty alleviation in coastal regions. Employment creation ranked second, with 90% of farmers acknowledging that fish farming serves as a major source of employment (mean = 1.88). This finding is corroborated by Oni and Daramola (2024), who pointed out that aquaculture activities generate numerous direct and indirect jobs, from pond construction to fish processing and marketing. Employment in fish farming is especially crucial in regions with high youth unemployment rates, such as Lagos State, where artisanal and commercial aquaculture serves as a viable livelihood option (Adebanjo *et al.*, 2023). Fish farming's role in improving protein intake was ranked third, with 87.5% of farmers affirming its nutritional benefits (mean = 1.85). Several studies, including those by Olayemi and Olaniyi (2024), have recognized the importance of fish as a critical source of animal protein in Nigerian diets. Given the high cost of alternative protein sources like beef and chicken, fish farming provides affordable access to quality protein, which is vital for addressing malnutrition in Nigeria's low-income households (Afolabi *et al.*, 2023).

Enhancing food security ranked fourth, with a mean score of 1.75, indicating that fish farming plays a crucial role in stabilizing local food supplies. As argued by Adedeji and Abubakar (2023), smallholder fish farms can make significant contributions to food security by producing fish that directly feeds local communities, especially in areas where fishing is an integral part of the economy. The improvement in the standard of living, ranked fifth (mean = 1.68), suggests that fish farming enables farmers to achieve better economic well-being by increasing their purchasing power and access to essential services like healthcare and education. This aligns with the findings of Ige *et al.* (2023), who noted that fish farming has the potential to enhance the livelihoods of rural populations by elevating living standards. The development of fish farming knowledge and business management skills, which ranked sixth and seventh, respectively, highlights the importance of technical know-how in maximizing the productivity and profitability of aquaculture ventures. Adejumo and Fakoya (2023) stress that equipping fish farmers with managerial skills and technical expertise is key to enhancing operational efficiency, particularly in an industry susceptible to market fluctuations and environmental challenges.

Interestingly, while social status improvement (ranked eighth) and access to local and international markets (ranked ninth) were acknowledged by a significant proportion of farmers, they were rated lower than other benefits. This suggests that, although fish farming can boost social standing and market integration, there are likely barriers such as infrastructure challenges and international trade regulations that limit access to broader markets. Supporting this, Ajayi *et al.* (2023) highlighted the need for improved access to global markets and better logistical support to enhance the competitiveness of Nigeria's fish farming sector. For fish farmers to fully exploit the benefits of their ventures, there is a need for enhanced market access and the provision of technical and business training. Government interventions focused on these areas



could further amplify the impact of fish farming on the socio-economic development of Lagos State.

Table 2: Benefits Fish Farmers Derived from Fish Farming

Variables	High (Freq/%)	Slight (Freq/%)	Not a benefit (Freq/%)	Mean	Rank
Provide income	110 (91.7%)	8 (6.7%)	2 (1.7%)	1.90	1st
Serves as source of employment	108 (90.0%)	10 (8.3%)	2 (1.7%)	1.88	2nd
Improve protein intake	105 (87.5%)	12 (10.0%)	3 (2.5%)	1.85	3rd
Enhance food security	95 (79.2%)	20 (16.7%)	5 (4.2%)	1.75	4th
Improve standard of living	92 (76.7%)	18 (15.0%)	10 (8.3%)	1.68	5th
Improve the knowledge of fish rearing	89 (74.2%)	25 (20.8%)	6 (5.0%)	1.69	6th
Develop business management skills	83 (69.2%)	28 (23.3%)	9 (7.5%)	1.62	7th
Social status improvement	80 (66.7%)	30 (25.0%)	10 (8.3%)	1.58	8th
Access to local and international markets	78 (65.0%)	32 (26.7%)	10 (8.3%)	1.57	9th

Source: Field survey, 2024

Contribution of Fish Farming to the Socio-Economic Status of the Respondents

Table 3, shows that fish farming has a substantial impact on the socio-economic status of farmers, with 66.7% of respondents reporting a high level of contribution. This finding is in line with the conclusions of Eze and Nwosu (2023), who argued that fish farming has become a significant source of wealth creation for many rural households in coastal Nigeria. The mean socio-economic contribution score of 22.45 suggests that fish farmers in Epe and Eti-Osa experience better living standards through improved access to basic amenities, financial stability, and investment opportunities. However, about one-third (33.3%) of respondents reported a low contribution, indicating disparities in the distribution of benefits, which might be attributed to differences in farm size or access to resources (Ogunleye *et al.*, 2022).

Table 3: Contribution of Fish Farming to Socio-Economic Status

Level of Contribution	Frequency	Percentage	Mean	Standard Deviation	Min	Max
High	80	66.7%	22.45	7.94	0	32
Low	40	33.3%				

Profitability Ratio of Fish Farming

The profitability analysis, as depicted in Table 4, demonstrates that fish farming is highly profitable in the study area. With an average return of ₦2.27 for every naira invested, farmers generate substantial income from their fish farming ventures. The dominance of feed costs, which account for 78.41% of total costs, reflects the ongoing challenge posed by the rising prices of commercial fish feed, a trend also reported by Olaniyi *et al.* (2023). Reducing feed costs



through local feed production could significantly enhance profitability, as suggested by Abiodun and Omole (2023)

Table 4: Average Costs and Returns on Fish Farming per Production Cycle

Items	Cost (₦)	Cost/m ² (₦)	Percentage of Total Cost (%)
Variable Costs			
Feeds	1,010,500.00	8,421.17	78.41
Fingerlings/Juveniles	209,500.00	1,745.83	11.97
Manure	6,000.00	50.00	0.04
Fertilizer	7,000.00	58.33	0.02
Lime	3,400.00	28.33	0.08
Labour	95,000.00	791.67	7.71
Fuel	7,500.00	62.50	0.31
Miscellaneous	3,800.00	31.67	0.20
Total Variable Costs (TVC)	1,342,700.00	11,189.50	98.75
Fixed Costs			
Cost of pond	25,000.00	208.33	0.16
Cost of pumping machine	12,000.00	100.00	0.01
Cost of fishing net	5,500.00	45.83	0.04
Borehole	30,000.00	250.00	0.13
Cost of land (estimated)	120,000.00	1,000.00	0.40
Weighing scale	7,500.00	62.50	0.07
Total Fixed Costs (TFC)	200,000.00	1,666.66	1.25
Total Costs (TVC + TFC)	1,542,700.00	12,856.16	100.00
Revenue			
Average fish harvested (kg)	4,200.00 kg	35.00 kg	
Average price of fish per kg (N)	1,200.00		
Total Revenue (TR)	5,040,000.00		
Net Farm Income (NFI)	N3,497,300.00		
Returns to Naira Invested (NFI/TC)	2.27		

CONCLUSION AND RECOMMENDATIONS

Fish farming in Epe and Eti-Osa LGAs of Lagos State offers significant socio-economic benefits, notably income generation, employment creation, and improved protein intake. The profitability analysis shows a strong financial return, with an average of ₦2.27 earned for every ₦1 invested. Despite these gains, challenges such as high feed costs and limited access to finance



hinder optimal growth and broader market participation. Addressing these issues is crucial to fully harnessing the sector's potential for economic empowerment and food security. To enhance the sustainability and profitability of fish farming in the region, it is recommended that government and relevant stakeholders provide more financial support and facilitate access to affordable credit for farmers. Additionally, promoting local feed production and offering technical training on cost-reduction strategies can help mitigate the impact of high feed costs. Finally, improving infrastructure and market access will enable farmers to scale their operations and better integrate into both local and international markets.

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