Factor Analysis of the Perceived Constraints Affecting Dried Fish Marketing in Urban Areas of Benue State, Nigeria

Odeh, P. O. and Okeke, A. M.
Department of Fisheries Resources,
Nigerian Institute for Oceanography and
Marine Research, Lagos, Nigeria.
Department of Agribusiness,
Joseph Sarwuan Tarka University Makurdi,
Benue State. Nigeria
Email: patienceode@yahoo.com Phone: 07066109889
https://doi.org/10.56201/ijmcs.v10.no9.2026.pg118.123

Abstract
The study analysed the perceived constraints affecting dried fish marketing in the urban areas of Benue State, Nigeria. To empirically factor out the perceived constraints affecting dried fish marketing in Urban Areas of Benue State, Nigeria, this study via a multi-stage sampling technique randomly selected 150 dried fish marketers who were administered well-structured questionnaires. The data collected were analysed using factor analysis, the study revealed and concluded that pest (0.839), inadequate processing equipment (0.795), inadequate storage facilities (0.801), price instability (0.804), seasonality (0.798) and lack of capital (0.725) were the significant risk factors affecting dried fish marketing in the study area. It was recommended that storage facilities, processing facilities, weighing balances, necessary facilities and capital be provided to aid and advance the business of marketing of dried fish in the area through public private partnership arrangement and government intervention funds.

Keywords: *Factor analysis, Constraints, Dried fish, Marketing.*

Introduction

Fish marketing can be broadly defined as all those functions involved from the point of catching of fish, to the point of final consumption. It involves all activities carried out from the landing site to the point of utilization. Such activities include the collection of fish, processing and preservation, transportation to consumers, pricing, buying and utilization. These processes ascertain that the best product is available at the right time to fully satisfy the consumers' needs (Adeoye *et. al*., 2022). The need for the efficient marketing system of fish cannot be over emphasized as it fastens the goals of economic development (Njoku and Offor, 2016). As important as marketing is, most of the studies on fish have concentrated on production which was thought would solve the problem of high fish importation (Fapohunda, *et. al*., 2022). Owing to the fact that fish is susceptible to deterioration without any preservative or processing measure a number of processing techniques are employed to prolong its shelf life so that it does not lose quality, taste, odor and nutritional value, these include smoking, chilling, salting, drying and fermentation among others (Adeoye *et. al*., 2022). Smoked drying fish processing is a faster and cheaper method of drying fish when compared to other methods and the most widely used method

for fish preservation in Nigeria, Ghana and other West African countries (Adeyemi *et al*., 2013). According to George *et al.* (2014) problems of smoked dried fish marketing include lack of modern or improved processing facilities, lack of capital for investment and insufficient marketing services etc. It is obvious that increased production without corresponding increase in processing and marketing leads to wastage of resources (George *et al*.,2014). Therefore, it is essential to understand the underlying constraints affecting dried fish marketing and its overall performance which this study is set to reveal.

Methodology

This study was conducted in urban areas of Benue State, Nigeria. It occupies a land area of 33,955 square kilometers as well as an estimated population of 6,573,600 (Okeke *et al.*, 2026). The major occupation of the people includes trading and farming. Fish farming is paramount in the area due to availabilities of river and streams that surrounds the place. Most of the people in the State are farmers while inhabitants of the riverine areas engage in fishing as their primary or important secondary occupation. Benue State experiences two distinct seasons, the wet season and the dry season. The rainy season lasts from April to October with annual rainfall in the range of 150-180mm and the dry season begins in November and ends in March. Benue State is acclaimed the nation's food basket because of its diverse rich agricultural produce which includes yams, rice, beans, cassava, soya beans, benniseed, maize, millet, tomatoes and a lot of fruits. Poultry, goat, sheep, pigs and cattle are the major domestic animals kept.

Research Design

The study adopted a survey design which entails the selection of a sample of respondents from a population who were administered well-structured questionnaires. The design employed a single period observation of the sample.

Sample and Sampling Techniques

Multi-stage sampling technique was used for the study. The first stage was purposive selection of two Local Government Areas LGAs) which include Makurdi and Otukpo Local Government Areas because of their high level of dried fish marketing activities as well as their urban status. Secondly, two markets were purposively selected from each of the LGAs. They include, Wadata and Wurukum markets from Makurdi LGA, Otukpo main market and Ella markets from Otukpo LGA giving a total of four markets. Taro Yamene formula was used to determine the sample size of 150 from a population of 242 dried fish marketers, while Bowley's proportional allocation technique was used to allocate 93 sample respondents to Makurdi LGA and 57 sample respondents to Otukpo LGA based on their population.

Data Collection and Data Analysis

A total of 150 respondents were administered questionnaires which were retrieved and used in data analysis. Data were collected on perceived constraints affecting dried fish marketing in the study area and were analyzed using factor analysis;

Mathematically, factor analysis is to some extent analogous to multiple regression analysis in that each variable is presented as a linear combination of the underlying factor as expressed by Wudil *et al*. (2021);

$$X_i = A_{i1}f_1 + A_{i2}f_2 + A_{i3}f_3 \ldots\ldots\ldots\ldots\ldots + A_{1m}f_m + \nu_i\upsilon_i \ldots\ldots\ldots \quad (11)$$

Where:

X_i = ith standardized variable (observed challenges)
A_{ij} = Standardized multiple regression coefficients of variable i on common factor j (factors loading/ scores)
f = common factor
v_i = Standardized regression co-efficient of variable i on common factor j
v_i = unique factor for i variable
m= member of common factor
The distinct factors are linked to one another, and the common factors, that is, the observed variables, can be represented as linear combinations of the common elements. The first factor accounts for the majority of the variation.

Results and Discussion

Perceived Constraints affecting dried Fish Marketing in Urban Markets

Table 1 shows the factor analysis of the constraints faced by dried fish urban marketers. Six factors were extracted based on the variables loaded as constraints. These factors are; Financial/quality control challenges, Operational/regulatory challenges, Storage/security challenges, Transportation/price dynamics challenges, Knowledge/temporal challenges and Capital constraints. Debt management (0.738), lack of standard measurement (0.808) and pest (0.839) were loaded under financial/quality control challenges with pest posing as the major challenge in this factor. The study of Hamid (2020) agrees with this finding that among other constraints, insect infestation was encountered. Operational/regulatory challenges had inadequate processing equipment (0.795), heavy imposition of taxes (0.471), lack of organized fish marketing system (0.676) and extra cost of fuel (0.780) as the loaded challenges with inadequate processing equipment loading the highest. This agrees with the finding of Adeoye *et al*. (2022) which showed that more than half of the marketers agreed that high tax rate (52.50%), poor marketing system (60.00%), poor storage facility (38.33%), inadequate technical knowhow (50.83%) and lack of modern processing equipment (57.50%) were other constraints faced by marketers in their study area. Inadequate storage facilities (0.801), fish spoilage (0.592) and theft (0.774) as challenges loaded under storage/security challenges with inadequate storage facilities loading the highest. This supports the study of Agbebi and Adetuwo (2018) which revealed that inadequate storage facilities were the most serious constraint faced by the fish marketers in the area as indicated by 90% respondents. Inadequate and high cost of transportation (0.779) and price instability (0.804) loaded with price instability loading the highest under transportation/price dynamic challenges. The study of Hamid (2020) revealed that inadequate capital was the major problem influencing marketing activities of the marketers and is been ranked 1, followed by Price fluctuation ranked 2, inadequate storage facilities ranked 3, inadequate shed/shop and insect infestation ranked 4 and 5 respectively. A study by Agbebi and Adetuwo (2018) also supports this finding with about 72.5% of the respondents who attested to the fact that price instability and price fluctuation of fresh catfish were the first constraint faced by marketers. Inadequate technical knowledge (0.768) and seasonality (0.798) loaded under knowledge and temporal challenges with seasonality loading the highest under this factor. Gerei *et al*. (2021) reports that smoked fish marketers identified seasonality as the 2nd most important constraint to their enterprise which is in consonance with this finding.

Lack of capital (0.725) is the major challenge loaded under capital constraints. Fish marketing requires large amount of capital investment for reasonable profit to be made over time. Inadequate capital hinders the marketers from getting the necessary marketing resources and technologies

which will increase their profit margin and marketing efficiency. This supports the findings of Njoku and Offor (2016) which revealed that capital was the most critical constraint as majority (80%) of the respondents reported that capital was the major constraint affecting marketing of catfish in the area.

Table 1: Problems Associated with Fish Marketing in Urban Markets

Constraints	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Lack of capital						0.725*
Inadequate/high tp cost				0.779*		
Inadequate processing equipt.		0.795*				
Inadequate storage facility			0.801*			
Price instability				0.804*		
Heavy imposition of taxes		0.471*				
Lack of organized fish market sys.		0.676*				
Lack of good quality fish						
High number of middlemen	0.408	0.637				
Inadequate technical know-how					0.768*	
Extra cost incurred on fuel		0.780*				
Seasonality					0.798*	
Remoteness of market	0.521	0.752				
Fish spoilage			0.592*			
Theft			0.774*			
Lack of market info	0.499		0.757			
Debt management	0.738*					
Lack of standard measurement	0.800*					
Pests	0.839*					

Source: Field survey data, 2024 * Significance based on Kaiser Normalization

Factor legends

Factor 1- Financial/quality control challenges

Factor 2- Operational/regulatory challenges

Factor 3- Storage/security challenges

Factor 4- Transportation/price dynamics challenges

Factor 5- Knowledge/temporal challenges

Factor 6- Capital constraints

Conclusion and Recommendations

The major constraints that affect dried fish marketing in the urban areas as revealed by the study were pest, inadequate processing equipment, inadequate storage facilities, price instability, seasonality and lack of capital.

Based on these findings the following are recommended;

i. Provision of storage facilities, processing facilities, weighing balances and other necessary facilities to aid and advance the business of marketing of dried fish in the area through public private partnership arrangement is recommended. Establishing a centralized marketing system where produce is bought from producers/processors at fair prices, stored in ware houses and distributed to middlemen when needed by private sector investment and or partnerships with local indigenes will go a long way to enhance dried fish production and marketing.

ii. Formation of more dried fish marketers' cooperatives can aid the marketers to access credit

facilities from banks in form of government intervention funds with low interest rates, which will solve the problem of lack of capital.

IJMCS

References

Adeoye, A. Ayanboye, A. O., Taiwo, A. M., Awolola, A. A., and Adejumo, D. R. (2022). Economics analysis of smoked – dried fish marketing in Akinyele local government area of Oyo state, Nigeria. *Arabian Journal of Business and Management Review (Kuwait Chapter)*, 11(1), 1-5.

Adeyemi, O. T., Osilesi, O. O., Onajobi, F., Adebawo, O., and Afolayan, A. J. (2013). Stability study of smoked fish, horse mackerel (Trachurus trachurus) by different methods and storage at room temperature. *African Journal of Biochemistry Research*, 7 (6): 98-106.

Agbebi F.O. and Adetuwo, K. I. (2018). Analysis of Socio-Economic Factors Affecting Fish Marketing in Igbokoda Fish Market, Ondo State, Nigeria. *International Journal of Environment, Agriculture and Biotechnology (IJEAB)*, **3**(2). 512-521.

Fapohunda, O. O., Adekunmi, A. O., Olaoye, O. F.1, and Kolawole, O. F. (2022). Economics of Fish Marketing in Oyo State. *Indiana Journal of Agriculture and Life Sciences*, 2(1): 11-25.

George, F. O. A., Ogbolu A. O., Olaoye O. J., Obasa S. O., Idowu A. A. and Odulate D. O.,(2014). Fish Processing Technologies in Nigeria: A Case Study of Ibeju-Lekki Local Government Area, Lagos State. *American Journal of Food Technology*, (9): 302-310.

Girei, A.A., Ndanitsa, M.A., Ogezi, E. (2021). Smoked and Fresh Fish Marketing in Toto Local Government Area of Nasarawa State, Nigeria: A Comparative Analysis. *Acta* Scientiarum *Polonorum Zootechnica,* 20(1): 15-26.

Hamid, M.Y. (2020). Analysis of Smoked Fish Marketing in Mubi North Local Government Area, Adamawa State. *International Journal of Forest, Animal and Fisheries Research (IJFAF)* Vol-4, Issue-4.

Njoku, M.E. and Offor, E.I. (2016). Cost and Returns Analysis of Catfish Marketing in Aba South Local Government Area of Abia State, Nigeria *Journal of Tropical Agriculture, Food, Environment and Extension*. 15 (2): 9 – 14.

Odeh P. O., Iheanacho A. C., Ocholi A. (2024). Economic Analysis of Dried Fish Market Performance in Benue State, Nigeria. *International Journal of Marketing Communication Studies* 8(5): 115-130.

Okeke, A. M., Iheanacho, A. C. and Nyiatagher Z. T. (2026). Does Agricultural Training Translate to Economic Gains? Evidence form Integrated Soil Fertility Management (ISFM) Intervention Aming Smallholder Maize Farmers in Benue State, Nigeria. *Nigerian Journal of Agriculture and Agricultural Technology (NJAAT). 6(2B): 236-244.*