

Factors influencing prices of fish in central region of Malawi

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Abstract

Fisheries continue to play a significant role in the life of many Malawians despite having experienced considerable decline in the 1990s. The decline in catches has made the prices of fish to go up. A study to investigate factors that influence prices of fish was conducted in Lilongwe, Salima, Kasungu and Mchinji districts of the Central Region of Malawi. Thirteen markets were visited every week for a period of three months (August – October 2001). A structured questionnaire with open-ended questions was used. Using multiple regression analysis it was found that species type, weight, form of preservation and market type influence the prices of fish more than the other variables. The results suggest that fish trading in urban markets can be dynamic and species type, size and form of preservation play an important role in determining the prices.

Key words: Fisheries, Market, Prices

Introduction

The fish stocks of Malawian waters are, undoubtedly among the most important natural resources of Malawi (Bulirani, *et al.*, 1999). Fish forms 70% of all animal proteins consumed (Balarin, 1987), but the per capita fish consumption has gone down from 14.7 Kg to 7.0 Kg in the 1990s (GOM, 1998). Consequently, the prices of fish have gone up over the years. In competitive economy, prices are signals of communication between producers and consumers. They guide and regulate production and consumption decisions (Begg, 1984).

Prices of fish have been reported to vary considerably by season as well as throughout the country. For example, in the interior markets, prices are affected by the seasonal competition from other sources of animal protein while in locations along the lake-shores, as well as the two largest urban centres, Blantyre and Lilongwe, wholesale prices are lower than elsewhere, particularly the hinterland markets of the northern region (ICLARM and GTZ, 1991).

Studies on fish prices were conducted in the southern and northern regions hence little has been done in the central region of Malawi (Brummet 2000). Hence this study was conducted to determine how the price of fish was influenced by market type (whether rural or urban), form of preservation, species of fish, distance to the market and distance to the main city in the central region of Malawi.

Methodology

The study was carried out in four districts Malawi including Lilongwe, Kasungu, Salima and Mchinji. Both primary and secondary sources of data were

used. The primary sources included informal discussions with experts and key informants like technical assistants from Fisheries Department and city or town councils. In addition, a total of 223 respondents (consumers) in 13 markets were interviewed for a period of three months between August and October, 2001.

Stratified random sampling technique was used to identify the respondents. Two strata, based on location and number of traders (Brummet 2000) were made of market: rural and urban markets. Msangu Market in Salima, Chigwirizano, Nathenje and Chimbiya markets formed the rural market stratum while Lilongwe old town market, Area 13 and Area 3 markets in Lilongwe, Salima, Kasungu and Mchinji district markets formed the urban market stratum.

In both formal and structured questionnaires, information was collected on the species of fish that demands higher prices, the size of fish that people prefer and distance of market (in km) from the landing site.

Multiple regression was run to determine the extent to which the independent variables (described below) influenced the price of fish on the market (dependent variable). The model was specified as follows:

$$Y = f(F, S, D_L, D_m, M, L)$$

Where: Y = price of fish

F = form of preservation

S = species group

D_L = distance (in kilometers) from

Lilongwe
 D_m = distance (in kilometers) of each market
 from the landing site
 M = market type
 L = length of fish

Each variable is briefly discussed below:

Dependent variable Y (Price of fish)

This is the response variable. It was incorporated into the model as a continuous variable in Malawi Kwacha (MK) per Kg.

Form of preservation (F)

Fish is preserved in different forms and may fetch different prices depending on consumer preferences and taste. Fish may be sun-dried, smoked or frozen. Processing attracts extra cost to retailers but may also add value to fish. In the model, 0 = fresh, 1 = sun-dried and 3 = smoked. It was hypothesized that smoked fish would be more expensive than fresh or sun dried fish because of the added cost of labor and energy.

Species group (S)

Type of fish was considered to influence its price. Some species may be preferred more than others.

Distance from Lilongwe (D_L)

Lilongwe is the capital city of Malawi and hence the population of the working class is high. This was considered as increasing the buying power of the consumers may. As fish that is sold in Lilongwe comes from as far as Mangochi, Nkhotakota and Salima on Lake Malawi, it was expected that fish from further places would cost more than fish from areas close to Lilongwe.

Distance of market from the landing site (D_m)

Fish is perishable and if it is to be sold in good con-

dition, it must be taken to the market within the shortest time period or it must be preserved. Since preservation adds costs it was considered that traders are prompted to sell their fish at the nearest market to avoid deterioration of quality, which would influence price of fish. Therefore distance of each market from the landing site was determined.

Market type (M)

Since markets were stratified into urban and rural the analysis tried to establish whether there were significant differences between price of fish in urban and rural markets.

Weight/Length of fish (W, L)

It was expected that the bigger the size of fish the higher would be the price of the fish. However some species of fish, especially the smaller ones, are sold in heaps. Dry weight of fish was computed in order to compare the sizes of fish.

Estimation of the model

A bivariate (Chi-squared) analysis was carried out to determine how each of the explanatory variables relates to the dependent variable. This analysis was also carried out to find out if the influence of each of the variable separately, was significant. A correlation analysis was made to determine if the explanatory variables did correlate to each other. A variable that was highly correlated to the other was dropped to avoid the problem of multicollinearity. Weight and length were highly correlated (0.7) and were hence used separately.

Results

Results from regression analysis showed that species type, weight, form of preservation and market type have a significant influence on the prices of fish (Table 1).

Table 1: Multiple regression coefficients of the factors influencing prices of fish

Variable	X_i	Coefficient	S.E.	t-value
Constant		218.983	24.452	0.000
Species	S	11.917	1.966	0.000
Weight	W	-0.111	0.027	0.000
Preservation	F	17.970	7.432	0.017
Distance from Lilongwe	D_L	-5.66E05	0.133	1.000
Distance from landing site	D_m	-4.74E02	0.054	0.379
Market type	M	-43.145	13.413	0.002

Discussion

Overall, average prices of fish in urban market were significantly higher ($P < 0.05$) than prices of fish in rural areas. In urban markets the price of fish was MK233.07/kg compared to price of fish in rural markets, which was MK210.19/kg. The results may reflect the demand and supply or purchasing power of consumers (Gilberg 1966). The consumers in urban areas may have higher purchasing power because they are mostly working class or business people and therefore have higher income than the rural people who are mostly subsistence farmers. Similar result were reported by Brummet (2000).

In urban markets, type of species and weight had significant influence on the price while type of species, weight and form of preservation were important for rural markets. In both rural and urban markets fresh fish was preferred, but smoked fish constituted about 44% of the total fish purchased, with fresh fish, sun-dried and boiled and sun-dried constituted about 26%, 27% and 3% respectively.

An interview with key informants and consumers revealed that certain species have high demand than others. About 80% of the consumers indicated that they preferred cichlids e.g. *Chambo*, to cyprinids. *Chambo* was specifically mentioned to be the most preferred fish. Weyl (1999) has reported that the beach price of *Chambo* (*Oreochromis spp*), *Mpasa* (*Opsaridium microlepis*, other tilapia and *Sanjika* (*Opsaridium microcephalus*) were higher than Kampango (*Bagrus meridionalis*), Ntchila (*Labeo mesops*), *Usipa* (*Engraulicypris sardella*), *Utaka* (*Copadichromis spp*) and *Mlamba* (catfish). *Utaka* was consumed in largest proportions because it was cheap and readily available. This was so because it was cheap and readily available.

In addition, results of the study show that smaller species such as *Usipa* (*Engraulicypris sardella*) fetched higher prices per kilogramme (dry weight basis) than bigger species like catfish or *Bombe*. The small size fish are sold by basket or pile and a con-

sumer with low income can afford to buy the amount sufficient for his family. Bigger-sized fish species are sold by piece, which is often much more expensive than its equivalent amount of small-sized fish species. For example, *Mpasa* (*Opsaridium microlepis*) was selling at MK342.30/kg while a heap or pile (usually about 1 kg) of *Usipa* (*Engraulicypris sardella*) or *Utaka* (*Copadichromis spp*) would cost MK20. This makes it impossible for low-income households to buy the bigger-sized pieces of fish. However, in the final analysis, retailers selling small fish would make more profit than those selling big fish because there was no proportionality in the weight and price. Nonetheless, this depended on the type of fish species. For example, *Usipa* is more costly than *Utaka* (*Copadichromis spp*) implying that even within the smaller species some are more expensive than others.

In the study *Mpasa* (*Opsaridium microlepis*) had the highest price while *Mcheni* (*Ramphochromis spp*) and *Chisawasawa* (*Lethrinops spp*) had the lowest price of MK173.76 and MK180.14/kg, respectively. This suggests that consumers have a certain liking for some species and hence species type has a significant influence on the price.

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