

Canned fish consumption: Impact of socio-economic and product characteristics in Bentota area, Sri Lanka

A.H. Hansika^{1*}, K.K.A. Kiriveldeniya¹, P. Wattage²

¹ *Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, P.O. Box 02, Belihuloya, Sri Lanka*

² *Centre for economics and management of aquatic resources, Portsmouth business school, University of Portsmouth St, George's building, 141 high street, Portsmouth PO1 2HY, United Kingdom*

**hansikahasini4@gmail.com*

1. Introduction

Canned fish is a value-added fish product. Fish and canned fish are sources of protein including essential amino acids, micro and macro elements (calcium, phosphorus, fluorine, iodine), types of fats that are valuable sources of energy, fat-soluble vitamins, and unsaturated fatty acids (Ismail, 2005). Due to unique nutritional values and long shelf life, consumption of canned fish products is beneficial for consumers. The national consumption of canned fish is at 250,000 cans per day (Perera, 2020). To meet such demand, the public and private sectors together commenced the local canned fish production where the factory was established in Galle in 2012. The production capacity was 10,000 cans per day. Then the second factory was established in Paliyagoda by the TESS group with a daily production capacity of 24,000 cans (Jayapala and Jayasiri 2018). Compared to the resource availability and the demand for canned fish products, the local production of canned fish is still at its infant stage. The strategic alignment of product characteristics with consumer preference will be insightful for local producers to grab the local market effectively. Therefore, the current study investigated to identify whether the socio-economic factors (family size, age, occupation, average monthly income) of consumers affect canned fish consumption and to determine the impact of product characteristics (price, quality and discounts) of canned fish products available at the local market. Knowing the factors affecting consumer consumption of a product have a competitive advantage to formulate the most appropriate marketing strategy and increase customer satisfaction for the products.

2. Materials and Methods

Bentota area was primarily selected as the study area where a total of 100 respondents were selected through the convenience sampling technique during the primary data collection. Convenience Sampling is a type of non-probability sampling technique that allows a researcher to select a sample of units from a population (Etikan 2016). The sample size is calculated using the formula $n = N / (1 + N(e)^2)$ provided by Yamane (1967:886) (n = sample size, N = Population, e = level of precision ($\pm 10\%$) (Israel 1992). A structured questionnaire was designed using a google form to collect the primary data for the study. The questionnaire was spread widely in social media such as Facebook, Twitter, online messenger services and WhatsApp.

The questionnaire included socio-economic factors such as age, gender, education, income, occupation, family size and the purchasing information of canned fish; purchase frequency and monthly consumption. By utilizing a 5-point Likert scale where; 1 = strongly disagree to 5 = strongly agree, consumers were asked to score the effect of price, quality, and discounts to know whether the product characteristics influence the consumption of canned fish products. The reliability test was used to determine the quality and usefulness of the test, while descriptive statistics, frequency analysis, and percentage analysis were used to understand the purchase and consumption behavior (Ibrahim, Abdul Fatah, and Saili 2020). Multiple

regression analysis was used to identify the significant factors that affected consumer consumption of canned fish products. Multiple regression was vastly used to determine the relationship between a dependent variable and an independent variable (Kraemer et al. 2003).

3. Results and Discussion

The descriptive test results explained that the respondent cohort was composed with 65 percent of female respondents and 35 percent were males. Among them, 57 percent were married and 43 percent were single. The 74 percent of respondents were mostly degree/ diploma holders. They belong to the government sector, private sector employees, students, unemployed and self-employed with 14, 18, 14, 7, and 47 percent respectively. Out of them, 40 percent of respondents frequently, 28 percent for special occasions, 24 percent rarely, and 8 percent very rarely have purchased canned mackerel fish products.

Table 01. Coefficient results of regression analysis

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-246.130	76.685		-3.210	0.002
Age	-000.460	00.781	-0.016	-0.589	0.557
Occupation	001.553	06.222	0.007	0.250	0.803
Family size	067.028	15.789	0.280	4.245	0.000
1 Average Monthly Income	000.004	.001	0.238	4.461	0.000
Price	-025.750	11.229	-0.063	-2.293	0.024
Quality	067.605	26.399	0.164	2.561	0.012
Discount	105.188	18.960	0.337	5.548	0.000

a. Dependent Variable: Monthly Consumption

According to the multiple linear regression results, the R square was reported at a value of 0.936 and can be accepted for the regression analysis with a statistical significance of $p < 0.05$. This indicated that independent variables (age, family size, average monthly income, occupation, discount, price, and quality) possessed an association with the dependent variable (monthly consumption). This link showed that each independent variable elaborated 93.6 percent of the variation, which occurred in monthly consumption. The Durbin-Watson statistical was 1.907 which means that the residuals are uncorrelated and the independence error assumption is satisfied.

Based on table 1, Age ($\beta = -0.460$, $p > 0.10$) and occupation ($\beta = 1.553$, $p > 0.10$) have not significantly influenced the consumer consumption of canned fish products. Family size ($\beta = 67.028$, $p < 0.01$), average monthly income ($\beta = 0.004$, $p < 0.01$) and the product characteristics such as price ($\beta = -25.750$, $p < 0.05$), quality ($\beta = 67.605$, $p < 0.05$) and discounts ($\beta = 105.188$, $p < 0.01$) have a significant influence on the canned fish consumption. These results tell that a one-point increase in family size (X1), average monthly income (X2), quality (X4) and discounts (X5) are expected to increase in monthly consumption of 67.028, 0.004, 67.605, and 105.188 respectively. Price (X3) has a significantly negative impact as expected. Hence each unit increase in price is expected to decrease by 25.750 units in monthly consumption.

$$\hat{Y} = -246.130 + (67.028) X_1 + (.004) X_2 + (-25.750) X_3 + (67.605) X_4 + (105.188) X_5 + \epsilon$$

\hat{Y} = Monthly Consumption (Dependent variable)

X₁= Family size

X₂= Average monthly income

X₃= Price

X₄= Quality

X₅= Discounts

ε = Error term

Results associated with socio-economic factors indicated that the characteristics of the family and monthly income strongly influence the monthly household canned fish consumption. The statistical results of product characteristics showed that consumers place high concerns on price, quality and discounts of canned fish products. This result indicated that product quality is an essential factor in canned fish consumption. Consumers are likely to choose high-quality products as they are rich in terms of taste and nutritional aspects (Goyal and Singh 2007). Besides that, the price also significantly influences the monthly canned fish consumption plus the available discounts. Consumers were normally attracted to canned fish with a worth value. Discount is a significant factor that attracts more consumers. Increased consumption is boosted by higher discounts with lower prices and high-quality canned fish products.

4. Conclusions

It is important to get an idea about socio-economic factors and product characters that affect consumer consumption of canned fish. The producers' hands-on information about socio-economic factors that support market segmentation is important for any business. According to the findings consistent good quality, affordable price, and promotional activities such as discounts of products are major factors to get a competitive advantage from canned fish production. The findings of the current study provide the insights to increase sales and increase the market share hold by local canned fish production, which is a crucial factor in reducing the import of canned fish products to some extent.

5. References

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