



ANALYSIS OF CONSUMER'S PREFERENCES IN CHOOSING MACKAREL TUNA ATTRIBUTES (CASE STUDY IN ATAS TRADITIONAL MARKET OF THE CIMAHI CITY)

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ABSTRACT

This study aims to analyze the attributes most consumers consider in choosing mackarel tuna products in Atas Traditional Market Cimahi City. The method used in this research is the case study method using descriptive analysis. Data were collected by direct interview technique with respondents in Atas Traditional Market using a questionnaire. The attributes observed were packaging color, packaging type, product color, flavour, and price. The questionnaire were used to validity test and reliability test. Respondent characteristics and consumer behavior were analyzed descriptively, while the attributes in mackarel tuna products that were studied by consumers were analyzed by Rating Scale and Chi Square. The results indicated that the most preferred attribute mackarel tuna products was price and choice of attributes of mackarel tuna products is the packaging color which green one, the type of packaging was leaves, the color of product was natural, spicy, and the price scale was between Rp. 15.000 - Rp. 20.000.

Keywords : Attributes, Consumers, Preferences, Mackarel tuna Products.

Introduction

Fishery business activities included in the development of fisheries and its relation to consumers is very close. Consumer behavior is decision that has been taken using available resources, such as time, money, and effort, in exchange for goods to buy. Simply consumer behavior is about decision to buy, decide, how, when, and how often the frequent of buying. Consumer behavior can also be defined as the process that has been through by a person who is finding out, searching, buying, using, evaluating, and doing action after product consumption (Wijayanti 2011).

Cimahi City has a less ideal fish consumption level, it is only 13 kg per capita / year (BPS 2018). Expected level of consumption is 48 kg per capita/year. The level of fish consumption that is not ideal is caused by the high price of fish and Cimahi City is also far from the area of fishery production sources. The level of consumption that is not ideal does not mean that people cannot consume fish because the local fish are abundant, the Cimahi City government has conducted a socialization about Gemarikan (liking of eating fish) in order to increase the value of fish consumption in Cimahi City.

Cimahi City has 12 traditional markets that spread across each district. Atas Traditional Market is one of the traditional markets located in the center of Cimahi City, precisely in Cimahi Tengah District. Processed fishery products in the atas traditional market has their own variation, for example a variety of fresh fish and fish that have been processed. This process is divided into two, modern processing and traditional processing.

Product is everything that is offered by producers to consumers to meet consumer needs and is able to provide satisfaction for its users. Preferences indicate consumer's interest for a variety of available product choices (Tjiptono 2009). The concept of preference is relevant with the concept of goods that are more in demand and more giving greater satisfaction than goods that are less in demand. Consumer preferences are very important to be analyzed, because it can be a guide in determining the characteristics of processed fish

products in terms of packaging, types of processed fish and prices.

Mackarel tuna is a fish product that uses preservation techniques by boiling or cooking fish that aims to reduce the water content to a certain extent (Pandit 2004). Basic ingredients commonly used are fresh sea fish. Freshly caught fish will not always be sold out in a day and fish that are not sold rotten if they are stored without preservation to overcome this preservation so that they can be marketed (Priyono and Raharjo 2003).

The development of mackarel tuna products can be done by finding out the preferences or preferences of consumers of mackarel tuna products. Consumer preferences are very important to be done to help producers design the right marketing strategy to win the competition against brands on the market. Consumer preferences alone can help producers to see whether the attributes offered on products already meet consumer expectations or not. Manufacturers can also make products by looking at the choice of attributes preferred by consumers or maintaining the attributes of consumer choices.

RESEARCH METODOLOGY

The research was conducted during May-July 2019 in Atas Traditional Market Cimahi City. The method used is the case study method. Types and sources of data are primary data and secondary data. Primary data was obtained from interviews with respondents as consumers who buy mackarel tuna products in the Atas Traditional Market of Cimahi City. Secondary data to support this research is a source of data was obtained from the reports of the results of an institution research, library materials, government institution, and the Central Bureau of Statistics.

The sampling technique that is used in this study was accidental sampling. Respondents were used in this study numbered 100 people as consumers of processed fish products in Atas Traditional Market Cimahi City. The product samples that will be used is mackarel tuna.

DATA ANALYSIS

Data analysis method that is used is descriptive analysis. Descriptive analysis is a statistical analysis that is used to describe or analyze research results, but is not used to make deep conclusions. The technique that is used to analyze consumer preferences uses a Likert scale and attributes which the most consumers consider in choosing mackarel tuna attributes are by Chi Square method.

Validity Analysis

Validity test states that the instrument used to obtain the data in research can be used or not. The validity test of the instrument in this study was conducted to find out whether the measuring instrument that had been designed in the form of a questionnaire really could carry out its function. Validity test is used with a statistical approach, namely through the correlation coefficient of the score of statement items with the total score of statement items, if the correlation coefficient is greater or equal to 0.30 then the statement is declared valid.

Reliability Analysis

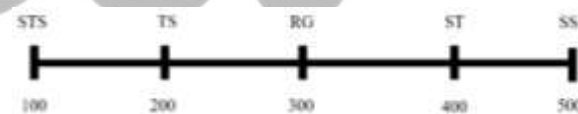
The reliability test according to Sugiyono (2010) was carried out to find out how far the measurement results remained consistent if measurements were made twice or more for the same symptoms using the same measuring device. The reliability of each instrument used by the author uses the Cronbach alpha coefficient (α) using the Statistical Product and Service Solution (SPSS) version 20 for the type of interval measurement. An instrument is stated to be reliable if the Cronbach alpha value is greater than the specified limit of 0.6 or the calculated correlation value is greater than the value in the table and can be used for research.

Analysis of consumer preferences

The method that is used in analyzing consumer preferences is a Likert Scale. The scale can be used as a research data collection tool. Likert scale is used to measure the attitudes, opinions and perceptions of a person or group of people about social phenomena.

Attitude scale is a type of scale used to measure a person's attitude towards a particular object. The results are in the form of attitudes, namely: support (positive), reject (negative), and neutral. The answers to each instrument item that uses a Likert scale have gradations from very positive to very negative, in the form of words. Examples of likert scales used to measure consumer behavior use five assessment points, namely Strongly Agree Answer given a score of 5, Agree Answer are given a score of 4, Doubtful Answer are given a score of 3, Answer Disagree are given a score of 2, Very Disagree Answer are given a score of 1.

The data above uses a questionnaire data collection technique, for example the instrument is given to respondents with a certain amount, then an analysis will be conducted by grouping based on the attitude assessment score. Based on these data the number of people who agree and strongly agree is calculated. Then, these results will show the answers most frequently answered by respondents. The interval data can also be analyzed by calculating the average answer based on the score of each answer from the respondent (pict 1). The ideal score (criteria) for all items 5 is multiplied by the number of respondents.



Pict 1. Likert Scale

Analysis of The Attributes of Mackarel Tuna Products

Analysis of the attributes of mackarel tuna products are using the Chi Square test. According to Sugiyono (2014) Chi Square Test (X^2) one sample is a statistical technique used to test hypotheses if the population consists of two or more classes in which the data are nominal and the sample is large.

$$X^2 = \sum_{i=1}^k \left(\frac{fo - fh}{fh} \right)^2$$

Notes :

χ^2 : Chi Square

fo : Frequency observed in research
fh : Frequency expected in research
k : Category attributes in the variable mackarel tuna in the Atas Traditional Market.

Where:

$$fh = \frac{n}{k}$$

Notes:

n : Number of respondents (people)
k : Category attributes in the variable mackarel tuna in the Atas Traditional Market.
Ho : There are no differences in consumer preferences for the attributes of mackarel tuna.
Ha : There are differences in consumer preferences for the attributes that exist in mackarel tuna.

Testing at 95% confidence level with testing criteria:

Ho is rejected if χ^2 count $>$ χ^2 table

Ho is accepted if χ^2 count \leq χ^2 table

RESULT AND DISCUSSION

Consumers in this study are consumers who buy fish products in the Atas Traditional Market of Cimahi City. The questionnaires are distributed to 100 respondents included general characteristics of consumers, such as gender, age, level of education, occupation, income, and number of family members.

Gender

Characteristics of consumers by gender are divided into two groups, male and female. Characteristics of consumers by gender are presented in Table 1.

Table 1. Consumer Characteristics by Gender

No	Gender	The amount of people	Percentage (%)
1	Male	34	34
2	Female	66	66
	Total	100	100

The results showed that most consumers of processed fish products were 66 women with a

percentage of 66% and 34 male consumers with a percentage of 34%. This can happen because women have the responsibility to set out the meal needs in the household.

Ages

The age group in this study was divided into four classes with a difference of 10 years. The age group of consumers who buy fish processed products in the Atas Traditional Market of Cimahi City is 17-26, 27-36, 37-46, > 47 (Table 2).

Table 2. Consumer Characteristics by Ages

No	Ages	The amount of people	Percentage (%)
1	17-26	20	20
2	27-36	48	48
3	37-46	29	29
4	>47	3	3
	Total	100	100

Based on the results of the study, the age of the youngest consumers are ranging from 17-26 years which is equal to 20%. The age group 27-36 years by 48%, the 37-46 year age group is the most dominant age group being consumers in choosing processed fish products. The age group 45-59 years by 29% and the age of respondents over 47 years by 3%. The age of respondents over 60 years is less in consuming food because at this age someone is more careful in choosing food (Hermanianto and Andayani 2002).

Education Level

The education level of the respondent will influence the decision process and consumption patterns of a person. A person's education level will also affect the way of thinking and even perception of a problem (Sumarwan 2009). The level of education in this study was divided into 6 namely elementary, junior high, high school, One-year Diploma, Third-year Diploma, The characteristics of consumers based on their level of education can be seen in table 3.

Table 3. Consumer Characteristics by Education

No	Education Level	Level The amount of people	Percentage (%)
1	Elementary School	3	3
2	Junior High School	7	7
3	Senior High School	47	47
4	One-year Diploma	17	17
5	Third-year Diploma	12	12
6	Undergraduate Degree	14	14
	Total	100	100

Based on table 3, it shows that most respondents who come from high school background are 47 people with a percentage of 47%, One-year Diploma background are 17 people with a percentage of 17%, Undergraduate Degree background are 15 people with a percentage of 15%, Third-year Diploma background of D3 are 12 people with a percentage of 12%, a junior high school background of 6 people with a percentage of 6%, and the fewest respondents coming from an elementary school background are 3 people with a percentage of 3%.

Income Level

According to Sumardi (2009) Income is the total income of all family members who are contributed to meet the needs of family and the individuals. Consumer income of processed fish products is divided into 4 groups, and it can be seen in table 4.

Tabel 4. Consumer Characteristics by income level

No	Income	The amount of people	Percentage (%)
1	< 1.000.000	5	5
2	1.000.000- 2.000.000	14	14
3	2.000.000- 3.000.000	33	33
4	>4.000.000	48	48
	Total	100	100

Based on table 4, the percentage of Cimahi

City residents who have the highest income level is > Rp.4.000.000 as much as 48% or 48 people, Cimahi City residents who have an income level of Rp. 2,000,000 - Rp. 3,000,000 by 33% or 33 residents who have an income of Rp. 1,000,000-Rp. 2,000,000 of 14% or 14 people, and the last is Cimahi City residents who have the lowest income level of <Rp. 1,000,000 by 5% or 5 people.

Occupations

According to Engel (2010), consumer analysis considers employment as the best single indicator of social class. Work are done by consumers influences their lifestyle (Table 5).

Table 5. Consumer Characteristics by occupations

No	Occupations	The amount of people	Percentage (%)
1	Civil Servants	12	12
2	Private Employees	10	10
3	Entrepreneurs	23	23
4	Housewives	36	36
5	Students	16	16
6	Unemployed	3	3
	Total	100	100

Based on table 5, the percentage value of Cimahi city residents by type of work shows that housewives have the highest percentage of 36%, entrepreneurs 23%, students have a 16% percentage, civil servants and private employees have a percentage value of 12% and 10%, and the value the lowest percentage of unemployed population is 3%.

The Number of Family Members

The number of family members is an important factor in influencing consumers' decisions to buy processed fish products. Table 6 presents the characteristics of consumers based on the number of family members (Table 6).

Tabel 6. . Consumer Characteristics by The Number of Family Members

No	The Number of Family Members	The amount of people	Percentage (%)
1	The member 1-2	24	24
2	The member 3-4	68	68
3	The member 5-6	7	7
4	The member 8	1	1
	Total	100	100

Based on table 6, it shows that consumers of processed fish products in the City of Cimahi have a diverse number of family members, it can be seen that the highest percentage of families are having 3-4 members is 68 people, the percentage of families are having 1-2 members is 24% or 24 people, the percentage of family members is 5-6 people which is 7% or 7 people and the lowest percentage of family members is indicated by the number of family members 7-8 people which is 1% or 1 person.

Consumer Behaviour

Consumer behavior towards the purchase of processed fishery products is an action which is directly involved, looking for, getting, consuming, and spending processed fishery products. Respondents are taken into research material where consumer behavior is examined and analyzed to study by marketers of processed fish products because marketers are expected to understand respondents, how the respondent's flavours are, and how respondents make decisions to buy processed fish products. Studying consumer behavior is very important because understanding respondents will lead marketers to appropriate and efficient marketing policies.

Consumer's Frequency Who Consume Fish

Based on the results of research conducted on 100 respondents, there are 98 people consumed processed fishery products and 2 people did not consume because of allergies to fish-based products.

Frequency of Consuming Processed Fishery Products

Based on the results of this study, out of 100 respondents who consumed >4 times a month 44 people in a month. The second rank is 3 times a month as many as 38 people, the next rank is 2 times a month as many as 9 people and the last is once a month as many as 9 people. This shows that the purchasing power of the people in the Atas Traditional Market for processed fishery products is quite high.

The Usual Place to Buy Processed Fishery Products

Based on the results of this study, as many as 86 out of 100 respondents chose to buy processed fisheries for consumption in traditional markets, while as many as 5 respondents chose to shop at supermarkets, 8 respondents chose to buy processed fish products at street vendors, and 1 person chose to buy at a stall.

Consumer Preference

Consumer preference for processed fishery products is a choice of whether or not someone likes processed fishery products that are consumed. The choice varies between one respondent and another respondent (table 7).

Table 7. Calculation Results for Attitude Scale Measurement of Mackarel Tuna Attributes

No	Attributes of Mackarel tuna	Strongly Disagree (1-100)	Not Agree (101-200)	Doubtful (201-300)	Agree (301-400)	Strongly Agree (401-500)
1	The package colour				398	
2	The product colour					408
3	The kind of package				393	
4	Flavour					435
5	Price					443

Based on the calculation results of the measurement scale of attitudes towards the attributes of mackarel tuna products, the highest value are obtained by the price of processed fish product attributes is a score of 443, while the flavour attribute gets a total score of 435, the product color attribute gets a total score of 408, the color attribute of the pack gets a total score of 398, and the lowest total score obtained by the type of packaging is 393. The results of the calculation of the measurement of attitudes to the attributes of mackarel tuna products indicate that the price attribute is the attribute most considered by consumers to buy processed products of mackarel tuna products.

Test Validity and Reliability

The results of the validity and reliability tests of consumer preferences for mackarel tuna products (Table 8).

Table 8. Validity Test Results of Mackarel tuna

Preference	The Value of Validity
The package colour	0.730
The product colour	0.651
The kind of package	0.733

Flavour	0.481
Price	0.364

Based on table 8, the validity value of each of the mackarel tuna product attributes is declared valid because the validity value of each attribute is greater than 0.3. The results of this validity test are in accordance with Sugiyono's statement (2010) if the correlation coefficient is greater or equal to 0.30 then the statement is declared valid. Results of Mackarel tuna Reliability Test is on Table 9.

Table 9. Results of Mackarel tuna Reliability Test

Cronbach's Alpha	Items Total
0.804	5

According to Sugiyono (2010) a study is stated to be reliable if the Cronbach's Alphabet value is greater than 0.6 then the data can be said to be reliable. The results of the Cronbach's Alphabet value calculation are 0.804. Thus, data on consumer preferences for mackarel tuna products can be stated to be reliable. Chi Square Analysis Results Attributes that Are Considered by Consumers Toward Mackarel tuna is on Table 10.

Table 10. Chi Square Analysis Results Attributes that Are Considered by Consumers Toward Mackarel tuna

No	Mackarel tuna Product	fo	fh	fo-fh	(fo-fh) ²	X ²
1	The package colour	31	20	11	121	6.05
2	The product colour	21	20	1	1	0.05
3	The kind of package	14	20	-6	36	1.8
4	Flavour	27	20	7	47	2.45
5	Price	7	20	-13	169	8.45
	Total	100	100	0	-	18.8

Based on the calculation results, it show that the chi-square value is 18.8. Based on dk = 4 with an error of 5%, we can get the square value of the table which is 9.49. Each of the attributes of mackarel tuna processed products was significantly different with a significant level of 95% which means the null hypothesis (Ho) was rejected and the alternative hypothesis (Ha) was accepted because the calculated X² was greater than the X² table so that there were differences in consumer preferences for the

attributes found in mackarel tuna products by consumers in the Atas Traditional Market. Attributes that consumers consider in making a decision to buy mackarel tuna products at Cimahi City's Atas Traditional Market are the color of the green packaging, the type of packaging is the leaves, the color of the natural product, the spicy flavour, and the price of the tuna fish at Rp.15.000 - Rp.20.000. The results of the attribute analysis of the packaging colour of mackarel tuna are presented in table 11.

Table 11. Chi Square Analysis Results The Package Colour Mackarel Tuna Attribute

No	The Package Colour	fo	fh	(fo-fh)	(fo-fh) ²	X ²
1	Green	56	25	31	961	38.44
2	White	29	25	4	16	0.64
3	Black	12	25	-13	169	6.76
4	Other	3	25	-22	484	19.36
	Total	100	100	0	-	65.2

Based on the results of the chi-square calculation shown in table 11, shows that the value of the chi-square test is 65.2, dk = 3 with an error of 5%, then the square-value of table 7.81 can be obtained. The results of the chi square analysis of the package colour attributes of the mackarel tuna were significantly different with a significant level of 95% which means the null hypothesis (Ho) was rejected and the alternative hypothesis (Ha) was accepted because the calculated X² was greater than the X²

table so there were differences in preferences consumers of the choice of color of the package colour contained in mackarel tuna products by consumers in Atas Traditional Market Cimahi City. The color most sought after by consumers is Green, it can be proven that those who choose green packaging color are 56 people. The results of the attribute analysis of the kind of package of mackarel tuna are presented in table 12.

Table 12. Chi Square Analysis Results The Kind Of Package Mackarel Tuna Attribute

No	The Kind Of Package	fo	fh	(fo-fh)	(fo-fh) ²	X ²
1	Leaves	72	25	50	2500	100
2	Paper	18	25	-7	49	1.96
3	Plastic	10	25	-15	225	9
4	Other	0	25	-25	625	25
	Total	100	100	0	-	135.96

Based on the results of the chi-square calculation

shown in table 12, shows that the chi-square value

of 135.96, dk = 3 with an error of 5%, we can get the square-value of table 7.81. Chi-square value is greater than the chi-square table. The results of the chi square analysis of the attributes of the kind of packaging of mackarel tuna are significantly different with a significant level of 95% which means the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted because X^2 count is greater than X^2 tables so there are differences in

preferences consumers of the choice of packaging types found on mackarel fish products by consumers in Atas Traditional Market Cimahi City. The kind of packaging that is most in demand by consumers is the type of leaves packaging, it can be proven that those who choose the type of leaves packaging are 72 people. The results of the attribute analysis of the product colour of mackarel tuna are presented in table 13.

Table 13. Chi Square Analysis Results The Product Colour Mackarel Tuna Attribute

No	Product Colour	fo	fh	(fo-fh)	(fo-fh) ²	X ²
1	Natural	55	25	30	900	36
2	Neutral	20	25	-5	25	1
3	Bright	20	25	-5	25	1
4	Other	5	25	-20	400	16
	Total	100	100	0	-	54

Based on the results of the chi-square calculation discussed in table 13, shows the chi-square value of 54, dk = 3 with an error of 5%, then the square-value of 7.81 can be obtained. Chi-square value is greater than the chi-square table. The results of the chi square analysis of the product colour attributes of the mackarel tuna were significantly different with the 95% significant hypothesis null (Ho) rejected and the alternative hypothesis (Ha) rejected by X^2 , the count was greater than X^2 , the consumer table of the

product color choices offered on the product mackarel tuna by consumers in Atas Traditional Market of Cimahi City. The product colour that is most sought after by consumers is the color of natural products, it can be proven that those who choose natural color are 55 people. When choosing mackarel tuna to be consumed, consumers choose different in determining the flavour of mackarel tuna (Table 14).

Table 14. Chi Square Analysis Results The Flavour Mackarel Tuna Attribute

No	Flavour	Fo	fh	(fo-fh)	(fo-fh) ²	X ²
1	Spicy	37	25	12	144	5.76
2	Original	22	25	-3	9	0.36
3	Savory	25	25	0	0	0
4	Salty	16	25	-9	81	3.24
	Total	100	100	0	-	9.36

Based on the results of the chi-square calculation shown in table 14, shows that the value of the chi-square test is 9.36, dk = 3 with an error of 5%, we can get the square-value of table 7.81. Chi-square value is greater than the chi-square table. The results of chi square analysis on the flavour attributes of

mackarel tuna products were significantly different with a significant level of 95% which means the null hypothesis (Ho) was rejected and the alternative hypothesis (Ha) was accepted because the X^2 count was greater than the X^2 table so that there were differences in consumer preferences on the flavour

choices found in mackarel tuna products by consumers in Atas Traditional Market Cimahi City. The flavour that is most in demand by consumers is spicy, it can be proven that those who choose the spicy flavour are 37 people. Spicy is sold

on these mackarel tuna products is likely to be higher because the raw material in making mackarel tuna is also increasing. The explanation can be seen in Table 15.

Table 15. Chi Square Analysis Results The Price Mackarel Tuna Attribute

No	Price	Fo	fh	(fo-fh)	(fo-fh) ²	X ²
1	< Rp. 10.000	9	25	-16	256	10.24
2	Rp. 10.000 – Rp. 15.000	21	25	-4	16	0.64
3	Rp. 15.000 – Rp. 20.000	54	25	29	841	33.64
4	>Rp. 20.000	16	25	-9	1	3.24
	Total	100	100	0	-	47.76

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Based on the results of the chi-square calculation shown in table 15, shows that the chi-square value of 47.76, dk = 3 with an error of 5%, we can get the square value of table 7.81. Chi-square value is greater than the chi-square table. The results of the chi square analysis of the price attributes of mackarel tuna were significantly different with a significant level of 95% which means the null hypothesis (Ho) was rejected and the alternative hypothesis (Ha) was accepted because the X^2 count was greater than the X^2 table so that there were differences in consumer preferences to the prices contained on mackarel tuna products boiled by consumers in Atas Traditional Market Cimahi City. The price most preferred by consumers is the price

range of Rp. 15,000 - Rp. 20,000, it can be proven that those who choose the price of Rp. 15,000 - Rp. 20,000 is 54 people.

CONCLUSIONS

The attributes of mackarel tuna products which become the consumer's preference are price. The attributes of mackarel tuna products considered by consumers in making a decision to buy mackarel tuna products at Atas Traditional Market Cimahi City are the color of the green packaging, the kind of packaging is the leaves, the product colour is natural, spicy, and the price of mackarel tuna is Rp. 15,000 - Rp. 20,000.

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