



# A Consumer Preferences in Culinary Tourism Fresh Tuna Fish Chest and Jaw Bones Case Study in Manado City, North Sulawesi Province

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Received: 20 Aug 2023; Received in revised form: 20 Sep 2023; Accepted: 03 Oct 2023; Available online: 14 Oct 2023

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**Abstract**— *The fishery products produced are not necessarily only for export purposes but are intended for national consumption. This research aims to analyze consumer preferences for processed fresh tuna products, namely the breast and jaw portions of tuna and identify consumer attitudes towards their choice of processed fresh tuna. The data in this research are primary data and secondary data. The sampling technique is based on purposive sampling and accidental sampling. Quantitative descriptive data analysis was carried out to analyze consumer attitude preferences. Based on the results of data processing between the menu attributes of tuna jaws and breasts, it turns out that consumers prefer tuna jaws compared to tuna breasts, the reason most likely lies in the sensation they get when eating tuna jaws. Even if asked about taste, both are equally tasty. The results obtained in this research show consumer preferences for tuna jaw and breast products on the food menu. Respondents preferred the processed Tuna Jaw menu where a utility (positive) value was obtained of 0.470 compared to the Tuna Breast menu with a utility (negative) of -0.470. In food variants, respondents preferred processed Burn Rica where the utility value was obtained at 3,690 compared to Woku at -0.642 and gravy at only -3,048. In the food price variable, respondents prefer food at a price of 50 thousand, where the utility value is 0.873 compared to the price of 45 thousand, the utility is 0.617, whereas at the price of 40 thousand it is only -0.995, and at the price of 60 thousand the utility value is -0.495, both of which are negative. The conclusion of this research is that consumer preferences for processed fresh tuna jaw and tuna breast fish products show that consumers prefer the processed Jaw Tuna menu where a utility value (positive) is obtained of 0.470 compared to the Tuna Breast menu with a utility (negative) of -0.470.*

**Keywords**— *Preferences, consumers, culinary tourism, tuna fish*

## I. INTRODUCTION

Manado City is an area of North Sulawesi Province, which consists of 11 sub-districts and 87 sub-districts, located on the main mainland of the island of Sulawesi and has one sub-district in the form of an archipelago. Has an area of 157.26 km<sup>2</sup>, to the north it borders North Minahasa Regency; to the east it borders North Minahasa Regency and Minahasa Regency; to the south it borders Minahasa Regency and to the west it borders the Sulawesi Sea (BPS Manado City, 2022).

Based on 2021 KKP statistics, it is recorded that fish consumption in North Sulawesi Province from 2017 to 2019 has increased, where fish consumption in 2017 was 60.24, in 2018 it rose to 62.63 and in 2019 it became 66.75. , in 2020 it was 66.82 and in 2021 it increased to 67.28 kg/capita/year (KKP, 2021). The development of culinary centers in an area is closely related to the increase in tourism in that area. Culinary centers cannot be separated from the variety of food menus they sell. Fishery products are known to be so complete that they provide

their own color as an attraction for tourists, whether they come from fishing production or cultivation production, both from freshwater and seawater fish.

Restaurants or small snack stalls offering "tuna jaw" and "tuna breast" products have brightened the culinary business trend in Manado City since the 2000s until now. According to unwritten information, this product was initially only used as a raw material for fish meal because the two parts of tuna apart from the bones and head were discarded/set aside not for export products. It started with a small kiosk that specifically sold menus/products and then expanded to a large restaurant that provided various types of food and processed foods.

Consumer preference is defined as a person's choice of liking or disliking a product or service being consumed (Enrida et al., 2016). According to Zikhri (2016), consumer preferences show consumers' preferences for several product choices available.

Research conducted by Triyana A (2010) states that preferences are formed in consumers based on the attributes of price, size and freshness. This turns out to be very dependent on the efficiency of a distribution channel that produces catches.

According to Gazali (2016) who researched consumer preferences for marine products, it shows that the attributes that have a real influence on consumer attitudes in choosing fish products are product quality and diversity. Price as an attribute can be interpreted as meaning that price is a diversity concept that has different meanings for consumers depending on consumer characteristics, situations and products.

Considering that fishery commodities have unique characteristics, namely perishable, non-uniform, seasonal, producer areas are generally on the coast and have larger and cooler spaces for storage, marketing of fishery products in general has the potential to be inefficient (Abidin, 2015) Therefore, it is very important to pay attention to the correct distribution pattern, which according to Kotler, P. & Keller, K.L. (2012), distribution is a process of delivering finished goods from producers to consumers when needed. A distribution pattern that is still standard but right on target is formed in the marketing distribution of large pelagic fish including tuna in Bitung City to the surrounding areas (Longdong, et al 2021)

## II. RESEARCH METHODS

### Data Collection Method

The data in this research are primary data and secondary data. Primary data was obtained through interviews with a questionnaire guide which was distributed to 40 consumers

who were at the restaurant they met. A total of 10 restaurants were determined as samples from  $\pm 100$  restaurants spread across the city of Manado. Meanwhile, secondary data as supporting data was obtained through Manado City government agencies. The method used was a survey by visiting restaurants that specifically provide menus with tuna jaw and breast products.

### Data collection technique

The sampling technique is based on purposive sampling and accidental sampling. The sample is consumers and the variables used are menu, price and cooking variants as independent variables and purchasing decisions are the dependent variable. This research carried out a multivariate analysis, so in sampling, 40 respondents were sampled at 10 restaurants that specifically served jaw menus and tuna data. There are 16 combinations, each respondent fills in a ranking according to their interest in the variants, menus and prices. The highest choice was 16 and the lowest was 1. The purposive sampling method was applied to determine the restaurant, while the accidental sampling method was used to determine respondents, namely consumers found at the restaurant.

### Data Analysis

Qualitative descriptive data analysis was carried out simultaneously with data collection, data interpretation and writing narrative reports. Quantitative descriptive data analysis was carried out to analyze consumer attitude preferences. This research uses non-metric data using Conjoint Analysis with the SPSS program.

## III. RESULTS AND DISCUSSION

### 2.4 Research Results

There are 300 tuna restaurants in the city of Manado (BPS Manado, 2022) and approximately 50 restaurants serve tuna jaw and breast variants and menus. A number of these restaurants are located along the coast of boulevard 1 and boulevard 2, Singkil sub-district and Authority sub-district and there are several located in Tikala sub-district.

The city of Manado has long been known as a culinary tourism destination specifically for sea fish. For almost  $\pm 25$  years, the city of Manado has been characterized by the culinary business, this is of course greatly supported by the availability of sufficient raw materials. This is proven by the large number of tourist visits and national activities which make the city of Manado a place for activities for both government and private agencies. One strong reason is the availability of various restaurants that serve seafood menus, both demersal and pelagic fish. This fish is offered in fresh frozen form, which is then processed with various menus typical of the city of Manado. BPS Manado 2022,

recorded that there are 604 restaurants in the city of Manado. This number is the highest number since 2015 (BPS Manado, 2017)<sup>20</sup> which then decreased drastically due to the Covid-19 pandemic. However, now it is starting to grow again with the emergence of restaurants that serve the same menu and variants.

The availability of raw materials for tuna jaws and breasts is obtained from processing factories in the city of Bitung. The distribution of raw materials follows the distribution pattern that applies to the distribution of pelagic fish in Bitung City, the involvement of intermediary traders is as a supplier of raw materials to restaurants in Manado City (Longdong, et al. 2021). A total of 7 restaurants out of 10 samples obtained raw materials from intermediary traders, the remaining 3 restaurants obtained them from retailers in traditional markets.

Based on the results of data processing using the IBM SPSS software menu, between the menu attributes of tuna jaws and breasts, it turns out that consumers prefer tuna jaws compared to tuna breasts, the reason most likely lies in the sensation they get when eating tuna jaws. Even if asked about taste, both are equally tasty. The following are the results of an analysis of consumer choices regarding the menu, variants and prices offered.

### Conjoint Analysis

At this stage, you choose the most preferred scenario (hypothesis). This scenario describes all possible configurations of reasons for choosing the attributes of processed fresh tuna. The number of scenarios is influenced by the number of variables/factors and variable levels (attributes). There are 3 variables and each variable/factor has 2, 3 and 4 attributes (menu, variant and price) so that we can create 3 scenarios of reasons that are different from one another (by multiplying the number of attributes by each variable/ factors to obtain  $2 \times 3 \times 4 = 24$  scenarios). The scenario results were 24 combinations of attributes, so respondents of course had difficulty evaluating the many reasons for choosing their attributes. The solution is to utilize orthogonal design techniques. This design functions to reduce the number of attribute combinations to a number that is easier to control, namely 16 attribute combination designs.

In the orthogonal design results table, 16 preference scenarios for selecting the attributes of processed fresh tuna are obtained as follows:

- 1) Card 1: Tuna Jaw Menu, Soup Variant, Price 50 thousand.
- 2) Card 2: Tuna Jaw Menu, Grilled Rica, Price 60 thousand.
- 3) Card 3: Tuna Breast, Sauce Variant, Price 45 thousand.
- 4) Card 4: Tuna Jaw Menu, Grilled Rica, Price 45 thousand.
- 5) Card 5: Tuna Jaw Menu, Grilled Rica, Price 40 thousand
- 6) Card 6: Tuna Breast, Sauce Variant, Price 60 thousand.
- 7) Card 7: Tuna Jaw Menu, Grilled Rica, Price 50 thousand
- 8) Card 8: Tuna Jaw Menu, Woku Variant, Price 60 thousand
- 9) Card 9: Tuna Breast, Woku Variant, Price 40 thousand.
- 10) Card 10: Tuna Jaw Menu, Soup Variant, Price 40 thousand.
- 11) Card 11: Tuna Breast, Grilled Rica, Price 45 thousand.
- 12) Card 12: Tuna Breast, Woku Variant, Price 50 thousand.
- 13) Card 13: Tuna Breast, Grilled Rica, Price 50 thousand.
- 14) Card 14: Tuna Breast, Grilled Rica, Price 60 thousand.
- 15) Card 15: Tuna Jaw Menu, Woku Variant, Price 45 thousand.
- 16) Card 16: Tuna Breast, Grilled Rica, Price 40 thousand.

The next stage is to present a hypothetical scenario that has been selected by 40 respondents. Scenario preferences in the questionnaire are expressed using discrete choices. The use of discrete models is done because it is closer to realistic decision making. The results of the importance values for each respondent are presented in the table below.

*Table.1 Importance value for each respondent*

Respondent	Importance Value		Respondent	Importance Value	
Respondent 1	Variant	64,706	Respondent 21	Variant	75,281
Respondent 2	Variant	61,905	Respondent 22	Variant	62,295
Respondent 3	Variant	53,933	Respondent 23	Variant	71,875
Respondent 4	Variant	69,565	Respondent 24	Variant	85,185

Respondent 5	Variant	57,265	Respondent 25	Variant	46,667
Respondent 6	Variant	60,606	Respondent 26	Variant	54,237
Respondent 7	Variant	55,556	Respondent 27	Variant	80,000
Respondent 8	Variant	50,980	Respondent 28	Variant	58,000
Respondent 9	Variant	57,895	Respondent 29	Variant	60,345
Respondent 10	Variant	42,553	Respondent 30	Variant	47,059
Respondent 11	Variant	58,491	Respondent 31	Variant	51,456
Respondent 12	Variant	59,016	Respondent 32	Variant	56,122
Respondent 13	Variant	70,909	Respondent 33	Variant	50,575
Respondent 14	Variant	65,217	Respondent 34	Variant	52,941
Respondent 15	Variant	70,642	Respondent 35	Variant	61,404
Respondent 16	Variant	77,966	Respondent 36	Variant	70,909
Respondent 17	Variant	45,833	Respondent 37	Variant	68,293
Respondent 18	Variant	77,778	Respondent 38	Variant	63,107
Respondent 19	Variant	57,522	Respondent 39	Variant	47,059
Respondent 20	Variant	58,491	Respondent 40	Variant	55,556

Table 1 above shows that respondent 1 has a high preference for processed tuna fish variants compared to the Menu and Price variables. High preference is shown by the importance value of 64,706. Of the 40 respondents, 36 respondents preferred the processed tuna fish variant

variable, while 4 respondents had a high preference for the price of processed tuna fish.

The results of each respondent's preferences for the attributes of processed tuna fish menus can be seen from the complete utility estimate values presented in the table 2 below.

*Table. 2 Utility Attributes of each respondent*

Respondent	Menu	Utility Estimate	Variant	Utility Estimate	Price	Utility Estimate
Respondent 1	Tuna Jaws	,250	Burn Rica	3,167	50 ribu	1,750
Respondent 2	Tuna Jaws	,750	Burn Rica	4,500	45 ribu	1,000
Respondent 3	Tuna Jaws	1,250	Burn Rica	1,167	50 ribu	3,250
Respondent 4	Tuna breast	1,000	Burn Rica	4,333	50 ribu	,500
Respondent 5	Tuna breast	1,500	Burn Rica	4,500	60 ribu	1,250
Respondent 6	Tuna Jaws	,188	Burn Rica	4,583	60 ribu	1,688
Respondent 7	Tuna Jaws	1,125	Burn Rica	3,500	45 ribu	1,250
Respondent 8	Tuna Jaws	,500	Burn Rica	4,333	45 ribu	1,750
Respondent 9	Tuna breast	1,250	Burn Rica	4,667	50 ribu	1,500
Respondent 10	Tuna breast	1,250	Burn Rica	3,000	45 ribu	3,000
Respondent 11	Tuna Jaws	1,000	Burn Rica	4,667	45 ribu	2,250
Respondent 12	Tuna Jaws	,875	Burn Rica	5,333	60 ribu	2,250
Respondent 13	Tuna Jaws	1,000	Burn Rica	5,000	50 ribu	1,250
Respondent 14	Tuna Jaws	,625	Burn Rica	4,667	60 ribu	1,500

Respondent	Menu	Utility Estimate	Variant	Utility Estimate	Price	Utility Estimate
Respondent 15	Tuna Jaws	,875	Burn Rica	4,833	45 ribu	1,250
Respondent 16	Tuna breast	,125	Woku	5,583	40 ribu	1,500
Respondent 17	Tuna Jaws	,750	Woku	1,917	45 ribu	3,250
Respondent 18	Tuna Jaws	,500	Burn Rica	5,333	50 ribu	,500
Respondent 19	Tuna Jaws	,250	Burn Rica	3,833	50 ribu	3,250
Respondent 20	Tuna Jaws	1,625	Burn Rica	4,833	50 ribu	1,375
Respondent 21	Tuna Jaws	,750	Burn Rica	4,167	45 ribu	,750
Respondent 22	Tuna Jaws	,875	Broth	4,250	50 ribu	2,000
Respondent 23	Tuna Jaws	1,000	Woku	,125	50 ribu	2,625
Respondent 24	Tuna breast	,500	Burn Rica	3,500	45 ribu	,250
Respondent 25	Tuna Jaws	1,500	Burn Rica	3,333	45 ribu	2,250
Respondent 26	Tuna Jaws	,125	Woku	3,167	40 ribu	2,750
Respondent 27	Tuna Jaws	0,000	Burn Rica	5,333	60 ribu	1,500
Respondent 28	Tuna Jaws	,375	Burn Rica	4,333	60 ribu	1,500
Respondent 29	Tuna Jaws	1,250	Burn Rica	5,000	50 ribu	1,250
Respondent 30	Tuna Jaws	1,625	Burn Rica	4,000	50 ribu	1,500
Respondent 31	Tuna Jaws	1,125	Burn Rica	4,167	45 ribu	1,750
Respondent 32	Tuna Jaws	1,313	Burn Rica	3,250	45 ribu	,313
Respondent 33	Tuna Jaws	,062	Burn Rica	2,250	50 ribu	2,188
Respondent 34	Tuna Jaws	,625	Burn Rica	2,333	50 ribu	3,250
Respondent 35	Tuna Jaws	1,125	Burn Rica	5,000	50 ribu	1,250
Respondent 36	Tuna Jaws	1,000	Burn Rica	5,000	50 ribu	1,250
Respondent 37	Tuna Jaws	,125	Burn Rica	4,000	60 ribu	1,750
Respondent 38	Tuna Jaws	1,125	Burn Rica	2,833	50 ribu	1,000
Respondent 39	Tuna Jaws	1,625	Burn Rica	4,000	50 ribu	1,500
Respondent 40	Tuna Jaws	1,125	Burn Rica	4,167	45 ribu	2,000

Table 2 above shows that respondent 1 has a high preference for the Jaw Tuna menu, Grilled Rica Variant and Price 50 thousand. The utility value of respondent 1 for Menu Material is 0.250, Burn Rica 3.167 and Price of 50 thousand is 1.750. Likewise for Respondents 2 to 40 respondents can be seen in the table above.

The results of the importance values from the overall conjoint analysis are presented in full in the table below:

**Table 3. Importance Value**

Menu	13.360
Variant	57.953
Price	28.687

In table 3, the Important value above this value shows the respondent's level of importance in choosing variables/factors in the scenario of reasons for choosing variables on the fresh tuna processed menu. Of the 40 respondents who filled out the respondent preference questionnaire, all of them could be processed using conjoint analysis. Of the 3 variables/factors, namely processed menu, variant and price, respondents had the highest level of importance (have preferences) in the variable/factor. Variant obtained the highest value of 57,953 compared to Price obtained a value of 28,687 and Menu obtained a value of 13,360. This shows that the Variant attribute is an important factor that consumers consider when determining their food choices. The second

factor is price and the last is the menu. In graphic form, it can be seen in the importance value graph below:

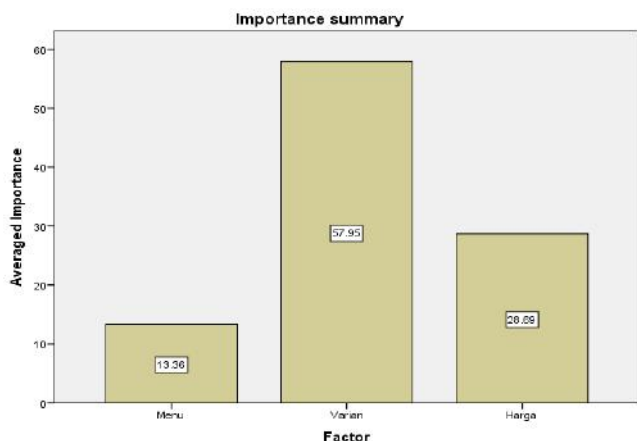


Fig.1. Graph. Importance value

After the respondent's preference for variables/factors is known, which one has the highest preference, the next step is to find out the respondent's preference at the attribute level. A negative utility estimate value indicates that the respondent does not like that attribute level. Meanwhile, positive indicates that the respondent likes that attribute/level. For more details, look at the utilities table for all respondents (overall) which is presented in the table below.

Table. 4 Attribute Utilities

		Utility Estimate	Std. Error
Menu	Tuna breast	-.470	.404
	Tuna Jaws	.470	.404
	Burn Rica	3.690	.539
Varian	Woku	-.642	.632
	Broth	-3.048	.632
	40 thousand	-.995	.700
Price	45 thousand	.617	.700
	50 thousand	.873	.700
	60 thousand	-.495	.700
(Constant)		7.592	.426

Conjoint analysis is a method used to determine consumer preferences for an item. In table 06. above are the results obtained in this research which show consumer preferences for tuna jaw and breast products as follows:

1) On the food menu, respondents prefer the processed Jaw Tuna menu where a utility (positive) value of 0.470 is

obtained compared to the Dada Tuna menu with a utility (negative) of -0.470.

2) In food variants, respondents preferred processed Burn Rica where the utility value was obtained at 3,690 compared to Woku at -0.642 and gravy at only -3,048.

3) In the food price variable, respondents prefer food at a price of 50 thousand, where the utility value is 0.873 compared to the price of 45 thousand, the utility is 0.617, whereas at the price of 40 thousand it is only -0.995, and at the price of 60 thousand the utility value is -0.495, both of which are negative value.

The relationship between respondents' preferences and the attributes of processed fresh tuna can be seen in the Pearson's R and Kendall Tau values. In the correlations table below, the Pearson's R value is 0.929 with a significance of 0.000 and the Kendall's tau value is 0.750 with a significance of 0.000 (less than 0.050). These results indicate that there is a significant relationship between respondents' preferences and the attributes of processed fresh tuna or simply that the multiple regression model used is appropriate for the data analyzed. More details can be seen in the table below.

Table. 7 Values of Person's R and Kendall's Tau

	Value	Sig.
Pearson's R	.929	.000
Kendall's tau	.750	.000

IV. CONCLUSION

1. Consumer preferences for processed fresh tuna jaw and tuna breast fish products show that consumers prefer the processed Jaw Tuna menu where a utility value (positive) is obtained of 0.470 compared to the Tuna Breast menu with a utility (negative) of -0.470.

2. Consumer preferences include food variants, consumers prefer the Burn Rica dish where the utility value is 3,690 compared to the Woku dish of -0.642 and the soup is only -3,048.

3. In the food price variable, consumers prefer food at a price of 50 thousand where a utility value of 0.873 is obtained compared to a price of 45 thousand utility of 0.617, whereas at a price of 40 thousand it is only -0.995, and at a price of 60 thousand the utility value is -0.495, both of which are negative value.

4. Consumer attitudes towards menu choices for processed tuna jaws and breasts are largely determined by the menu products, variants offered and applicable prices. This is shown by the Pearson's R and Kendall Tau values which show a Pearson's R value of 0.929 with a significance of

0.000 and a Kendall's Tau value of 0.750 with a significance of 0.000 (less than 0.050).

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