



## Analysis of consumer preferences for processed patin fish skin chips at the Pekanbaru Souvenir Center

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### Abstract

Patin fish skin chips are one of the processed fishery products that are developing in the city of Pekanbaru and are widely marketed in souvenir shops. This product has added value potential because it utilizes the by-products of patin fish processing. However, the diversity of product attributes offered, such as taste, price, package weight, and label completeness, requires producers to understand consumer preferences accurately. This study aims to analyze consumer preferences for processed patin skin chips and identify the attributes that consumers consider most important in their purchasing decisions at souvenir shops in Pekanbaru. The method used in this study is Discrete Choice Experiment (DCE) with a quantitative approach. The attributes analyzed included flavor (original, balado, BBQ), price (below IDR30,000 and above IDR30,000), package weight (50–100 grams and >100 grams), as well as label completeness (complete and incomplete). The data were analyzed using conjoint analysis to obtain utility values and attribute importance levels. The results showed that consumers preferred patin skin chips with balado flavor, priced below IDR30,000, weighing more than 100 grams, and with complete product labels. The attributes most considered by consumers in their purchasing decisions were flavor (38%), followed by weight (28%), label (22%), and price (12%). These findings are expected to serve as a basis for producers in developing patin skin chips products and marketing strategies that are in line with consumer preferences.

**Keywords:** Potato chips, consumer preferences, discrete choice experiment, product attributes, souvenir center

### Introduction

Pangasius sp is one of the leading freshwater fishery commodities in Riau Province, especially in Pekanbaru City (Yusuf *et al.*, 2023) <sup>[1]</sup>. The abundant availability of pangasius raw materials has encouraged the development of various fishery product processing businesses, both on a household scale and by MSMEs (Saputri *et al.*, 2025) <sup>[3]</sup>. Pangasius processing focuses not only on meat, but also on the utilization of by-products such as pangasius skin, which can be processed into value-added products, one of which is pangasius skin chips (Pangestika *et al.*, 2023) <sup>[2]</sup>. This product has a crunchy texture, savory taste, and relatively long shelf life, making it a potential souvenir product for the region. Along with the increase in tourism and community mobility, the development of souvenir centers in Pekanbaru City shows a positive trend. Souvenir centers such as Viera Oleh-Oleh Pekanbaru and Nadhira Napoleon Pekanbaru have become marketing outlets for various local MSME products, including patin fish skin chips. At these souvenir centers, patin skin chips are marketed with a variety of product attributes, such as flavor, price, package weight, and label completeness. This diversity of attributes provides consumers with many choices, but at the same time increases competition among producers. In practice, the determination of product attributes for patin skin chips is often still based on producer assumptions or market trends, rather than on scientifically measured consumer preference information. In fact, consumer purchasing decisions for snack products are greatly influenced by preferences for product attributes (Wardhana, 2024) <sup>[4]</sup>. Inaccurate understanding of consumer preferences can lead to products being less desirable even though they are made from high-quality raw materials. To date, information on the attributes of patin fish skin chips that are most considered by consumers at souvenir shops in Pekanbaru is still limited.

Based on these conditions, research is needed to comprehensively analyze consumer preferences for processed patin fish skin chips. This study aims to analyze consumer preferences and identify the product attributes that are most considered in the purchase decision of patin skin chips at the Pekanbaru souvenir center. The results of this study are expected to serve as a basis for consideration by producers and marketers in developing products and marketing strategies that are in line with consumer preferences.

### Research Methodology

#### Time and Place

This research was conducted from July to October 2025 at two souvenir shops in Pekanbaru City, namely Viera Oleh-Oleh Pekanbaru and Nadhira Napoleon Pekanbaru.

### Research Procedures

#### 1. Research Methods

This study uses the Discrete Choice Experiment (DCE) method with a quantitative approach. DCE is a method used to determine consumer preferences for a product. The DCE method is used to calculate trade-offs (a person's decision between two or more things by sacrificing one of them among several attributes and attribute levels offered (Suaedi, 2015) <sup>[5]</sup>).

#### 2. Determination of Respondents

The respondents in this study were consumers at souvenir shops in Pekanbaru, namely Viera Souvenir Shop Pekanbaru and Nadhira Napoleon Shop Pekanbaru. Respondents in this study were determined based on purposive sampling. The criteria for selecting respondents were souvenir shop visitors who had never purchased patin fish skin chips, visitors who were willing to be respondents

and fill out the research questionnaire. Given that the population size was not known with certainty, the sample size used in this study was determined using the formula for determining the minimum number of Discrete Choice Experiments (DCE). According to Johnson & Orme in Suaedi (2015) [5], to determine the minimum sample size in the Discrete Choice Experiment method, the following formula can be used:

$$n > \frac{500c}{t.a}$$

Explanation:

n = Number of samples

c = Most common attribute level

t = Number of stimuli

a = Number of alternatives.

In this study, the highest attribute level is 3, there are 8 stimuli, and there are 3 alternatives. Therefore, the sample size can be calculated as follows:

$$n > \frac{500(3)}{8.3}$$

$$n > \frac{1500}{24}$$

$$n > 63$$

Based on the calculations, the minimum sample size for this study is 63 people. In this study, the researcher distributed at least 63 questionnaires to visitors of the Viera souvenir shop in Pekanbaru and 63 questionnaires to visitors of the Nadhira Napoleon shop in Pekanbaru.

### Data Type

The types of data used in this study are divided into two parts, namely primary data and secondary data.

1. Primary data is data obtained directly from respondents, namely consumers or buyers of patin fish skin chips through interviews using a prepared questionnaire (Setyaningsih, 2009) [6].
2. Secondary data is data obtained by recording and quoting directly from government agencies or institutions related to the research. The secondary data in this study was obtained from previous studies similar to the one currently being conducted (Stanton, 1993) [7].

### Data Analysis

The data analysis for this study is as follows:

- a. Descriptive Analysis Descriptive analysis is used to describe the general characteristics of respondents based on data obtained from questionnaires. The characteristics of respondents analyzed include gender, age, education level, occupation, income, and region of origin. This analysis aims to provide an overview of the profile of consumers of patin fish skin chips at souvenir shops in Pekanbaru and to support the interpretation of the results of consumer preference analysis.
- b. Conjoint Analysis Conjoint analysis is used to analyze consumer preferences for the attributes of patin fish skin chips. This analysis produces the part-worth utility and importance value of each product attribute. The attributes analyzed in this study include taste, price, package weight, and label completeness. The conjoint analysis stage began with determining the attributes and

attribute levels based on the actual conditions of the patin skin chips marketed in souvenir shops in Pekanbaru.

The combination of attributes was compiled using a full profile approach and reduced using an orthogonal design to obtain a number of stimuli that could be evaluated by respondents. These stimuli were then presented in the form of a questionnaire, and respondents were asked to provide assessments using a Likert scale. Utility values were used to indicate the level of consumer preference for each attribute level. Positive utility values indicate that the attribute is liked by consumers, while negative utility values indicate that the attribute is less liked. Meanwhile, importance values are used to indicate the relative importance of each attribute in the purchase decision-making process. To measure the accuracy of the conjoint analysis model, a correlation test was conducted using Pearson's R and Kendall's Tau values. Significant correlation values indicate that the conjoint model has a good level of accuracy in predicting consumer preferences for patin fish skin chips.

## Results and Discussion

### Overview of Research Location

The city of Pekanbaru is the center of economic and trade activities in Riau Province, which is experiencing rapid development, particularly in the service and tourism sectors. This condition has encouraged the development of souvenir centers as a means of marketing local MSME products. Viera Oleh-Oleh Pekanbaru is one of the souvenir centers that markets a variety of regional food products, including processed fishery products. This shop is a marketing place for various local MSME products with a self-service concept that makes it easy for consumers to choose products. The patin fish skin chips marketed at Viera Oleh-Oleh Pekanbaru are available in various attributes, such as flavor, package weight, price, and label completeness. Nadhira Napoleon Pekanbaru is also a souvenir center that stocks various Riau-specific products, including patin fish skin chips. The patin fish skin chips sold at this store come from several local producers and have diverse product attributes. These attribute variations provide consumers with alternative options when deciding which products to purchase.

### Respondent Characteristics

There were 72 respondents in this study, all of whom were consumers at a souvenir shop in Pekanbaru City. This number of respondents met the minimum requirement for the Discrete Choice Experiment method, which is 63 respondents, so the data obtained was considered representative enough for analysis. The research respondents had diverse characteristics based on gender, age, education level, occupation, and income. This diversity in characteristics shows that consumers of patin fish skin chips come from various backgrounds with different needs and preferences. In general, the respondents were of productive age and had diverse educational backgrounds. These conditions influenced how consumers assessed and considered the attributes of patin fish skin chips before making a purchase, especially in relation to taste, package weight, label completeness, and price. The varying characteristics of the respondents' occupations and income also reflected differences in their purchasing objectives, both for personal consumption and as souvenir products.

This shows that patin fish skin chips have a fairly broad market segmentation. The varying occupational and income characteristics of respondents also reflect differences in purchasing purposes, whether for personal consumption or as souvenirs. This indicates that patin skin chips have a fairly broad market segmentation in Pekanbaru City's souvenir centers.

**Consumer Preferences for Processed Patin Skin Chips**

Consumer preferences can be seen from how consumers determine their choices based on product attributes. Consumer desires regarding the level of selected attributes are what is determined by utility values (Fuliyana & Maria, 2022). Therefore, if the numbers obtained are positive or greater, it can be seen from the attribute level values which attributes are most preferred by customers. The utility analysis results are presented in the following table:

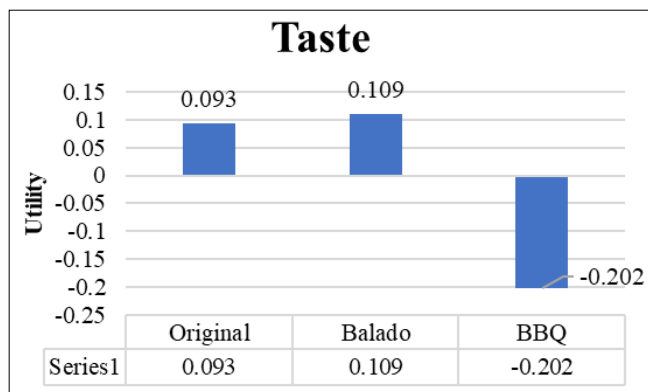
**Table 1:** Utility Values Based on Conjoint Analysis Results

Utilities			
		Utility Estimate	Std. Error
Flavor	Original	.093	.117
	Balado	.109	.137
	BBQ	-.202	.137
Price	Under IDR 30.000	.049	.088
	Over IDR 30.000	-.049	.088
Weight	50-100 grams	-.115	.088
	>100 grams	.115	.088
Label	Complete	.090	.088
	Incomplete	-.090	.088
(Constant)		3.587	.092

Based on the results of the conjoint analysis in Table 1, taste is the attribute most considered by consumers, followed by package weight, label completeness, and price. These results indicate that consumers prioritize product characteristics over price factors when deciding to purchase patin fish skin crackers at souvenir centers in Pekanbaru City.

**1. Taste**

Taste is an important attribute to consider in a food product. This is in line with the theory stated by Akantu *et al.* (2023), which states that taste is very important in food products when they have become a choice. For further clarification, the following image shows taste attributes:



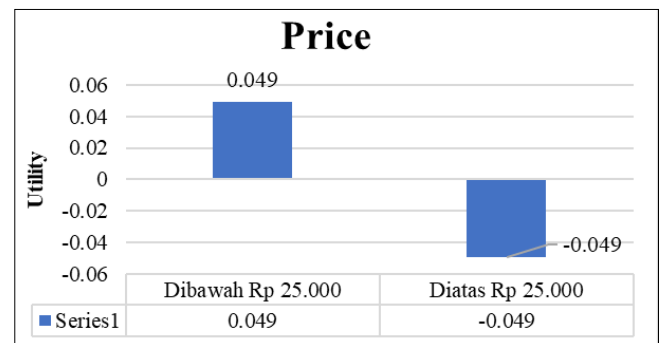
**Fig 1:** Taste Attribute Utility Diagram

Based on the analysis results, it is known that respondents prefer patin fish skin chips with balado flavor with a utility value of 0.109, the second choice is original flavor with a

utility of 0.093, and the one that is not chosen is BBQ flavor with a utility of -0.202. These results illustrate that consumers prefer strong, savory, and slightly spicy flavors such as balado. This study is in line with research on chip preferences in Indonesia, which shows a preference for the balado variant (Riszinin *et al.*, 2022) [8]. Therefore, developing patin skin chips with a balanced balado flavor that combines savory, spicy, and crispy elements can increase consumer appeal and loyalty to the product.

**2. Price**

Price is one of the main attributes that influence consumer purchasing decisions (Hasbi, 2019) [15]. Price in this study has two attribute levels, namely below IDR30,000 and above IDR30,000. For further clarification, the following is a picture of the price attribute:

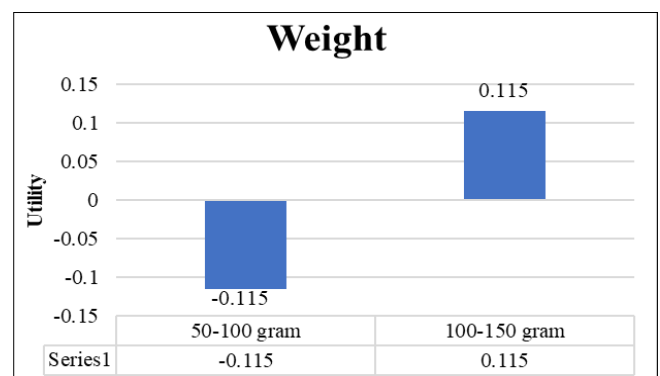


**Fig 2:** Price Attribute Utility Diagram

Based on the results of the study, it is known that respondents prefer patin fish skin chips priced below IDR30,000 with a utility value of 0.049, and products priced above IDR30,000 have a utility value of 0.049. These results illustrate that consumers tend to be price sensitive and consider affordability in their purchasing decisions. According to Tjiptono (2015) [11], consumers in the middle segment tend to choose products with prices that are considered "fair," i.e., prices that are not too high compared to similar products on the market. In this context, the price range below IDR30,000 is considered ideal because it is in line with the purchasing power of the majority of consumers in Pekanbaru, who are in the lower-middle income bracket.

**3. Weight**

Weight or package size is an important attribute that influences consumers' perceived value of a product (Tantri, 2025) [14]. For further clarification, the following image illustrates the attribute of weight:

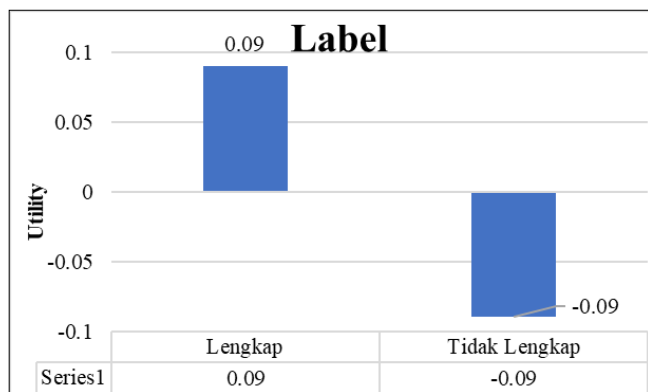


**Fig 3:** Weight Attribute Utility Diagram

Based on research, it is known that consumers prefer patin fish skin chips weighing more than 50-100 grams, with a utility value of 0.115, while products weighing 50-100 grams are less preferred, with a utility value of 0.115. This shows that consumers prefer larger products because they are considered more economical and provide greater value for money. Research by Kotler and Keller (2016) [12] explains that larger packaging sizes can increase consumer perceptions of efficiency and satisfaction, especially for snack foods that are consumed repeatedly or shared with others. In the context of souvenirs, packaging weighing 100–150 grams is also considered more appropriate because it is large enough to be shared and still easy to carry.

**4. Label**

Labels on packaging are an important source of information for buyers. For further clarification, the following image shows the attributes of a label:



**Fig 3:** Label Attribute Utility Diagram

**Table 2:** Importance Value of Patin Skin Chips

Importance Values	
Atribut	Importance values(%)
Taste	38
Price	12
Weight	28
Label	22
Averaged Importance Score	

The results of the study show that consumers prefer products with packaging that has complete labels with a utility value of 0.090. Products with incomplete labels are less preferred with a utility value of -0.090. These results indicate that the presence of complete labels on product packaging is an important indicator for consumers in assessing the safety, quality, and authenticity of products. Labels that include information such as ingredient composition, net weight, expiration date, distribution permit, and halal logo increase trust and positive perceptions of the product. Research by Sumarwan (2019) confirms that labels are an important element in purchasing decisions, as consumers view products with complete labels as more reliable and professional. Complete labels also increase competitiveness because they give the impression of higher legality and quality compared to similar products that do not have complete information.

**Ranking of Importance of Attributes Patin Fish Skin Chips**

The level of importance describes the scale of priorities considered by consumers when purchasing patin skin

products. The higher the importance value of an attribute, the more that attribute is a key preference in consumers' purchasing decisions. The importance values of patin skin chips attributes are presented in the following table:

Based on the results of the conjoint analysis, it was found that the taste attribute had the highest level of importance at 38%. This shows that taste is the main factor that most influences consumers' purchasing decisions regarding patin skin chips. The weight attribute ranked second with an importance value of 28%, indicating that the quantity of product received by consumers greatly influences perceived value. In the context of patin skin chips, a package size of 100–150 grams is considered ideal because it provides a balance between the amount of product and the price paid. Furthermore, the label attribute has a level of importance of 22%. This finding shows that the information listed on the packaging plays an important role in increasing trust and the perception of product safety. A complete label, including nutritional information, distribution permits, and halal logos, is a sign that the product has met food safety standards. The final attribute considered is price, with a level of importance of 12%. This low value indicates that price is not a dominant factor in determining the purchase decision for patin skin chips. This can be interpreted as consumers prioritizing quality, taste, and product information over price alone.

**Accuracy Level of Conjoint Analysis Model Predictions**

To determine the accuracy level of the conjoint analysis model predictions, Pearson's R and Kendall's Tau correlation values can be used. The results of the Pearson's R and Kendall's Tau correlation tests are presented in the following table:

**Table 3:** Results of Pearson's R and Kendall's Tau correlation tests

Correlations <sup>a</sup>		
	Value	Sig.
Pearson's R	.852	.004
Kendall's tau	.643	.013

a. Correlations between observed and estimated preferences

Based on the results of the conjoint analysis, Pearson's R value was 0.852 with a significance level of 0.004, and Kendall's Tau value was 0.643 with a significance level of 0.013. A significance level of less than 0.05 indicates that the relationship between the observed preferences and the preferences predicted by the model is significantly different from zero, so that the conjoint model used has a good level of accuracy and reliable results. Thus, the combination of Pearson's R and Kendall's Tau values in this study proves that the conjoint model used is able to predict consumer preferences for the attributes of patin fish skin chips accurately and consistently.

**Conclusion**

Based on the results of the research that has been conducted, the following conclusions can be drawn:

1. Consumer preferences for patin fish skin chips show that consumers prefer products with a balado flavor, priced below IDR30,000, weighing 100–150 grams, and with complete packaging labels.
2. The attributes most considered by consumers are flavor (38%), followed by weight (28%), label (22%), and price (12%).

## Recommendations

The following are some recommendations:

1. For producers of patin skin chips, it is recommended to focus more on developing products with the balado flavor that is most preferred by consumers, as well as maintaining the 100–150 gram package size with complete and attractive information labels. In addition, producers need to maintain consistency in the taste and crispiness of their products so that consumer trust and loyalty can continue to increase.
2. For future researchers, it is recommended to expand the research scope by involving more souvenir shops and a wider research area, as well as adding other variables such as packaging, brand, or promotional strategies so that research results on consumer preferences for processed fishery products can be more comprehensive and applicable for the development of local industries.

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