

## ANALYSIS OF CONSUMER PERCEPTIONS IN POSITIONING FROZEN FOOD PRODUCTS IN PEKANBARU CITY

Nurul Fadilah<sup>1</sup>, Jushermi<sup>2</sup>, T. Firli Musfar<sup>2</sup>

<sup>1</sup>Student, Economic and Business, Riau University, Pekanbaru, 28293, Indonesia

<sup>2</sup>Lecturer, Economic and Business, Riau University, Pekanbaru, 28293, Indonesia

<sup>1</sup>[nurul.fadilah2939@student.unri.ac.id](mailto:nurul.fadilah2939@student.unri.ac.id), <sup>2</sup>[jushermi@gmail.com](mailto:jushermi@gmail.com), <sup>3</sup>[firlibra@yahoo.com](mailto:firlibra@yahoo.com)

### Abstract

The frozen food market in Pekanbaru, Indonesia, has experienced notable growth, particularly in the wake of the Covid-19 pandemic, influenced by shifts in consumer lifestyles and a growing preference for convenience. This study employs Multi-Dimensional Scaling (MDS) techniques to analyze consumer perceptions of frozen food products, effectively mapping preferences and expectations. The MDS outcomes illustrate that the x-axis indicates consumer preference for frozen foods, with proximity to the origin denoting higher preference levels, while the y-axis represents consumer expectations. Findings reveal a strong consumer demand for broader access to frozen food, highlighting packaging as a critical area for improvement. Additionally, perceptions indicate that frozen foods are often regarded as inferior to fresh alternatives, attributed to concerns surrounding preservatives and health. The analysis identifies sausages, meatballs, and French fries as preferred products, in contrast to nuggets, which received lower consumer favor. These insights underscore the significance of accessibility, packaging, and product presentation in enhancing consumer engagement and satisfaction within the frozen food sector.

**Keywords** Frozen food, consumer perception, Multi-Dimensional Scaling, marketing strategy, Pekanbaru.

### Article History

Received: Oktober 2024

Reviewed: Oktober 2024

Published: Oktober 2024

Plagiarism Checker No 234

Prefix DOI : Prefix DOI :

10.8734/Musytari.v1i2.365

Copyright : Author

Publish by : Musytari



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)

## BACKGROUND

The Indonesian population has experienced a notable shift in lifestyle and food consumption patterns, transitioning from fresh ingredients to ready-to-eat and frozen food products. This trend has intensified since the Covid-19 pandemic, as frozen foods have emerged as a convenient alternative for households to satisfy their dietary needs. Over time, the variety of frozen food products has expanded, offering consumers an extensive selection. According to (Santoso, 2018), frozen food is characterized as long-lasting and easily prepared, highlighting its potential market viability in Indonesia. The demand for convenient food options while traveling further drives consumer preferences towards easy-to-cook items, including frozen foods and instant noodles (Kyntani *et al.*, 2022).

Each region in Indonesia boasts unique culinary characteristics, which hold economic potential and can contribute to the growth of the frozen food sector, positioning it competitively in the market. In the digital age, culinary offerings have gained heightened interest, particularly among tourists and local communities, often leading consumers to pay premium prices for specific frozen food items. Riau Province, especially Pekanbaru City, showcases a distinctive blend of regional and modern cuisines, increasingly manifested in frozen food products. The competitiveness of Pekanbaru's frozen food industry is evident in the rising number of stores offering a diverse range of products. As a city recognized for trade and services, Pekanbaru has experienced significant migration and urbanization, fostering a multi-ethnic trade environment that creates various business opportunities, including the proliferation of frozen food establishments. Approximately 20 independent stores in Pekanbaru produce their own frozen food products, while imported options are available in malls and supermarkets.

Frozen food products have become a popular choice for households, necessitating careful selection among the wide array of available processed food items. The frozen food market encompasses products such as frozen beef, chicken, seafood, nuggets, meatballs, tempura, and various vegetables. Data from the Central Statistics Agency (2020) indicates a remarkable surge in frozen food and beverage sales, increasing by 1070%. Despite being relatively expensive, there is a significant growth of businesses, including cafes and high-end restaurants like shabu-shabu and hot grill establishments, alongside convenience stores such as Indomaret and Alfamart, which prominently feature frozen food in their menus. The convenience of cooking and extended shelf life of frozen foods make them particularly appealing to working mothers and busy consumers who often stock these items as a last-minute solution when fresh food is unavailable. Additionally, frozen items are frequently purchased as souvenirs or for patients in hospitals.

A comprehensive classification of frozen food products available in Pekanbaru reveals 11 categories, with processed meat, seafood, and sausages leading in variety. However, certain products, such as dim sum and specific processed meats, are less frequently purchased due to higher costs. The competitive landscape necessitates robust business strategies and effective marketing practices to adapt to market changes and consumer expectations. Marketing, as a systematic process, is vital for fulfilling consumer needs and achieving business objectives (Yulia *et al.*, 2019). To improve the marketing mix and devise effective strategies in Pekanbaru's frozen food sector, it is essential to provide a clear overview of current practices aimed at increasing sales volume. Given the competitive nature of the frozen food industry, implementing innovative marketing approaches is crucial to maintain relevance and growth.

## RESEARCH METHOD

### 2.1 Research Location and Time

The research conducted at frozen food sellers' locations in Pekanbaru. The sampling area will be selected using purposive sampling, focusing on establishments with a significant variety of frozen food offerings that have remained operational post-COVID-19 pandemic. The selected

locations include the Bukit Raya, Senapelan, and Tampan districts. The research period is scheduled from July to October 2023.

## 2.2 Population and Samples

The target population for this study consists of consumers in Pekanbaru who frequently purchase frozen food, defined as those who have bought frozen food more than once per month. As the exact size of this population is unknown, it is considered an unknown population. Consequently, the sampling approach will utilize non-probability sampling, specifically purposive sampling. To determine the appropriate sample size, given the unknown total population size, the (Hosmer-Lemeshow, 2013) theory will be employed. The Lemeshow formula for sample size calculation will be utilized to ascertain the sample size in the context of this quantitative research, where the precise population size is not definitively known.

## 2.3 Data Types

This study utilizes two types of data: primary data and secondary data. Primary data refers to information collected directly from the field, encompassing findings and in-depth insights obtained from stakeholders in the frozen food industry and consumers. Secondary data is gathered from stakeholders (frozen food owners, retailers) and various reference sources.

Data collection techniques are crucial in addressing the research problems. The methods employed in this study include:

1. Field Research: This involves direct observation to gather the necessary data for the completion of the final project. Specific activities include:
2. Observation: observation is a multifaceted process incorporating both biological and psychological elements.
3. Interview: an interview as a meeting between two individuals for exchanging information and ideas through question-and-answer sessions, facilitating a deeper understanding of a specific topic.
4. Documentation: documents are records of past events, which can take the form of writings, images, or other significant works. Documentation serves as a supplementary tool to complement observation and interviews in qualitative research.
5. Library Research: This technique involves citing relevant literary sources and studying pertinent issues. The data obtained consists of information from experts in their respective fields, ensuring relevance to the researched material. The author will strive to gather data from various relevant references during this process.

## 2.4 Data Analysis

The qualitative descriptive method is defined as a means to gain an understanding and seek solutions to real-world problems. The research objects may encompass communities, institutions, and relevant entities related to the issues at hand. According to (Sugiyono, 2013), qualitative descriptive analysis is a statistical tool used to analyze field information by describing or depicting the data to draw general conclusions.

The Likert scale is a measurement scale used in research to assess respondents' perceptions, opinions, and attitudes regarding questionnaire responses provided by participants in the field. (Sugiyono, 2013) states that the Likert scale is an analysis technique employed in research to measure respondents' perceptions, opinions, and attitudes toward real-world issues through questionnaires. It aims to determine the level of agreement or disagreement among respondents concerning the questions posed. The Likert scale presents questions to respondents, asking them to rate their assessments on a scale ranging from "strongly disagree" to "strongly agree." The collected responses from the field are then subjected to questionnaire calculations for analysis. The respondents' answers vary and are assigned different values based on Table 1:

**Table 1: Score Values of Respondents' Answers Given for Perceptions and Attitudes.**

Approval of Statements	Score Value	Index Value
Strongly Disagree (STS)	1	1,00-1,80
Disagree (KS)	2	1,80-2,60
Somewhat Agree (CS)	3	2,60-3,40
Agree (S)	4	3,40-4,20
Strongly Agree (SS)	5	4,20-5,00

To group respondents based on index values in a Likert scale, it is necessary to calculate the Range Scale (RS) value. The RS value can be obtained using the following formula:

$$\text{Scale Range} = \frac{\text{Maximum Score} - \text{Minimum Score}}{\text{Number of Categories}} - 0,8$$

Multidimensional Scaling (MDS) is a technique used to determine the representation of an object based on its position (Walundungo *et al.*, 2014). MDS visualizes the perception of a research object through a graph based on similarity ratings. Differences in consumer perceptions are analyzed to depict the distance between points based on the objects. The difference in distance between points is determined by the responses given by the respondents regarding the research object. After conducting data analysis in the field, questionnaire calculations are performed to ensure the reliability of the analysis results. Each item in the questionnaire has different values. The data used in this study is nonmetric data, where ordinal data represents the distance used in nonmetric multidimensional scaling (Walundungo *et al.*, 2014).

The requirements for using MDS (Gundono, 2014) are as follows:

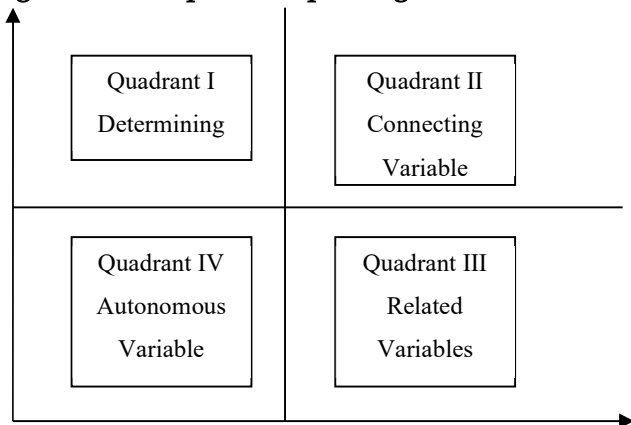
1. The model has been properly specified.
2. The level of measurement has been correctly applied, such as using nominal or ordinal data scales.
3. The minimum number of objects is equal to the dimensions.
4. The scales used should be equivalent; otherwise, standardization measures should be employed.
5. The compared objects must have a certain level of similarity to be appropriate for comparison.

6. There must be a minimum of 4 objects, and the sample size is not determined.

The steps involved in MDS are as follows:

1. Determine the research object as columns and supporting variables.
2. Select the Multidimensional Scaling procedure (using ordinal data).
3. Determine the number of dimensions.
4. Label the dimensions.

Figure 1: Perceptual Maps Diagram of Multidimensional Scaling (MDS) Alscal.



## RESULT and DISCUSSION

### 3.1 Participant Characteristic

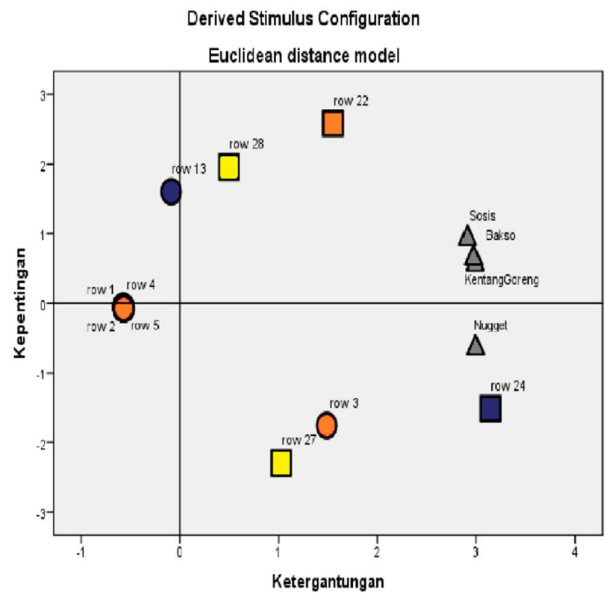
The respondent sample consists of 100 individuals, with the following characteristics: 50% of respondents are consumers aged 18 to 25 years; 67% are female; 57% have a high school education level; 30% are employed; 33% have an income between 1,000,000 and 1,500,000 Rupiah; 41% have no dependents; 55% have 1-3 years of experience consuming frozen food. Regarding monthly expenditure, the highest percentage of respondents (approximately 29%) falls within the range of 70,000 to 140,000 Rupiah. In terms of the price of a single purchase of frozen food, the highest percentage of respondents (40%) falls within the range of 10,000 to 30,000 Rupiah.

### 3.2 Result

Figure 2: Consumer perception of frozen food.

**Category:**

- = Marketing Mix, Product
  - Row 1: Quality
  - Row 2: Variety
  - Row 3: Packaging
  - Row 4: Availability
  - Row 5: Taste
- = Marketing Mix, Place
  - Row 13: Strategic Position
- = Strategy Positioning, Brand Identity and Brand Positioning
  - Row 22: Place Colour/Synching vibrant with the product sold
- = Strategy Positioning, Pricing Strategy and Perceived Value
  - Row 24: Frozen food better than non-frozen food
- = Strategy Positioning, Distribution and Channel Strategy
  - Row 27: Came to stock
  - Row 28: Planned buying
- ▲ = Types of Frozen Food
  - Sosis
  - Bakso
  - Kentang Goreng
  - Muzgel



**Table 2: Euclidean Distance in MDS of Consumer Perception.**

Type of Frozen Food	R1	R2	R3	R4	R5	R13	R22	R24	R27	R28
French Fries	3,81	3,81	2,81	3,93	3,93	3,24	2,52	2,21	3,68	2,92
Nugget	3,81	3,81	1,71	3,75	3,75	3,93	3,75	0,82	2,63	3,80
Sausage	3,82	3,82	3,11	3,98	3,98	3,04	2,16	2,60	3,96	2,67
Meatballs	3,82	3,82	2,86	3,94	3,94	3,19	3,54	2,28	3,72	2,88

Based on Figure 5.1, the x-axis in the quadrant indicates the consumer preference factors for frozen food products. If a point is close to the 0 coordinate, it suggests a higher level of preference; conversely, if it is farther from zero, it reflects what consumers dislike. The y-axis represents consumer expectations regarding frozen food products. Points located high or far from the 0 coordinate indicate strong hopes for improvements or alignment with consumer expectations, while lower points suggest areas needing enhancement.

In the first quadrant, identified as a determining factor, Row 13 is recognized as a strategic position, indicating that consumers desire frozen food to be sold in broader markets, ideally in easily accessible locations. This is the only row displayed in the first quadrant, underscoring its significance. Meanwhile, the fourth quadrant contains variables that require improvement, as these aspects captured consumer interest. For example, Row 3 highlights packaging; the most common packaging for frozen food sold in Pekanbaru, particularly homemade items, is transparent and often lacks labels. This absence of information may diminish consumer interest and curiosity about the products.

Another example is Row 24, which suggests that frozen food is perceived as better than non-frozen food. However, this notion is challenged by the reality that consumers typically prefer non-frozen, fresh food. Additionally, frozen foods often contain high levels of chemicals or artificial preservatives, which can be unhealthy if consumed frequently. Homemade frozen foods may contain fewer preservatives compared to mass-produced branded options. Lastly, Row 27 refers to stock availability. In practice, busy consumers tend to stock frozen food primarily as a last-minute option when other food is unavailable, as they have little time for extensive cooking preparation.

Furthermore, one category of frozen food present in the fourth quadrant is nuggets. Respondents indicated a lower preference for nuggets compared to the other three categories shown, namely sausages, meatballs, and French fries, which are located in the second quadrant and exhibit higher levels of consumer liking. Interestingly, the closest row values for the Quadrant 2 products (French fries at 2.21, meatballs at 2.28, and sausage at 2.16) indicate a strong relationship with the "frozen food is better than non-frozen" variable. This suggests that consumers may favor the options illustrated in the quadrants to be freshly prepared rather than frozen, or perhaps prefer products with fewer artificial or chemical preservatives. Additionally, the sausage product specifically shows a close association with "place color that matched the product it's sold" at a row value of 2.16, highlighting the importance of visual cues and product presentation for this particular item. Using the distance formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

### 3.3 Suggestion

Businesses should focus on product innovation and quality to meet consumer preferences. Attractive packaging and strong branding will enhance consumer trust, while effective marketing strategies can raise awareness and stimulate demand. Expanding distribution through retailers and online platforms is crucial for accessibility. Educating consumers about frozen food benefits can dispel misconceptions, and industry collaboration can foster growth. Prioritizing sustainability will improve brand reputation. Lastly, working with government agencies can help navigate regulations and promote industry development. Implementing these strategies will enhance competitiveness and support overall growth.

### REFERENCES

- Gundono. (2014), *Analisis Data Multivariat Edisi Ketiga*, 3rd ed., YOGYAKARTA%: BPFE Yogyakarta., 2014.
- Hosmer-Lemeshow. (2013), "Applied Logistic Regression Wiley Series in Probab".
- Kyntani, A., Nadja, R.A., Bulkis, S., Thamrin, M., A, A.K.Y., Nadja, R.A., Bulkis, S., *et al.* (2022), "KONSUMEN TERHADAP KEPUTUSAN PEMBELIAN PRODUK FROZEN FOOD SELAMA MASA PANDEMI COVID-19 DI KOTA MAKASSAR Factors Influencing Consumer Behavior in Decisions to Purchase Frozen Food Products During the Covid-19 Pandemic in Makassar City", Vol. 1 No. 10, pp. 835–849.
- Santoso, I. (2018), "KEAKRABAN PRODUK DAN MINAT BELI FROZEN FOOD%: Product Familiarity and Purchase Intention of Frozen Food%: The Role of Product Knowledge , Packaging , and Social Environment", Vol. 11 No. 2, pp. 133–144.
- Sugiyono. (2013), "METODE PENELITIAN PENDIKAN, (PENDEKATAN KUANTITATIF, KUALITATIFDAN R&D)".
- Walundungo, G., Paendong, M. and Manurung, T. (2014), "Penggunaan Analisis Multidimensional Scaling Untuk Mengetahui Kemiripan Rumah Makan Di Manado Town Square Berdasarkan Karakteristik Pelanggan", *D'CARTESIAN*, Vol. 3 No. 1, p. 30, doi: 10.35799/dc.3.1.2014.3806.
- Yulia, farida, Lamsah and Periyadi. (2019), "BUKU MANAJEMEN PEMASARAN".