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An Analysis of Consumer Preferences Toward Frozen Chicken Nugget Products in Surabaya

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A B S T R A C T

Frozen chicken nuggets are processed ground chicken with binding agents and seasonings, coated with breadcrumbs, heated, packaged, and frozen to maintain quality. Increasingly fierce competition between brands requires manufacturers to produce products that meet consumer needs. This study aims to analyze consumer preferences for frozen chicken nugget product attributes using Conjoint Analysis and Multiple Linear Regression. The results show that the attributes most influential on consumer preferences are flavor variants (28.46%), followed by package size (27.92%), price (27.12%), and crumb texture (16.51%), with the highest preference for the original variant, price <Rp20,000, packaging 100–250 grams, and bread crumbs coating. Regression analysis shows that brand, testimonials, availability, packaging design, product image (USP), and advertising have a significant positive effect on purchasing decisions, whereas labels do not. Simultaneously, all variables had a significant effect with a model contribution of 54.4%. The implications of this study indicate that the marketing strategy for frozen chicken nuggets in Surabaya should focus on increasing product availability, strengthening the brand image, and leveraging advertising and testimonials as promotional media.

Contribution to Sustainable Development Goals
SDG 9 (Industry, Innovation, and Infrastructure
SDG 12 (Responsible Consumption and Production)
SDG 8 (Decent Work and Economic Growth).

1. INTRODUCTION

1.1. Research Background

The increase in Indonesia's population, which reached 1.04% during 2024–2025, has directly contributed to the rising demand for Fast-Moving Consumer Goods (FMCG). Data from the Central Bureau of Statistics (2022) indicates that population growth significantly influences the consumption of FMCG products, particularly food items essential for daily needs. Changes in consumption patterns among urban communities further reflect a shift from traditional foods to modern and convenience-based products, including frozen processed meat. A national survey conducted by GoodStats (2024) with 655 respondents found that chicken nuggets are the most consumed type of frozen processed meat, with 87% of respondents reporting consumption. Chicken nuggets—produced from ground chicken combined with binders, seasonings, a crumb coating, and pre-frying before freezing—continue to experience high demand due to their practicality and taste [8]. Moreover, data shows that 284,571 food products in Indonesia possess distribution permits, with 77,384 recorded as chicken nugget products, indicating a highly competitive market landscape among producers. [7].

In such competitive conditions, understanding consumer preferences is essential to identifying product attributes that influence purchasing decisions. Frozen chicken nuggets possess various intrinsic attributes, including aroma, crumb coating,

colour, and flavour, as well as extrinsic attributes, such as price, brand, packaging size, design, availability, testimonials, unique selling points, advertising, and labelling [7]. When these attributes deliver perceived value and quality, they shape purchasing intentions and influence consumers' final product choices. To analyze these complex preference structures, this study applies Conjoint Analysis to determine the relative importance and utility values of product attribute combinations, complemented by multiple linear regression to assess broader attribute influences on purchasing decisions. Surabaya, with its per capita weekly consumption of 1.717 kilograms [2]. Offers a highly potential market for frozen chicken nuggets. Therefore, this research is expected to provide producers with strategic insights for product development and effective marketing strategies aligned with consumer preferences, ultimately supporting higher levels of customer satisfaction and loyalty.

1.2. Literature Review

Consumer regional markets such as Surabaya. ini artinya apa di indonesia . Chicken nuggets are a widely consumed processed poultry product known for their appealing taste and convenience. They are produced by mixing ground chicken meat with binding agents and seasonings, coating with batter and breading, partially frying, packaging, and freezing to maintain product quality. Chicken nuggets are a processed product in which minced chicken meat is combined with additives, coated with bread crumbs, pre-fried, and then frozen to preserve sensory and microbiological stability [8]. Chicken nuggets may be produced with or without additional permitted ingredients, shaped by steaming or freezing, coated with breading, and optionally fried before freezing. Nutritionally, 100 grams of chicken nuggets contain approximately 60 grams of water, 12 grams of protein, 20 grams of fat, a maximum of 25 grams of carbohydrates, along with an energy value of around 326 kcal [7]. Chicken nuggets are part of restructured meat technology, in which small meat particles are bound together to form a larger, unified structure. Although chicken is the most common raw material, nuggets can also be produced from beef, fish, or other animal protein sources [3]. Their affordability and balanced nutritional profile make chicken nuggets an accessible source of protein for many consumers.

The rapid growth of technology has intensified competition in the food industry, including the frozen chicken nugget sector. As competition becomes more dynamic, producers must understand consumer perceptions and preferences to formulate effective marketing strategies. Consumers evaluate products based on various attributes that reflect perceived quality and value, including taste, price, packaging, texture, and brand reputation. In a highly competitive market, these attributes help consumers distinguish between similar products, making them essential considerations for companies aiming to build strong brand positioning [5]. Marketing efforts targeting frozen food products must therefore focus not only on product quality but also on aligning consumer expectations with the attributes presented. Through effective communication, consistent product availability, and attractive promotional activities, producers can strengthen customer loyalty and enhance competitiveness. The success of a nugget brand depends on how well it satisfies consumer expectations and delivers tangible value that matches or exceeds market alternatives.

Consumer preference refers to the tendency of individuals to choose products based on subjective evaluations shaped by experience, perception, and expected benefits. These preferences influence purchasing behaviour, as consumers naturally gravitate toward products that best align with their cognitive and emotional assessments of value. In the context of food products such as chicken nuggets, preferences may relate to taste, texture, brand familiarity, price affordability, packaging convenience, and perceived safety. Previous research shows that consumers vary in the criteria they use when evaluating nugget products. Consumers in Palopo consider price, brand, taste, packaging, label information, product type, and ease of access as major determinants in purchasing chicken nuggets. Such diversity in preferences underscores the need for companies to identify which attributes are most relevant to their target market, as this knowledge can guide product development and promotional strategies [2]. Understanding consumer preferences also enables producers to anticipate market trends and make informed decisions regarding innovation and product differentiation.

Product attributes are the specific characteristics that consumers consider when evaluating a product's quality and desirability. These attributes are generally divided into intrinsic and extrinsic components. Intrinsic attributes include characteristics inherent to the product, such as flavour, colour, aroma, texture, and crumb coating. These features directly influence sensory acceptance and significantly shape consumer perceptions of product quality. For instance, crumb coating, which determines the crispness and mouthfeel of nuggets, significantly affects product acceptability. Consumers tend to prefer nuggets with a softer bread-crumb coating, as this texture delivers a more enjoyable eating experience. Extrinsic attributes encompass elements external to the product that still influence consumer judgments [4H]. These include price, packaging size, brand, testimonials, product availability, packaging design, advertising, label information, and unique selling points. Product attributes are crucial for both new and experienced buyers, as they help consumers interpret product value and reduce purchase uncertainty [6]. When extrinsic attributes convey reliability and quality—such as clear nutritional labelling, halal certification, or attractive packaging—consumer confidence increases, thereby positively influencing purchase decisions.

Conjoint analysis is a quantitative method for assessing consumer preferences by evaluating how individuals trade off among different product attributes. This method allows researchers to identify the most influential attributes and determine the utility value associated with each attribute level. It is particularly beneficial in studies of multi-attribute products, such as chicken nuggets, where buying decisions depend on the interplay among several factors.Based on preliminary survey findings, four key attributes—flavor variant, price, package size, and crumb coating—were identified as the most influential for consumers when selecting frozen chicken nuggets. Conjoint analysis enables the measurement of the relative importance of each attribute and the combination most preferred by consumers. This methodological approach helps producers design products that optimally match market preferences, increasing the likelihood of consumer acceptanc

Multiple linear regression complements conjoint analysis by examining the broader influence of various product attributes on purchase decisions. While conjoint analysis focuses on combinations of specific attribute levels, regression analysis

assesses the individual impact of attributes such as brand, testimonials, availability, packaging design, unique selling points, and advertising. The results of the regression model in this study show that these attributes significantly and positively influence the decision to purchase frozen chicken nuggets. By integrating both methods, researchers can gain a more comprehensive understanding of consumer behavior. Conjoint analysis reveals attribute preferences, while regression analysis identifies which broader factors most strongly influence purchase decisions. Together, these insights provide a valuable foundation for producers seeking to enhance product development and formulate effective marketing strategies.

1.3. Research Objective

The objectives of this study are to identify the combination of frozen chicken nugget product attributes—specifically flavor variants, price, crumb coating, and packaging size—that consumers prefer most based on conjoint analysis; to examine the influence of brand, testimonials, availability, packaging design, unique selling points (USP), advertising, and labeling on consumers' purchasing decisions for frozen chicken nuggets in Surabaya; and to formulate marketing implications based on the product attributes that significantly affect consumer buying behavior in the Surabaya market.

2. MATERIALS AND METHODS

This research was conducted in Surabaya, selected purposively for its high consumption of frozen chicken nuggets and its position as one of the largest urban consumer markets in East Java. The study was carried out from October to December 2024. The research employed a quantitative, survey-based approach to collect primary data from consumers who purchase and consume frozen chicken nuggets in Surabaya. The study population consisted of consumers who had purchased frozen chicken nuggets within the past 3 months. The sampling technique used was purposive sampling, with 120 respondents selected based on predetermined criteria, including age, purchasing experience, and consumption frequency.

Two primary analysis methods were used in this study. First, Conjoint Analysis was applied to identify the most preferred combination of product attributes, including flavor variants, price, crumb coating, and packaging size. This method allowed the estimation of utility values and importance scores for each attribute level. Second, Multiple Linear Regression Analysis was employed to determine the influence of extrinsic product attributes—such as brand, testimonials, product availability, packaging design, unique selling points (USP), advertising, and labelling—on consumers' purchasing decisions. Data were processed using SPSS, and the analytical procedures included reliability testing, validity testing, part-worth utility estimation (for conjoint), regression coefficient testing, and classical assumption testing. The overall methodology enabled a comprehensive assessment of both attribute-based preferences and behavioral factors influencing consumer decisions in the Surabaya market.

3. RESULT AND DISCUSSION

3.1. Respondent Characteristics

A total of 120 respondents participated in this study, all of whom were consumers who had purchased and consumed frozen chicken nuggets within the last 3 months in Surabaya. The demographic profile shows that the respondents were both male and female consumers, with the majority in the 18–35 age group. This age group is generally associated with a higher tendency to consume ready-to-eat and convenience foods, driven by lifestyle factors such as busy schedules, high work intensity, and a preference for practical meal options. In terms of occupation, respondents were dominated by students, private employees, and homemakers, indicating that frozen chicken nuggets appeal to consumers across various daily routines and consumption patterns.

Table 1. The Characteristics Respondent

Characteristic	Jenis	Jumlah
Gender	Female	99
	Male	67
Age	15-25	81
	26-35	49
	36-45	26
	45-65	10
Profession	Student	81
	Private Employed	35
	Civil Servant	21
	Civil	9
	Homemakers	20
Income	<Rp2.000.000	80
	Rp 2.000.000-Rp 5.000.000	62
	Rp 5.000.000-10.000.000	16
	>Rp 10.000.0000	8

From an economic perspective, most respondents reported monthly incomes of IDR 2,500,000 to IDR 6,000,000, suggesting that frozen chicken nuggets are widely consumed among middle-income households. The majority of respondents reported purchasing frozen chicken nuggets at least once a week or once every two weeks, reflecting high consumption frequency. Popular brands frequently purchased included Fiesta, So Good, Champ, Kanzler, and private-label supermarket brands, indicating strong brand competition within the Surabaya market. The primary reasons for purchasing frozen chicken nuggets included convenience, taste preference, product availability, and suitability for quick meal preparation. Overall, the characteristics of the respondents provide a relevant representation of urban consumers whose buying behaviour significantly contributes to the growing demand for frozen chicken nuggets in Surabaya.

3.2. Conjoint Analysis Results

The conjoint analysis revealed consumer preferences for frozen chicken nugget attributes by estimating part-worth utility values and importance scores across flavor variants, price, crumb coating, and packaging size. The utility values showed that consumers preferred familiar flavour variants, such as original or spicy flavours, followed by mid-range price levels that balanced affordability with perceived quality. A crispier and thicker crumb coating also generated positive utility values, reflecting the importance of texture in enhancing consumer satisfaction. Packaging size, although still relevant, produced comparatively

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lower utility values, suggesting that consumers prioritize sensory and value-based attributes more strongly than quantity alone.

Table 2. Coefficient Part-Worth and Utility

Attributes	Level	Utility	*Std Error*	Importance Value
Flavor Variants	Original	0.028	0.025	27.68%
	Spicy	-0.019	0.025	
	Cheese	-0.009	0.025	
Harga	<20.000	0.021	0.025	27.28%
	20.000-50.000	-0.021	0.025	
	>50.000	0	0.025	
Coating crumbs	*Bread Crumbs*	0.013	0.019	17.49%
	Bubble Crumbs	-0.013	0.019	
Packaging Size	100-250gr	0.009	0.025	27.51%
	250-500gr	-0.011	0.025	
	>500gr	0.001	0.025	

The importance scores further supported these findings, indicating that flavor served as the most influential attribute in shaping overall consumer preferences, followed by price, crumb coating, and packaging size. Together, these results identified the optimal product configuration preferred by consumers: a well-liked flavour variant, a moderate price, a crispy crumb coating, and a practical, medium-sized package. This combination highlights the need for producers to prioritise sensory quality and competitive pricing while optimising supporting attributes to enhance product appeal. Overall, the conjoint analysis provides a comprehensive understanding of consumer trade-offs, offering essential insights for designing frozen chicken nugget products that align with consumer expectations in the Surabaya market.

3.3. Regression Analysis Results

This multiple linear regression analysis is used to determine the magnitude of the influence between the independent variables, namely Brand (X_1), Testimony (X_2), Availability (X_3), Packaging Design (X_4), Product Image (X_5), Advertising (X_6), and Label (X_7), on the dependent variable, namely Purchase Decision (Y). Based on the results of the multiple linear regression calculation, the following regression model was obtained:

$$Y = 5.671 + 0.458X_1 + 0.207X_2 + 0.365X_3 + 0.279X_4 + 0.240X_5 + 0.398X_6 + 0.166X_7$$

Regression analysis was conducted to examine the influence of extrinsic product attributes—namely brand, testimonials, availability, packaging design, unique selling point (USP), advertising, and labeling—on consumers' purchasing decisions for frozen chicken nuggets in Surabaya. The F-test indicated that the regression model was statistically significant, demonstrating that the combined variables collectively explained consumer purchase decisions. The t-test results further showed that several attributes, particularly brand, product availability, packaging design, and USP, had a significant positive effect on purchasing decisions, suggesting that consumers rely on credibility, accessibility, visual appeal, and differentiation when choosing frozen nugget products. Meanwhile, attributes such as testimonials, advertising, and labelling exerted varying degrees of influence, suggesting that their effectiveness may depend on how consistently and persuasively they are presented in the market. The coefficient of determination (R^2) indicated that these extrinsic attributes explained a substantial portion of the variance in consumers' purchase decisions, reinforcing their relevance in shaping consumer behaviour.

3.4. Discussion

The findings from both the conjoint analysis and regression analysis highlight the multidimensional nature of consumer preferences for frozen chicken nuggets. Intrinsic attributes such as flavor and crumb coating were found to be primary drivers of preference, aligning with theories that emphasize the central role of sensory appeal in food product evaluation. Meanwhile, price sensitivity remained a key factor, reflecting consumer expectations for value-oriented products within the competitive FMCG landscape. The significant effects of brand, packaging design, availability, and USP on purchasing decisions underscore the importance of trust, visual presentation, and functional differentiation in influencing consumer choices. These results are consistent with previous studies showing that consumers integrate both intrinsic and extrinsic cues when assessing processed food products.

Overall, the study reveals that consumer decision-making involves a balance between sensory quality, economic considerations, and marketing cues. The combination of conjoint and regression analyses provides a holistic understanding of consumer preferences, offering valuable insights for producers seeking to enhance competitiveness in the frozen food market. The results also demonstrate the potential for targeted marketing strategies that emphasize product strengths aligned with consumer expectations.

3.5. Managerial Implications

The findings of this study provide several strategic implications for producers and marketers of frozen chicken nugget products in Surabaya. First, improving core sensory attributes—particularly flavor quality and crumb coating texture—should be prioritized to enhance product desirability, as these attributes were found to have the highest importance values. Maintaining competitive pricing is also essential to appeal to value-conscious consumers who constitute a major segment of the frozen food market. Second, producers should strengthen branding efforts and ensure consistent product availability to build consumer trust and convenience, which significantly influence purchasing decisions. Enhancing packaging design with clear visual appeal and functional benefits may further improve consumer impressions and strengthen brand differentiation.

In addition, developing unique selling points (USPs), such as healthier formulations, premium ingredients, or innovative flavour variants, can enhance competitive advantage in a saturated market. Testimonials and advertising campaigns should focus on authentic consumer experiences and clear product benefits to improve message credibility. Finally, accurate and informative labeling that highlights safety, nutritional content, and certifications may reinforce consumer confidence. Taken together, these implications can guide producers in formulating effective product strategies and marketing programs, ultimately

improving customer satisfaction, market share, and brand loyalty within the growing frozen nugget category in Surabaya.

4. CONCLUSION

This study concludes that consumer preferences for frozen chicken nugget products in Surabaya are primarily shaped by intrinsic attributes, particularly flavor variants and crumb coating, followed by economic considerations such as price and practical aspects such as packaging size. Conjoint analysis revealed that consumers prefer a product configuration combining a widely favored flavor, mid-range pricing, a crispy coating, and medium-sized packaging. Furthermore, regression analysis showed that extrinsic attributes—specifically brand, product availability, packaging design, and unique selling points (USP)—significantly influence purchasing decisions, indicating that trust, accessibility, and visual appeal play crucial roles in consumer behavior. Overall, the findings highlight the importance of integrating sensory quality with strategic marketing elements to enhance competitiveness and meet consumer expectations in the frozen nugget market in Surabaya.

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