

THE INFLUENCE OF MARKETING MIX ATTRIBUTES ON CONSUMER PURCHASE DECISIONS OF TEMPEH IN THE AGRIBUSINESS SECTOR: EVIDENCE FROM PASURUAN CITY

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Abstract. Understanding the influence of marketing mix attributes on consumer purchase decisions is essential for strengthening the competitiveness of agribusiness-based food products, particularly traditional processed foods such as tempeh. This study aims to analyze the effect of marketing mix attributes on consumer purchase decisions of tempeh in Pasuruan City and to identify the most dominant influencing factor. A quantitative descriptive approach was employed, with data collected in January 2025 from 70 respondents selected via accidental sampling. Purchase decision was treated as the dependent variable, while brand image, packaging, promotion, taste, and product quality served as independent variables. Data were analyzed using multiple linear regression, partial significance testing (t-test), and simultaneous significance testing (F-test). The t-test results show that taste has a significant positive effect on consumer purchase decisions ($p < 0.05$). In contrast, brand image, packaging, promotion, and product quality do not exhibit significant individual effects ($p > 0.05$). Furthermore, the F-test indicates that the marketing mix variables simultaneously have a significant influence on purchase decisions ($F = 9.979$; $p < 0.001$). These findings indicate that although marketing mix attributes collectively influence consumer decision-making, sensory attributes, particularly taste, play a dominant role in shaping consumer preferences for tempeh products. This study provides empirical evidence for agribusiness practitioners to prioritize taste-oriented product development strategies to enhance competitiveness in urban agribusiness markets.

Keywords: Tempeh; Marketing Mix; Purchase Decisions

INTRODUCTION

Soybeans are among the most important agricultural commodities in Indonesia due to their versatility as raw materials for a range of processed food products, particularly tempeh and tofu. In the agribusiness sector, soybeans are not only primary agricultural outputs but also strategic inputs for downstream processing industries that generate added value, employment, and food security. Tempeh is widely recognized as a traditional Indonesian fermented food with high nutritional value and broad consumer acceptance. It is produced through a biological fermentation process involving *Rhizopus* microorganisms, such as *Rhizopus oligosporus*, *Rh. oryzae*, *Rh. stolonifer*, and *Rh. arrhizus*. This fermentation process enhances the nutritional quality of soybeans by breaking down complex components into simpler forms that are easier to digest, while also creating distinctive sensory characteristics (Mahendra, 2022). As a result, tempeh has become an affordable and accessible protein source consumed across various socio-economic groups.

On the demand side, tempeh consumption in Indonesia shows a relatively stable, promising trend. Based on data from Central Bureau of Statistics (2025), per-capita consumption of tempeh increased from 0.104 kg in 2018 to 0.115 kg in 2021, indicating a gradual rise over time. This trend suggests favorable market potential and business opportunities for tempeh producers. Nevertheless, increasing consumption does not automatically ensure competitiveness, as tempeh producers particularly micro and small enterprises still face challenges related to production consistency, product differentiation, and effective marketing strategies.

In this context, understanding consumer behavior becomes essential. Consumer behavior refers to individual actions and decision-making processes in acquiring and using products and services. According to (Budiyanto & Indriyani, 2020), consumer behavior is influenced by both internal and external environmental factors, which together shape purchasing decisions. As consumers play a crucial

role in determining business sustainability, producers must understand consumer preferences and expectations to design marketing strategies that are aligned with market needs.

One marketing-related factor that significantly influences purchasing decisions is brand image. Khasanah et al., (2021) state that a positive brand image can enhance consumer trust and strengthen brand loyalty. Although brand image generally has a positive relationship with loyalty, the strength of this effect may vary, as some consumers remain hesitant to maintain loyalty even when brand perceptions are favorable. In the tempeh market, often perceived as generic, brand image can still serve as an important signal of product quality, reliability, and hygiene.

Another critical attribute is packaging, which extends beyond its basic function of protecting the product. According to Ibadurrahman & Hafid (2022), packaging involves the entire process of planning and producing product containers and plays a vital role in building brand equity and influencing consumer purchase decisions. Packaging is often the first element consumers encounter and serves as a communication tool that conveys product information and quality cues. Supporting this view, Shukla, Singh, and Wang (2022) show that creative packaging design can motivate consumers to process product information more deeply and increase the likelihood of purchase, emphasizing the strategic role of packaging in competitive food markets.

Promotion is another essential component of marketing strategy aimed at increasing sales volume and building long-term relationships with consumers. According to Ginting (2015), promotional activities are designed not only to stimulate short-term purchases but also to create awareness, interest, and desire toward a product. Effective promotion helps consumers recognize product value and can guide them through the decision-making process. Empirical studies on processed food products in Indonesia confirm that marketing mix elements significantly influence purchasing decisions and repurchasing intentions (Devina, Pujiyanto, & Kastaman, 2021; Nugroho & Waluyo, 2024).

For food products, taste is one of the most important intrinsic attributes influencing consumer choice. Dilasari et al. (2022) explain that taste perception arises from the combined function of taste receptors located on the tongue, cheeks, throat, and palate. Consumers tend to prioritize taste satisfaction when choosing food products, making sensory experience a key determinant of consumption behavior. This argument is reinforced by Imtiyaz, Soni, and Yukongdi (2021), who found that sensory appeal plays a dominant role in shaping food choice and satisfaction, particularly for frequently consumed products.

Closely related to taste is product quality, which reflects a product's overall performance in meeting consumer expectations. According to Amilia (2017), product quality is a crucial factor in determining product positioning and customer satisfaction, as it directly influences perceived benefits. In the absence of adequate product quality, firms face difficulties in maintaining competitiveness and sustaining operations. For tempeh, product quality is commonly associated with freshness, texture, safety, and consistency attributes that strongly affect repeat purchase behavior.

Empirical studies examining the influence of marketing mix attributes on purchase decisions have been widely conducted in various agribusiness contexts; however, evidence specifically focusing on tempeh purchase decisions at the city level remains limited. A related study by Trisnowati et al. (2023) on tempeh-based processed products found that product quality, packaging, and promotion significantly influenced consumer purchase decisions, explaining 65.4% of the variance. Although informative, the study focused on a processed derivative of tempeh rather than fresh tempeh consumed daily and was conducted outside the Pasuruan context. In a broader agribusiness setting, Attin et al. (2022) reported that product and price significantly influenced purchasing decisions for hydroponic vegetables, while promotion and distribution did not, suggesting that the influence of marketing mix attributes varies across product types and consumption contexts.

Similarly, a study conducted in Pasuruan City by Rizqi et al. (2021)—although focusing on furniture products rather than food commodities, found that product, price, and promotion significantly affected purchase decisions, whereas place did not. These findings reinforce the view that the effectiveness of marketing mix elements depends on product characteristics, consumption frequency, and local market conditions. Given that tempeh is a staple food product with high consumption frequency and strong cultural embeddedness, consumer purchasing behavior for tempeh may differ substantially from both processed food products and non-food commodities examined in previous studies.

Despite the growing body of literature on the marketing mix and consumer behavior, research specifically analyzing the joint influence of brand image, packaging, promotion, taste, and product quality on tempeh purchase decisions in Pasuruan City remains scarce. Pasuruan City provides a relevant research setting, given its urban consumption dynamics and the coexistence of traditional and modern retail channels, where tempeh producers must compete not only on availability and price but also on the perceived value communicated through marketing attributes. Therefore, this study aims to analyze the influence of marketing mix attributes on consumer purchase decisions of tempeh in the agribusiness sector in Pasuruan City, contributing context-specific empirical evidence and practical insights for micro, small, and medium enterprises within the agribusiness marketing literature.

METHODS

2.1 Research Design

This study employed a quantitative research design using a descriptive and explanatory approach. The descriptive method was applied to objectively describe the characteristics of respondents and the research setting. At the same time, the explanatory approach was used to analyze the influence of marketing mix attributes on consumer purchase decisions. According to Sujarweni (2015), descriptive research aims to describe phenomena as they occur systematically. A quantitative approach was chosen to ensure that the data obtained could be measured objectively and analyzed statistically (Riwoe et al., 2021).

2.2 Research Location and Time

The study population consisted of consumers who purchased tempeh in the study area. Respondents were selected using an incidental sampling technique, in which individuals encountered during data collection who met the research criteria were included as respondents (Sugiyono, 2022). The criteria were that respondents had purchased tempeh at least once in the last month and were willing to participate in the study. A total of 70 respondents were obtained and analyzed.

2.3 Data Collection Techniques

Primary data were collected using structured questionnaires supported by brief interviews and documentation. The questionnaire was designed to measure consumer perceptions of marketing mix attributes and purchase decisions. Interviews were conducted to clarify questionnaire responses and support data interpretation, while documentation was used to record general field conditions relevant to the study.

2.4 Research Variables and Measurement

The research variables were classified into dependent and independent variables (Sugiyono, 2022). The dependent variable was Purchase Decision (Y). The independent variables consisted of Brand Image (X_1), Packaging (X_2), Promotion (X_3), Taste (X_4), and Product Quality (X_5). Each variable was measured using several indicators adapted to the tempeh product context.

All variables were measured on a four-point Likert scale: 1 = Low, 2 = Medium, 3 = High, and 4 = Very High. The scores for each item were summed to obtain a variable score. Prior to hypothesis testing, the research instrument was evaluated through validity and reliability tests. Item validity was assessed using item-total correlation analysis, while reliability was tested using Cronbach's alpha to ensure internal consistency of each construct.

2.5 Data Analysis Techniques

Data analysis was conducted using SPSS software. Descriptive statistical analysis was first performed to summarize respondent characteristics and variable distributions. Classical assumption tests were then conducted to assess the feasibility of multiple linear regression, including tests for normality, multicollinearity, and heteroscedasticity.

To analyze the effect of marketing mix attributes on purchase decisions, multiple linear regression analysis was employed (Mardiatmoko, 2020). The regression model is formulated as:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e \dots\dots\dots (1)$$

Information:

Y =Buying Decision

A = Constant

b = Regression coefficients

X₁ = Brand Image

X₂ = Packaging

X₃ = Promotion

X₄ = Taste

X₅ = Product Quality

e = error

Hypothesis testing was conducted at a 5% significance level ($\alpha = 0.05$) using t-tests for partial effects, an F-test for simultaneous effects, and the coefficient of determination (R^2) to measure the explanatory power of the model.

Table 1. Operational Definition of Research Variables

Variable	Code	Indicators	Measurement Scale
Brand Image	X ₁	Brand memorability; perception of hygienic production; brand familiarity; brand trustworthiness; attractiveness of brand appearance	Likert scale (1–4)
Packaging	X ₂	Practicality of packaging material; presence of logo and label; packaging color and cleanliness perception; economical packaging size; suitability of packaging design to consumer preference	Likert scale (1–4)
Promotion	X ₃	Attractiveness of advertising; effectiveness of personal selling; sales promotion appeal; role of public relations in building healthy food image; effectiveness of direct marketing	Likert scale (1–4)
Taste	X ₄	Visual appearance of tempeh; aroma acceptance; taste influence on purchase decision; texture reminder and consistency; temperature influence on taste quality	Likert scale (1–4)
Product Quality	X ₅	Absence of physical defects; compliance with food safety standards; reliability of product quality; impact of consumer complaints; storage temperature and product durability	Likert scale (1–4)
Purchase Decision	Y	Brand influence on purchase intention; packaging attractiveness; promotion influence on trust; taste influence on repeat purchase; satisfaction with consistent quality	Likert scale (1–4)

Source: Primary data (Questionnaire), 2025

RESULTS AND DISCUSSION

3.1. F Test (Simultaneous)

The simultaneous significance of the independent variables brand image, packaging, promotion, taste, and product quality on purchase decisions was examined using the F-test. The results of the F-test are presented in Table 2.

The F-test results show an F-value of 9.979, which is greater than the F-table value of 2.35, with a significance level of 0.000 ($p < 0.05$). This indicates that brand image, packaging, promotion, taste, and product quality simultaneously have a positive and statistically significant effect on consumer purchase decisions for tempeh in Pasuruan City.

Tabel 2. F Test (Simultaneous) Result

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	219.472	5	43.894	9.979	0.000 ^b
Residul	281.514	64	4.339		
Total	500.986	69			

a. Dependent Variable: Y
b. *Predictores (constans)*, brand Image, packaging, promotion, taste, product quality

Source: Primary Data, 2025

These findings demonstrate that although not all independent variables exhibit statistically significant effects individually, their combined influence forms a meaningful and statistically valid model. This result confirms that marketing mix attributes and intrinsic product attributes collectively shape consumer purchasing behavior. This finding is consistent with Dzulkharnain (2019), who stated that marketing-related variables simultaneously have a positive and significant effect on purchasing decisions.

3.2 Multiple Linear Regression and Partial Effect Results (t-test)

Table 3 presents the multiple linear regression output and partial significance (t-test) results for the influence of Brand Image (X_1), Packaging (X_2), Promotion (X_3), Taste (X_4), and Product Quality (X_5) on Tempeh Purchasing Decision (Y).

Table 3. Multiple Linear Regression Test

Model	Unstandardized Coefficients			
	B	Std. Error	T	Sig.
(Constant)	5.732	2.339	2.447	0.017
Brand Image	0.322	0.230	1.397	0.167
Packaging	0.245	0.127	1.927	0.059
Promotion	0.517	0.249	0.232	0.058
Taste	0.419	0.158	0.230	0.036
Product Quality	0.193	0.170	1.137	0.260

Source: Primary Data, 2025

Based on Table 3, the regression equation is formulated as:

$$Y = 5.732 + 0.322X_1 + 0.245X_2 + 0.517X_3 + 0.419X_4 + 0.193X_5 + e$$

The constant value (5.732) indicates that if Brand Image, Packaging, Promotion, Taste, and Product Quality are assumed to be zero, the purchase decision score is still estimated at 5.732. In other words, there is a baseline tendency for consumers to purchase tempeh even without emphasizing the five marketing attributes, consistent with the interpretation that a constant can serve as a reference point when independent variables are absent (Insani et al., 2023).

The multiple linear regression results indicate that all independent variables examined in this study brand image, packaging, promotion, taste, and product quality have positive regression coefficients, suggesting that improvements in these attributes tend to increase consumer purchase decisions for tempeh. The positive direction of all coefficients indicates that marketing mix attributes and intrinsic product characteristics jointly shape consumer behavior, even though their influence differs across variables.

The regression coefficient for brand image (X_1) is 0.322, indicating that a more positive consumer perception of brand image tends to increase purchasing decisions. However, the partial test results show that this effect is not statistically significant at the 5% level. It suggests that while brand image may influence consumers' attitudes toward tempeh, it does not independently determine

purchasing decisions. This finding is consistent with Dinata et al. (2022) and Mukarromah (2019), who argue that brand image can shape consumer trust and interest. However, its influence may be weaker for staple foods purchased routinely and perceived as generic.

The packaging variable (X_2) has a regression coefficient of 0.245, indicating that better packaging perception is associated with higher purchasing decisions. Although packaging is positively associated with purchase decisions, its partial effect is not statistically significant. It implies that packaging may primarily serve as a supporting attribute rather than a decisive factor in tempeh purchasing behavior. This result aligns with Askita et al. (2023) and Kuspriyono (2017), who state that packaging can influence purchasing decisions when combined with adequate product quality and clear information, but may not be sufficient as a stand-alone determinant.

The regression coefficient for promotion (X_3) is the largest among the non-significant variables, at 0.517, indicating a relatively strong positive relationship with purchase decisions. However, the partial test reveals that this effect is not statistically significant. This suggests that promotional activities may increase consumer awareness but do not necessarily translate directly into purchasing decisions unless the promotional strategy is appropriate to the product and market context. This interpretation supports the findings of Mahardhika & Arintowati (2021) and Astuti & Anggresta (2022), who emphasize that promotional effectiveness depends on the relevance, attractiveness, and suitability of promotional channels and messages.

In contrast, taste (X_4) demonstrates a regression coefficient of 0.419 and is statistically significant at the 5% level, indicating that taste has a meaningful and direct influence on tempeh purchasing decisions. This finding confirms that sensory attributes play a dominant role in food choice, particularly for frequently consumed products. Consumers are more likely to purchase tempeh that aligns with their taste preferences for flavor, texture, and aroma. This result is consistent with the findings of Jamal & Busman (2021) and Dilasari et al. (2022), who report that taste is a critical factor influencing consumer interest and purchasing behavior in food products.

The product quality variable (X_5) has a regression coefficient of 0.193, indicating a positive relationship with purchase decisions, although its partial effect is not statistically significant. It suggests that product quality may act as a basic expectation or hygiene factor rather than a key differentiating attribute. Consumers may assume acceptable quality is a given and become sensitive to quality issues only when standards are not met. This finding supports Wydyanto & Ilhamalimy (2021), who argue that improving product quality remains essential for sustaining consumer trust and repeat purchases, even when it does not emerge as the most influential factor statistically.

Overall, the regression coefficient analysis indicates that, while all examined variables positively influence tempeh purchasing decisions, taste is the most critical determinant, with other marketing mix attributes playing complementary roles. These results highlight the importance of focusing on intrinsic product attributes while supporting them with appropriate marketing strategies to enhance consumer purchase decisions.

3.3 Discussion

This study provides empirical evidence regarding the influence of marketing mix attributes and intrinsic product characteristics on consumer purchase decisions for tempeh in Pasuruan City. The results of the multiple linear regression analysis show that all independent variables brand image, packaging, promotion, taste, and product quality—have positive regression coefficients, indicating that improvements in these attributes tend to increase purchasing decisions. However, the magnitude and statistical significance of these effects vary, suggesting that consumers evaluate tempeh using a combination of intrinsic and extrinsic cues rather than relying on a single factor.

The positive coefficient for brand image indicates that a more favorable consumer perception of the brand tends to increase purchase intentions. Nevertheless, the partial test results show that brand image does not have a statistically significant individual effect. This suggests that tempeh consumers may not rely heavily on brand reputation when making purchasing decisions because tempeh is perceived as a routine, widely available staple. This finding is consistent with Dinata et al. (2022) and Mukarromah (2019), who argue that brand image influences consumer trust and interest but may have a weaker impact on products consumed habitually and perceived as generic.

Similarly, packaging shows a positive but statistically insignificant effect on purchasing decisions. It indicates that better packaging such as clean, practical, and informative packaging can support consumer willingness to purchase tempeh, but it does not independently determine purchasing decisions. Packaging in this context appears to function as a supporting attribute that reinforces hygiene perception and product acceptability rather than as a primary decision driver. This finding aligns with Askita et al. (2023) and Kuspriyono (2017), who state that packaging can influence purchasing decisions when combined with maintained product quality and clear product information. Limited variation in packaging among tempeh producers in the study area may also explain the lack of statistical significance.

The promotion variable exhibits the largest positive regression coefficient among the non-significant variables, indicating that promotional activities tend to increase purchasing decisions. However, its partial effect is not statistically significant, suggesting that promotion alone is insufficient to influence tempeh purchases directly. This result implies that promotional effectiveness depends on the suitability of the promotional form, message, and channel. As noted by Mahardhika and Arintowati (2021), promotional strategies especially those using digital media can influence purchasing decisions when they are relevant and attractive. Likewise, Astuti & Anggresta (2022) emphasize that consumers respond more positively to promotions that align with their preferences and consumption context. In the case of tempeh, promotional efforts that do not align with consumer buying habits may have a limited impact.

In contrast to the other variables, taste has a positive, statistically significant effect on purchasing decisions. This finding highlights taste as the most influential determinant of tempeh purchasing behavior. As an intrinsic product attribute, taste directly affects consumer satisfaction and repeat purchase intention, particularly for frequently consumed food products. Consumers tend to prioritize flavor, texture, and aroma when evaluating tempeh, making taste a critical factor in decision-making. This result is consistent with Jamal & Busman (2021) and Dilasari et al. (2022), who report that taste is a dominant consideration in food purchasing decisions. It is also supported by international evidence showing that sensory appeal plays a central role in shaping food choice and consumption behavior (Imtiyaz et al., 2021).

The product quality variable also shows a positive, though statistically insignificant, effect on purchasing decisions. It suggests that higher perceived product quality tends to increase purchasing decisions, although its influence is not strong enough to be identified as a key determinant when considered independently. Product quality may serve as a basic expectation or hygiene factor, meaning that consumers assume acceptable quality and respond strongly only when quality falls below expectations. This interpretation is consistent with Wydyanto & Ilhamalimy (2021), who argue that product quality is essential for maintaining consumer trust and satisfaction, even if it does not always emerge as a statistically significant driver of purchasing decisions.

Importantly, the F-test results indicate that brand image, packaging, promotion, taste, and product quality simultaneously have a significant effect on purchasing decisions. This finding suggests that although several variables do not show significant partial effects, their combined influence forms a strong explanatory model. It supports the argument that marketing mix attributes work more effectively when integrated as a system rather than as isolated elements. Similar findings have been reported in other food-related studies, where marketing mix variables jointly influence purchasing decisions even when individual effects vary (Devina et al., 2021; Nugroho & Waluyo, 2024; Dzulkharnain, 2019).

From a managerial perspective, these findings imply that tempeh producers should prioritize maintaining and improving taste consistency as the primary competitive advantage, as taste has the strongest and most direct influence on purchasing decisions. At the same time, supporting strategies related to packaging, promotion, brand image, and product quality should not be neglected. Although these attributes may not independently drive purchasing decisions, they contribute collectively to consumer perceptions and purchasing behavior. Improvements in hygienic packaging, targeted promotional strategies, and gradual brand-building efforts can enhance the overall effectiveness of marketing strategies, particularly as tempeh producers expand into more competitive, modernized market channels.

Overall, this study reinforces the view that a balance between intrinsic product attributes and extrinsic marketing cues shapes consumer purchase decisions for traditional food products such as tempeh. While taste remains the dominant factor, an integrated marketing mix approach is essential to sustain competitiveness and encourage repeat purchasing in the agribusiness sector.

CONCLUSION

5.1 Conclusion and Managerial Implications

This study aimed to analyze the influence of marketing mix attributes brand image, packaging, promotion, taste, and product quality on consumer purchase decisions for tempeh in Pasuruan City. The results of the multiple linear regression and partial t-tests indicate that taste is the only variable that has a statistically significant effect on purchasing decisions. The taste variable shows a positive regression coefficient ($\beta = 0.419$) with a significance value of 0.036 (< 0.05), confirming that taste plays a decisive role in shaping consumer purchase decisions. In contrast, brand image ($\beta = 0.322$; Sig. = 0.167), packaging ($\beta = 0.245$; Sig. = 0.059), promotion ($\beta = 0.517$; Sig. = 0.058), and product quality ($\beta = 0.193$; Sig. = 0.260) do not show statistically significant partial effects. These findings suggest that tempeh consumers prioritize intrinsic product attributes particularly taste over extrinsic marketing cues when making purchasing decisions.

Although most variables are not significant individually, the simultaneous test (F-test) indicates that all independent variables collectively have a significant effect on purchase decisions ($F = 9.979$; Sig. = 0.000). This result demonstrates that consumer purchasing behavior for tempeh is influenced by the combined interaction of marketing mix attributes and product characteristics rather than by a single factor in isolation. Therefore, while taste emerges as the dominant determinant, other attributes still contribute to the overall purchasing decision when integrated.

From a managerial perspective, these findings imply that tempeh producers should prioritize maintaining and improving taste consistency as the main competitive strategy, given its statistically significant influence on purchasing decisions. Efforts should focus on raw material selection, fermentation control, hygiene, and standardized processing to ensure stable flavor, texture, and aroma. At the same time, although brand image, packaging, promotion, and product quality do not show significant partial effects, they should not be neglected. Improving packaging design and cleanliness, implementing relevant and targeted promotional strategies, strengthening brand identity, and maintaining consistent product quality can collectively enhance consumer confidence and support purchasing decisions. An integrated marketing strategy that emphasizes taste as the core value while reinforcing it with appropriate marketing attributes is therefore essential to strengthen competitiveness and sustainability in the tempeh agribusiness sector.

5.2 Research Limitations and Future Research Directions

Despite providing meaningful insights into the influence of marketing mix attributes on tempeh purchasing decisions, this study has several limitations that should be considered when interpreting the findings. First, the study employed an incidental (non-probability) sampling technique with a total of 70 respondents. Although this sample size is adequate for multiple linear regression analysis, the use of non-probability sampling limits the generalizability of the results beyond consumers with similar characteristics and purchasing contexts. Future studies are encouraged to apply probability-based sampling techniques and involve a larger number of respondents to enhance external validity.

Second, this study was conducted in a single research location, namely Pasuruan City. Consumer behavior, purchasing patterns, and perceptions of tempeh may vary across regions due to differences in socio-economic conditions, cultural preferences, market structures, and access to retail channels. Therefore, future research could expand the study area to include multiple cities or regions to allow comparative analysis and provide a broader understanding of tempeh purchasing behavior in different agribusiness contexts.

Third, the scope of variables examined in this study was limited to five marketing mix attributes: brand image, packaging, promotion, taste, and product quality. Although these variables provide a comprehensive overview of key marketing and product-related factors, other important variables were not included. Factors such as price, distribution channels (place), perceived value, consumer income level, health awareness, and lifestyle may also influence purchasing decisions for tempeh. Future research could incorporate these variables to develop a more comprehensive and integrative model of consumer decision-making.

Fourth, this study relied on self-reported data collected through questionnaires, which may be subject to response bias, such as social desirability bias or recall bias. While efforts were made to ensure

clarity and anonymity, future studies could complement survey data with observational methods, experimental designs, or actual purchase data to strengthen the robustness of findings.

In addition, this study used multiple linear regression, which assumes linear relationships among variables. Although this method is appropriate for identifying direct effects, it does not capture more complex relationships, such as mediation or moderation. Future research is therefore encouraged to apply more advanced analytical approaches, such as Structural Equation Modeling (SEM) or Partial Least Squares (PLS-SEM), to examine indirect effects (e.g., packaging influencing purchase decisions through perceived quality or trust) and to explore the role of mediating or moderating variables.

Finally, future studies may also explore longitudinal research designs to examine changes in consumer preferences and purchasing behavior over time, particularly in response to innovation in tempeh processing, packaging, and marketing strategies. Such approaches would provide deeper insights into how consumer loyalty and repeat purchasing behavior develop in the tempeh agribusiness sector.

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