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Consumer Attitudes Toward Imported and Local Produce in Indonesia: The Role of Country of Origin and Perception in Shaping Preferences

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Abstract**:** *Imported fruits and vegetables in Indonesia offer consumers a wider variety of choices but negatively impact local farmers who struggle to compete. This research aimed to 1) analyze differences in attitudes and preferences for fruits and vegetables between unexposed and exposed groups; 2) examine the influence of country of origin and attitude on preferences; and 3) explore the effect of perception and attitude on preferences. The study employed a survey and quasi-experimental method with 120 housewives, analyzed using an independent t-test and SmartPLS. The findings revealed significant differences in attitudes between the unexposed and exposed groups. Country of origin positively influenced attitudes in the experimental method, while survey results showed attitudes significantly affected preferences. Recommendations include government measures to limit imports of commodities available domestically, improve local produce quality, and mandate labeling of fruit and vegetable origins. Business actors should provide clear import or local information on produce. Additionally, the Ministry of Trade should promote programs fostering positive attitudes toward local produce to increase consumer preference. Future research could explore variables like experience, knowledge, lifestyle, and taste attributes to better understand factors influencing attitudes and preferences.*

Keywords: *Attitudes; country origin; perception; preferences; quasi-experiment*

Abstrak: *Buah dan sayuran impor di Indonesia memberikan konsumen lebih banyak pilihan, tetapi berdampak negatif pada petani lokal yang kesulitan bersaing. Penelitian ini bertujuan untuk 1) menganalisis perbedaan sikap dan preferensi buah dan sayuran antara kelompok yang tidak terpapar dan terpapar informasi; 2) menguji pengaruh asal negara dan sikap terhadap preferensi; dan 3) mengeksplorasi pengaruh persepsi dan sikap terhadap preferensi. Penelitian ini menggunakan metode survei dan kuasi-eksperimen dengan 120 ibu rumah tangga, dianalisis menggunakan uji-t independen dan SmartPLS. Hasil menunjukkan perbedaan signifikan dalam sikap antara kedua kelompok. Asal negara secara positif memengaruhi sikap dalam metode eksperimen, sementara survei menunjukkan bahwa sikap memengaruhi preferensi secara signifikan. Rekomendasi meliputi pembatasan impor komoditas yang tersedia secara domestik, peningkatan kualitas hasil lokal, dan pelabelan asal buah dan sayuran. Pelaku usaha perlu memberikan informasi yang jelas tentang status impor atau lokal, dan Kementerian Perdagangan perlu mempromosikan program yang membangun sikap positif terhadap produk lokal untuk meningkatkan preferensi konsumen. Penelitian selanjutnya dapat mengeksplorasi variabel seperti pengalaman, pengetahuan, gaya hidup, dan rasa untuk memahami lebih dalam faktor yang memengaruhi sikap dan preferensi.*

Kata Kunci: *Asal negara; kuasi-eksperimen; persepsi; preferensi; sikap*

INTRODUCTION

The era of globalization opens up international market opportunities for domestic (local) products and provides opportunities for foreign (imported) products into the domestic market. The flow of globalization that occurs unites the economies in the ASEAN region through the ASEAN Economic Community, which cannot be avoided and will ultimately impact the development of economic integration (Charumanee, 2012). The existence of the ASEAN Economic Community ensures the smooth flow of goods for trade, making it easier for consumers to access products according to their needs and abilities, with numerous alternatives available (Malau, 2014).

Globalization through free trade presents both a challenge and an excellent opportunity for every country, including Indonesia. Indonesia has a large population and is a significant trading destination. According to data from the Central Bureau of Statistics (BPS), Indonesia's total population in 2021 was 272,229,372 people. The high rate of population growth has led to a continued increase in demand for various necessities of life, including food consumption, which is a target of importers. The characteristics of Indonesian consumers also support this demand. According to Suyanto et al. (2019), Indonesian consumers prefer imported products due to their high prestige. Additionally, consumers often make unplanned purchases without paying attention to information on these goods or services. Data from the Ministry of Agriculture (2020) indicate that Indonesia imported 638,000 tons of fruit and 919,000 tons of vegetables in 2020 (Central Bureau of Statistics, 2021).

Information on the origin of fruits and vegetables is one of the factors that affect consumers (Fuentes et al., 2023). Information about the country of origin of the product generates expectations regarding the country's image, influences beliefs, and relates to specific product attributes, such as the attributes of fruit and vegetable products from that country (Erickson & Hadjikhani, 1984). The large availability of imported fruit and vegetable products circulating in the community at relatively affordable prices, with good quality and attractive packaging, compared to local products, is one of the primary considerations for determining which products to consume. Additionally, attitudes encourage consumers to choose multiple products, and these attitudes are sometimes measured through consumer preferences or choices. Besides attitude, Ruiz et al. (2014) explained that a person's perception of a product can influence their preferences.

Preference is a person's evaluation of two or more objects. Consumers prefer a product if it is placed as consumers' first choice. There are differences between imported and locally produced fruit and vegetable products in terms of appearance, taste, and price. These differences can affect consumer preferences in determining purchasing decisions.

The novelty of this study lies in the combination of a quasi-experimental method to expose country-of-origin information and survey methods. Based on the description above, it becomes an interesting study to investigate the differences between treatment in unexposed groups and information exposure on country origin of fruits and vegetables, as well as to analyze the effect of country origin

information, perceptions, and attitudes on fruit and vegetable preferences.

This study employed the Theory of Consumer Attitudes and Preferences as the primary foundation to analyze the relationship between country of origin information, perceptions, attitudes, and consumer preferences in the selection of fruit and vegetable products. This theory explains that attitude is a person's evaluative response to an object, which can influence purchasing decisions and behavior (Ruiz et al., 2014). Consumer attitudes are formed through experiences, information, and perceptions, including country of origin information, which often influence beliefs and expectations of product quality and attributes (Erickson & Hadjikhani, 1984).

The Ministry of Agriculture (2021) reported that national fruit production in 2020 reached 24.6 million tons, indicating a relatively abundant and affordable fruit supply. Similarly, in 2021, the agricultural sector contributed 0.38 percent to economic growth. However, the demand for vegetables and fruit in Indonesia per capita decreased in 2020 to 52.3 kg and 32.3 kg per year, respectively. Nevertheless, export demand increased by 37.75 percent in 2020 compared to the previous year, particularly for fruit commodities. Indonesia's significant increase in fruit and vegetable production is accompanied by a substantial influx of imported fruit and vegetable products entering the market. The large number of imported fruits and vegetables found in Indonesia, on the one hand, provides benefits for consumers by increasing the variety of fruits and vegetables available for purchase and consumption. On the other hand, it negatively impacts local fruit and vegetable farmers, as their products cannot compete with those imported from abroad.

The potential and availability of local fruit and vegetable products are still inadequate to meet the high level of public consumption. The relatively affordable prices of imported fruit and vegetables have led consumers to prefer imported products (Ministry of Agriculture, 2021). According to Anggasari, Yuliati, and Retnaningsih (2013), imported fruit with abundant availability and attractive color and shape can be easily found. As a result, if consumers do not find the desired local fruit, they are likely to choose imported fruit.

The characteristics of fruits and vegetables influence perceptions, attitudes, and preferences related to the country of origin and consumer behavior in choosing fruits and vegetables. Therefore, improving the quality of local fruit is crucial, as good-quality local fruit can foster positive attitudes among consumers, encourage a preference for local products, and increase purchases of local fruits and vegetables. The high volume of fruit and vegetable imports, combined with the low community preference for local products, remains a significant challenge (Ministry of Agriculture, 2021).

In general, this study aims to analyze the effect of country of origin, perceptions, and attitudes on fruit and vegetable preferences. Specifically, this research aims to (1) analyze the differences in attitudes and preferences for fruits and vegetables between groups exposed and not exposed to information about the country of origin; (2) analyze the influence of country of origin and attitudes on fruit and vegetable preferences; and (3) analyze the effect of perceptions and attitudes on fruit and vegetable preferences.

LITERATURE REVIEW

Relationship of Country Origin, Attitudes, and Preferences

A wide range of studies emphasizes that consumers often prioritize domestically produced goods over imported ones. For example, Asante-Addo and Weible (2019) observed that Ghanaian consumers strongly favor local poultry meat, a finding consistent with Pouta et al., who reported similar tendencies among Finnish consumers, who prefer domestic broiler meat. This inclination is also reflected in Dudinskaya et al. (2021), who found that European consumers value the national origin of products, perceiving local goods as superior. In Southeast Asia, Sayeed et al. (2021) demonstrated that country-of-origin (COO) information significantly influences food purchasing decisions, driven by factors such as regional identity and ethnocentrism. Likewise, Xhakollari et al. (2023) highlighted Mediterranean consumers' strong preference for locally sourced clams, attributing this trend to the trust fostered by geographical proximity. Táborecká-Petrovičová (2023) further supports this view, noting that COO preferences are especially pronounced in developed countries. Additionally, Turna (2023) revealed that consumer ethnocentrism plays a mediating role in the relationship between COO and preferences, showing that loyalty to local brands and products heavily influences purchasing behavior, even in specific contexts like cafés. Based on the analysis of previous research, the following hypotheses can be formulated:

H1a: There are significant differences in attitudes towards fruits and vegetables between groups not exposed to and exposed to information about the country of origin.
H1b: There are significant differences in preferences for fruits and vegetables between groups not exposed to and exposed to information about the country of origin.

Relationship of Country Origin and Attitude

The connection between country of origin (COO) and consumer attitudes has become a significant focus in the fields of marketing and consumer behavior, as it provides valuable insights into how consumers evaluate products. According to Karki (2023), individuals with lower levels of ethnocentrism tend to exhibit more favorable attitudes toward foreign brands. This suggests that COO information may act as a stronger predictor of consumer perceptions compared to ethnocentrism alone, highlighting the nuanced role COO plays in shaping consumer attitudes. Similarly, Seo (2023) found that consumers who display low ethnocentrism are more likely to hold positive views toward foreign companies. These findings emphasize the variability in attitudes toward COO, which are influenced by personal characteristics, such as the degree of ethnocentrism, thereby underscoring the importance of considering individual differences when analyzing consumer behavior concerning COO. Based on the analysis of previous research, the following hypothesis can be formulated:

H2: Country origin has a significant effect on attitudes towards fruits and vegetables.

Relationship of Country Origin and Preference

A key factor influencing consumer preference for domestic products is the belief that locally produced goods are of higher quality. For example, research by Asante-Addo and Weible (2019) revealed that Ghanaian consumers show a strong preference for locally produced poultry meat, favoring it over imports from countries such as Denmark and Brazil. Similarly, Dudinskaya et al. (2021) found that the national origin of red meat plays a crucial role in shaping consumer willingness to pay across multiple European countries, with local products often being preferred due to their perceived quality superiority. This trend is not confined to specific regions, as consumers worldwide increasingly associate domestically produced goods with attributes like freshness and safety, reinforcing their preference for local products. Based on these discussions, the following hypothesis can be formulated:

H3: Country origin has a significant effect on fruit and vegetable preferences.

Relationship of Perception and Attitude

Saputra and Samuel (2013) described perception as a process by which individuals choose, organize, and interpret information input that involves the senses. Fresh fruit and vegetable products, affordable prices, and good taste influence consumer attitudes in choosing fruit and vegetable products. Price is one factor that influences consumers' decisions when selecting products to purchase (Lee & Yun, 2015). Montigny et al. (2017) demonstrated that positive perceptions are correlated with more favorable attitudes. Based on these discussions, the following hypothesis can be formulated:

H4: Perception has a significant effect on attitudes towards fruits and vegetables.

Relationship of Perception and Preference

Perception is a key factor in influencing consumer preferences for products and services. Aditya and Ekyawan (2021) identified a strong and positive correlation between users' perceptions of digital payment applications and their preferences for these platforms. Their research reveals that aspects of perception, such as user-friendliness and security, play a direct role in shaping consumer choices, emphasizing the significance of incorporating consumer perception into effective marketing strategies. Ruiz et al. (2014) stated that perceptions of food can influence preferences. Based on the analysis of previous research, the following hypothesis can be formulated:

H5: Perception has a significant effect on fruit and vegetable preferences.

Relationship of Attitude and Preference

Attitudes are fundamental in shaping consumer preferences for products and services. For example, Palma et al. (2017) emphasize that consumer attitudes significantly influence preferences and are often shaped by observable consumer traits. This finding is consistent with research that suggests positive attitudes toward a brand or product can enhance preference. For instance, in the case of Dove shampoo, attitudes toward advertising played a significant role in influencing brand preference (Lestari & Zulfikar, 2022). Anggasari et al. (2013) found that individuals with a positive attitude towards

local fruit also have a favorable preference for local fruit. Consumer attitudes affect consumer purchasing decisions (Husna et al., 2024). Based on previous research, the following hypothesis was formulated:

H6: Attitude has a significant effect on fruit and vegetable preferences.

Most previous studies focus on processed or animal-based products in developed countries. Research on how country of origin affects attitudes and preferences toward fresh fruits and vegetables in emerging markets like Indonesia remains limited. In addition, few studies test the causal impact of COO information on perception, attitude, and preference. This study aims to fill these gaps.

To address the identified gaps and build upon existing literature, this study integrates the variables of country origin, perception, and attitude to examine their influence on consumer preferences for both imported and local fruits and vegetables.

Based on the previous studies, a framework has been prepared relating to country origin, perception, and attitude on imported and local preferences for fruits and vegetables. The research framework is presented in Figure 1.

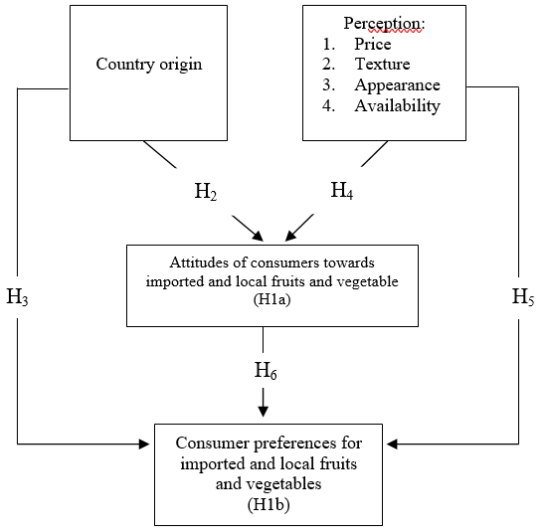

Figure 1. A research framework

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Study Design

This study used a survey method and a quasi-experimental design. Quasi-experiments were conducted by comparing the effect of giving a treatment on an object (experimental group) and seeing the size of the group's influence. In the context of this research, treatment was given only to expose information related to imported and local fruit and vegetable products to subjects without strict control, such as experiments in the laboratory. It will be quite tricky to strictly control social research, given the study results' many variables. The research procedure given during the experiment can be seen in Figure 2.

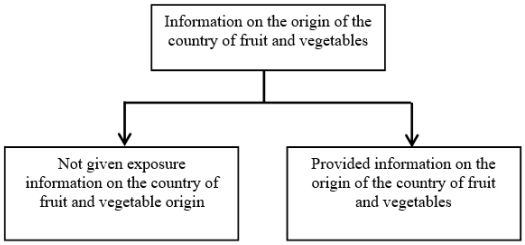

Figure 2. Treatment of research subjects

The information provided was in the form of information on the country of the fruit. Country origin is only given to the group exposed to the information. Subjects are shown both imported and local fruit products in real fruit, not pictures. The fruit used for the study was selected based on the results of a previous survey both in traditional and modern markets, then the fruit was paired with the same type of local and imported fruit. Based on the survey results, available imported fruits include apples, oranges, grapes, longan, pear, watermelon, kiwi, and coconut. Imported and local fruits carried out in the study consisted of 10 fruits, five imported and five local fruits, namely apples, oranges, bananas, lemons and limes, and durians.

The information given was in the form of information on the country of the vegetables. The origin of the vegetable country is only given to the group exposed to the information. Subjects are shown directly imported and local vegetable products in natural vegetables instead of pictures. Vegetables used for the study were selected based on previous surveys both in traditional and modern markets, then the vegetables were paired with the same type of local and imported vegetables. Based on the survey results, available imported vegetables include corn, carrots, pumpkin, leeks, and broccoli. The imported and local vegetables carried out in the study consisted of 10 vegetables, five imported vegetables each, and five local vegetables of the same type, namely onions, garlic, carrots, potatoes, and corn.

Sampling Techniques

The population in this study consisted of housewives residing in Bogor City and Bogor Regency who are responsible for making decisions regarding the purchase of fruits and vegetables. Each sub-district and village were selected as many as 60 households as subjects. Samples were determined utilizing quota sampling. Thus, this study involved 120 housewives from the sub-district and villages in the research locations. From each sub-district and village will be taken 30 subjects who were not presented with information on the country of fruit and vegetables and 30 subjects presented with information related to the country origin of fruits and vegetables.

Quasi Experimental Procedure

The quasi-experiments must be prepared as well as possible, especially the conditions and places of the subject, neither the information nor the information on the origin of the country of fruits and vegetables so that it is hoped that it will give results that follow the research objectives. The information given was information on the origin of the country of fruit and vegetables.

The quasi-experiment was divided into two groups. The first group, which was not exposed to information, consisted of 60 subjects who were distributed a questionnaire containing specific questions and were provided an explanation of its contents. These subjects were shown natural fruits and vegetables, not pictures, without any information regarding the country of

origin of the fruits and vegetables. Afterward, they were asked to complete the distributed questionnaire. The second group, which was exposed to information, also consisted of 60 subjects who received the same questionnaire and explanation. However, these subjects were shown the fruits and vegetables along with detailed information about the country of origin of each item. They were then asked to complete the questionnaire as well. The research steps, including the preliminary plan and experimental implementation, are outlined in Table 1.

Table 1. Research steps

No	Step	Activity
1.	Preparation	- Requesting assistance from cadres or village officials in preparation for research - Prepare a room that will be used as a place for experiments - Prepare tools (questionnaires and pens) and materials (fruits and vegetables) - The research subject enters the room - Explain the purpose of the research to be carried out - Asking the willingness of research subjects to participate in research - Distributing questionnaires to subjects who are willing to take part in the research - Prepare fruits and vegetables
2.	Implementation of experiment	- Provide instructions so that research subjects do not tell each other their answers - Explanation of fruits and vegetables - Research subjects begin to fill out a questionnaire - Collecting questionnaires that research subjects have filled in - The questionnaires that have been collected are rechecked to ensure that all the required data have been met - The experiment is over

Data Collecting and Research Instruments

The data collected in this study are primary data obtained through self-report using a questionnaire containing country origin variables, perceptions, attitudes, and preferences.

Perception was measured using five answer choices (1 = very dislike, 2 = dislike, 3 = neutral, 4 = like, and 5 = very like). Perception consists of 80 question items resulting from the adoption and modification of Muzdalifah (2012). Attitude variables were measured using instruments developed by Fathia et al. (2018). The attitude variable consists of 15 question items measured using a Likert scale with a four-level system (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). The preference variable consists of 10 question items with two answer choices between imported and local products.

The research instrument was tested before the research was carried out. The

research instrument is considered reliable if it has an alpha coefficient of more than 0.60 (Zakariya, 2022). The results of the questionnaire trial show that the reliability values of the research instruments are as follows: perception 0.784, attitude 0.734, and preference 0.694. The variables studied were assessed using scores based on the scale used for each variable.

Data Analysis

The data obtained were processed through coding, data entry, and data analysis. Data processing was performed using Microsoft Excel, the Statistical Package for Social Sciences (SPSS) for Windows, and the Structural Equation Model (SEM). The data analysis was divided into two types: descriptive analysis and inferential analysis.

Descriptive analysis is a research method that includes the calculation of the average, standard deviation, minimum value, and maximum value. This type of analysis aims to group similar answers to make the data easier to understand. In this study, descriptive analysis included examining the demographics of the respondents by calculating the percentage of answers from the distributed questionnaires.

Inferential analysis employed both the independent t-test and the Structural Equation Model (SEM) using Smart Partial Least Squares (PLS) techniques. The independent t-test was used to analyze differences in attitudes and preferences for fruits and vegetables between groups not exposed to and those exposed to country-origin information. The SmartPLS analysis in this study served as a predictive relationship model, and Partial Least Square Path Modeling was used to test the proposed hypotheses. This technique is particularly useful for addressing challenges such as small sample sizes, non-normally distributed multivariate data, missing values, and multicollinearity issues among exogenous variables.

RESULT AND DISCUSSION

Subject Characteristics

The study involved 120 housewives aged 19–70 years, with the non-exposed group averaging 39.32 years and the exposed group 46.12 years, showing a significant age difference ($p = 0.001$). Both groups had medium-sized families (5–6 members) with averages of 4.07 and 4.43 members, respectively, and no significant difference ($p = 0.190$). Education levels differed significantly ($p = 0.010$), with the non-exposed group averaging 9.38 years and the exposed group 10.88 years, the latter having 45% senior high school graduates. Most subjects were housewives, with 75% in the non-exposed group and 63.3% in the exposed group unemployed. Monthly income averages were IDR 2,763,333 for the non-exposed group and IDR 2,993,333 for the exposed group, with no significant difference ($p = 0.059$). For more details, see Table 2.

Table 2. Subjects profile based on category groups

Subjects Profile	Not Exposed (n=60)		Exposed (n=60)	
	n	%	n	%
Age				
Early adulthood (18-40 years)	32	53.4	23	38.3
Middle adult (41-60 years)	26	43.3	32	53.4
Late adult (≥ 61 people)	2	3.3	5	8.3

Subjects Profile	Not Exposed (n=60)		Exposed (n=60)	
	n	%	n	%
Min-max	19-68		20-70	
Average±SD	39.32±10.44		46.12±12.29	
p-value	0.001**			
Family Size				
Small family (≤4 people)	23	38.3	14	23.3
Medium family (5-6 people)	35	58.4	41	68.4
Large family (≥ 7 people)	2	3.3	5	8.3
Min-max	1-8		1-8	
Average±SD	4.07±1.45		4.43±1.59	
p-value	0.190			
Level of Education				
Primary school	21	35.0	13	21.7
Junior High	16	26.7	9	15.0
High school	18	30.0	27	45.0
Diploma	3	5.0	6	10.0
Bachelor	2	3.3	5	8.3
Min-max	6-16		6-16	
Average±SD	9.38±3.05		10.88±3.21	
p-value	0.010*			
Employment				
Civil servants	0	0.0	3	5.0
Private	4	6.7	4	6.7
Entrepreneur	3	5.0	9	15.0
Farmer	3	5.0	3	5.0
Labour	3	5.0	1	1.7
Unemployee	45	75.0	38	63.3
Others *	2	3.3	2	3.3
Income				
≤ IDR 900.000	5	8.3	5	8.3
IDR 900.001 - IDR 1.250.000	7	11.7	7	11.7
IDR 1.250.001 - IDR 1.500.000	7	11.7	5	8.3
IDR 1.500.001 - IDR 1.750.000	3	5.0	2	3.3
IDR 1.750.001 - IDR 2.000.000	7	11.7	5	8.3
IDR 2.000.001 - IDR 2.500.000	1	1.7	3	5.0
IDR 2.500.001 - IDR 3.000.000	8	13.3	10	16.7
IDR 3.000.001 - IDR 4.000.000	9	15.0	10	16.7
IDR 4.000.001 - IDR 4.500.000	2	3.3	1	1.7
IDR 4.500.001 - IDR 5.000.000	8	13.3	8	13.3
> IDR 5.000.000	3	5.0	4	6.7
Min-max	500.000-7.500.000		300.000-10.000.000	
Average±SD	2.763.333±1649574.104		2.993.333±1903686.581	
p-value	0.059			

Note: **significant at p<0.01

Independent t-test of Attitudes and Preferences between Unexposed and Exposed Groups on Information

The results showed that the mean score of attitudes in the group not exposed to information was 65.52 and in the group exposed to information was 72.02, with a significant difference (p-value = 0.000)

between the two groups. This finding supports Hypothesis 1a: there is a significant difference in attitudes towards fruits and vegetables between the groups not exposed and exposed to information from the country. However, there was no significant difference (p-value <0.05) between the groups not exposed and exposed to information on the fruit and vegetable preference variables (Table 3).

Table 3. Different tests between the groups not exposed and exposed to information

Variables	Not Exposed	Exposed	*p-value*
Attitude	65.52	72.02	0.000**
Preference	75.50	73.00	0.542
- Fruit	70.00	69.67	0.946
- Vegetable	81.00	76.33	0.368

Note: **significant at p <0.01

Convergent Validity

Convergent validity of the measurement model with reflexive indicators is assessed based on the correlation between the item score or component score estimated by Software PLS. An individual reflexive measure is high if it correlates more than 0.70 with the measured variable. However, according to Dudhat et al. (2022) for early-stage research, the measurement scale for the loading value of 0.5 to 0.6 is considered sufficient. Therefore, a loading factor limit of 0.5 was used in this study.

The results of experimental data processing using the SmartPLS program can be seen in Table 4. The outer loading value of the latent variable of the attitude of the experimental results has met the convergent validity because all have a loading factor value above 0.50. In contrast, one indicator has a loading factor value below the latent preference variable. 0.50. The best value of outer loadings is obtained after going through the elimination stage of several indicators.

Table 4. Outer loadings (Measurement Model) latent variables of experimental results

Latent Variable	Indicator	Loading Factor
Attitude	A6.8	0.696
	A6.10	0.651
	A6.11	0.642
	A6.12	0.723
	A6.13	0.585
	A6.14	0.730
Preference	A7.4	0.433
	A7.6	0.586
	A7.8	0.800
	A7.9	0.664
	A7.10	0.791

The results of survey data processing using the SmartPLS program can be seen in Table 5. The value of the outer loading of all indicators has met the convergent validity because all have a loading factor value above 0.50. The best value of outer loadings is obtained after going through the elimination stage of several indicators.

Table 5. Outer loadings (Measurement Model) latent variables of survey results

Latent Variable	Dimension	Indicator	Outer Loadings
Perception	Display	A2.15	0.694
		A2.16	0.779
		A2.17	0.665
		A2.18	0.634
	Texture	A3.1	0.572
		A3.11	0.713
		A3.13	0.723
		A3.15	0.632
		A3.17	0.755
		A3.19	0.656
	Price	A4.12	-0.648
		A4.14	-0.567
		A4.16	-0.785
		A4.18	-0.717
		A4.20	-0.774
	Availability	A5.3	0.756
		A5.4	0.926
Attitude		A6.6	0.659
		A6.8	0.716
		A6.11	0.548
		A6.12	0.569
		A6.14	0.690
Preference		A7.4	0.552
		A7.6	0.595
		A7.8	0.798
		A7.9	0.667
		A7.10	0.743

Discriminant Validity

Discriminant validity is an indicator measurement with its latent variable. Measuring discriminant validity is done by looking at each variable's AVE (Average Variance Extracted) value (Table 6). If the AVE value of each variable has a value of >0.5, it can be concluded that the construct has good discriminant validity. Table 6 shows the results of discriminant validity testing based on experimental results on the two latent variables, namely attitudes and preferences, which still do not meet discriminant validity because they have an AVE value <0.5. The results of testing discriminant validity are based on the survey results. All latent variables, namely perceptions, attitudes, and preferences, have met discriminant validity because they have an AVE value >0.5.

Table 6. Discriminant validity of latent variables

Latent Variable	AVE (*Average Variance Extracted*)
Experimental results	
Attitude	0.453
Preference	0.447
Survey result	
Perception	0.922
Attitude	0.686
Preference	0.502

Composite Reliability

Reliability criteria can also be seen from the reliability value and the Average Variance Extracted (AVE) value of each variable. The variable is reliable if the composite reliability value is above 0.60. In Table 7, the Composite Reliability value of the latent variable of the experimental results will be presented. The analysis results show that all the variables studied have a composite reliability value above 0.60, which means that all variables can be declared reliable—the value of the composite reliability survey data. Furthermore, the analysis results show that the variable attitudes, preferences, and dimensions of perception, namely appearance, texture, price, and availability, have a composite reliability value above 0.60, which means that all variables can be declared reliable.

Table 7. Composite reliability of the latent variables

Latent Variables	Composite reliability
Experimental results	
Attitude	0.831
Preference	0.795
Survey result	
1. Perception	
- Display	0.788
- Texture	0.835
- Price	0.828
- Availability	0.831
2. Attitude	0.774
3. Preference	0.806

The overall evaluation results, convergent validity, discriminant validity, and composite reliability have been described above. Therefore, it can be concluded that most indicators measuring latent variables are valid and reliable. However, some invalid variables and indicators will not be eliminated from the model because they still contribute to forming a good SmartPLS model in this study.

The Structure Model (Inner Model)

Inner model testing, also known as structural models, is conducted to examine the relationship between latent variables, the

significance value, and the research model's R-squared value. The structural model was evaluated using the R-squared value for the dependent variable, a t-test, and the significance of the structural path parameter coefficients.

Model assessment with PLS begins by examining the R-squared value for each latent dependent variable. Changes in the R-square value can assess whether certain independent latent variables have a substantive effect on the latent dependent variables.

Figure 3 shows the R-square value of the attitude construct, which is 0.107, indicating that the attitude variable can explain 10.7% of the variance in the country. In contrast, the rest is explained by other unresearched variables. For example, the preference variable has an R-square value of 0.058, which means 5.8% of the variance of country origin. Furthermore, attitudes can explain preference variables, while others explain the rest. The greater the R-square value, the greater the ability of the independent variable to explain the dependent variable, so that the structural equation will be better.

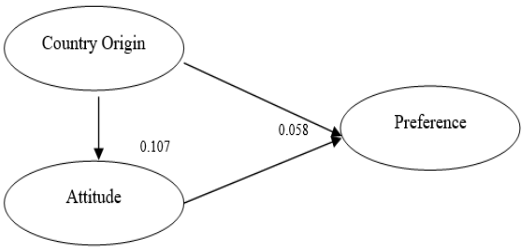

Figure 3. The R-squared of the experimental

Figure 4 shows that in the survey data, the R-squared value of the attitude construct is 0.071, which means that 7.1% of the perceptual variance can be explained by the attitude variable, while the rest is explained by other variables not studied. The preference variable has an R-square value of 0.096, which means that 9.6% of the variance of perception and attitude can explain the preference variable while other variables explain the rest.

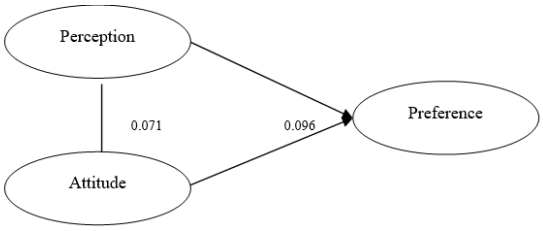

Figure 4. Estimated results of the R-square survey

The Effect of Country Origin and Attitudes on Fruit and Vegetable Preferences

The analysis results using SmartPLS show that country of origin has no significant effect on fruit and vegetable preferences because the t-test value is less than 1.96. The study results mean rejecting Hypothesis 3, namely the country of origin, significantly affects fruit and vegetable preferences. The attitude variable does not significantly affect fruit and vegetable preferences because it has a t-value of less than 1.96 (Table 8).

The study results mean rejecting Hypothesis 6, namely attitude, significantly affects fruit and vegetable preferences. The results of the SmartPLS analysis show that the country of origin has a significant effect on attitude formation because the t-test value of the country's origin is above 1.96. This means that the knowledge of the country of origin possessed by the subject will influence the formation of the subject's attitude towards fruit and vegetable products. Therefore, the results of the study

support Hypothesis 2, namely, the country of origin has a significant effect on attitudes towards fruits and vegetables.

Table 8. The test model for the influence of country origin and attitudes towards preferences

Latent Variable	*Original Sample* (O)	T-test	Conclusion
Preferences			
Country of origin	-0.105	0.701	Reject H_3
Attitude	0.225	1.290	Reject H_6
Attitudes			
Country of origin	0.329	3.335*	Accept H_2

Note: *significant at > 1.96

The analysis results show that the country of origin indirectly affects fruit and vegetable preferences. Table 9 shows the test results for the direct and indirect effects of country of origin on fruit and vegetable preference.

Table 9. Results of the test model for the effect of country origin on preferences

Latent Variable	Not exposed		
	Direct Effect (DE)	Indirect Effect (IE)	Total Effect (TE)
Country of origin	-0.105	-0.084	-0.021

The Effect of Perceptions and Attitudes on Fruit and Vegetable Preferences

The survey data analysis results showed no effect on fruit and vegetable preferences because the t-test value was not greater than 1.96. The study results reject Hypothesis 6, namely that perception significantly affects fruit and vegetable preferences. The attitude variable significantly influences fruit and vegetable preferences because it has a t-value greater than 1.96 (Table 10). The study results mean that acceptance of Hypothesis 7 significantly affects fruit and vegetable preferences. The survey data analysis results showed that perception did not significantly affect attitude formation because the t-test value of the product selection factor was below 1.96. This is presumably due to other variables shaping attitudes towards fruits and vegetables. Therefore, the study results do not support Hypothesis 5, namely that perception significantly affects attitudes towards fruits and vegetables.

Table 10. The results of the model test using survey data

Latent Variable	Original Sample (O)	T-test	Conclusion
Perception→ Preferences	0.050	0.234	Reject H6
Attitude→ Preferences	0.321	2.085*	Accept H7
Perception→ Attitude	-0.268	1.742	Reject H5

Note: *significant at > 1.96

The analysis results show that perception indirectly affects fruit and vegetable preferences. Table 11 shows the test results for the direct and indirect effects

of perceptions on fruit and vegetable preferences using survey data.

Table 11. The results of the model test of the effect of perception on preferences

Latent Variable	Direct Effect (DE)	Indirect Effect (IE)	Total Effect (TE)
Perception	0.050	-0.015	-0.035

DISCUSSION

The study was conducted using a quasi-experimental method in which groups were not exposed to country-origin information and survey methods. In general, this study aims to analyze the effect of country origin, perceptions, and attitudes on fruit and vegetable preferences. The subjects in this study were housewives in urban and rural areas. Selection of housewives as research subjects with the consideration that mothers are the ones who are responsible for determining family consumption, including fruits and vegetables.

In this study, there are six research hypotheses. The results show that the hypothesis is not supported as a whole, but only supported by Hypothesis 1a, which is that there is a significant difference in attitudes to fruits and vegetables between the unexposed and exposed groups of information from the country, Hypothesis 2, namely the country of origin has a significant effect on attitudes towards fruits and vegetables. Finally, hypothesis 6 is that attitude significantly affects fruit and vegetable preferences in the survey results.

The results showed significant differences in the subjects' attitudes who were not exposed to information and were exposed to information. This means that the results of the study could accept Hypothesis 1a. Subjects presented with information or knowledge had a higher positive attitude towards local fruits and vegetables than subjects not presented with information.

The Results of Experimental Study

Country of origin refers to information about where a product is produced, manufactured, or extracted, influencing consumers' purchasing decisions. The concept of country-of-origin as a marketing tool has been utilized for over four decades and has been extensively explored and defined by numerous scholars (Etuk & Udonde, 2022). Findings from previous studies indicate that the image of a product's country of origin plays a significant role in the consumer purchasing process, influencing their perception of the product's quality and anticipated price (Brucaj, 2020).

The results indicate that country of origin significantly affects attitudes, supporting Hypothesis 2. This aligns with Sliburyte's (2017) findings, which concluded that country of origin impacts consumer attitudes. Research by Seo (2023) highlights that consumers with lower levels of ethnocentrism are more inclined to hold favorable attitudes toward foreign brands, implying that COO information may be a stronger determinant of consumer perceptions than ethnocentrism alone. Similarly, Karki (2023) underscores the role of consumer engagement with a specific product category and their familiarity with the product's origin in influencing their attitudes and purchase decisions. As consumers gain greater awareness of the quality associated with particular countries, their perceptions of products from those

regions tend to improve, further solidifying the impact of the COO effect.

Previous research suggests that the country-of-origin image holds substantial importance in the consumer purchasing process. However, the study results revealed that country of origin did not significantly affect preferences, rejecting Hypothesis 3. This finding aligns with Mizrachi et al. (2018), who argued that country origin has no relationship with preference.

Palma et al. (2017) point out that preferences are strongly influenced by consumer attitudes, which are shaped by various observable characteristics. Similarly, positive attitudes toward a brand or product can significantly enhance consumer preference, as demonstrated by Lestari and Zulfikar (2022) in the case of Dove shampoo, where attitudes toward its advertising greatly impacted brand preference. The results thus rejected Hypothesis 6, which proposed that attitude significantly affects fruit and vegetable preferences.

The Results of Survey Study

Attitudes reflect the relationship between perceptions, external stimuli, and behaviors, interpreting consumer responses (Schaefer et al., 2012). Saputra and Samuel (2013) described perception as the process by which individuals select, organize, and interpret sensory input. This study divided perceptions into four dimensions: appearance, texture, price, and availability of fruits and vegetables. The results indicated that perception did not significantly affect attitudes, rejecting Hypothesis 5, which proposed that perception significantly influences attitudes towards fruits and vegetables.

Consumer choices are directly influenced by perceptions (Aditya & Ekyawan, 2021) However, the findings revealed that perception did not significantly affect preferences, leading to the rejection of Hypothesis 6, which suggested that perception influences fruit and vegetable preferences. These results contradict Ruiz et al. (2014), who found that perceptions of food could shape preferences.

The study demonstrated that attitude significantly influences preference formation, aligning with the findings of Anggasari et al. (2013), which indicated that individuals with positive attitudes toward local fruits also have positive preferences for them. Consequently, the study accepted Hypothesis 7, confirming that attitude significantly affects fruit and vegetable preferences in the group not exposed to country-of-origin information. It also supported Hypothesis 4b, affirming the significant impact of attitude on fruit and vegetable preferences.

This study was conducted based on previous research; however, several limitations emerged. First, the findings cannot be generalized to the broader population, as they are specific to the subjects involved in this study. Second, there is a possibility that subjects exposed to country-of-origin information already possessed prior knowledge about the origin of the fruits and vegetables, as the researchers did not assess the extent of their knowledge. Lastly, the study did not control for differences in education levels and ages between the non-exposed and information-exposed groups, which resulted in significant variations in these variables across the two group

Theoretical and Practical Contributions

This study contributes to the Theory of Consumer Attitudes and Preferences by highlighting the role of country-of-origin (COO) information in shaping consumer attitudes and preferences for fruits and vegetables. The findings demonstrate that exposure to COO information significantly influences consumer attitudes, which in turn shape their preferences. This confirms the theory's premise that attitudes are crucial in consumer decision-making, particularly when evaluating products with varying origins. Additionally, the study provides new insights into how COO information enhances consumers' perception and evaluation of product attributes, such as quality and value, reinforcing the preference for either local or imported products. By integrating experimental methods, the research offers practical implications for leveraging COO information to improve consumer attitudes and promote local product competitiveness in global markets.
The government needs to limit imports of fruit and vegetables whose commodities are available domestically and collaborate with agricultural institutions and communities to improve the quality of local fruit and vegetables. Country of origin affects attitudes towards fruit and vegetables; for this reason, the government needs to make regulations that contain information on the use of the MD / ML (imported/local) label not only on packaged products but also on included fruit and vegetable products. In addition, fruit and vegetable business actors need to include import or local information on fruits and vegetables. The Ministry of Trade needs to increase the program to build positive attitudes towards local fruit and vegetables to raise public awareness to prefer local fruits and vegetables. Future research could add other variables such as experience, knowledge, and lifestyle that potentially influence attitudes and preferences and add taste attributes to provide a clearer picture of perceptions, especially fruit perceptions.

CONCLUSIONS AND SUGGESTIONS

Conclusions

There was a difference between the attitudes of the non-exposed and information-exposed groups. This means that the better the subject's attitude towards local and imported fruits and vegetables, the higher the subject's preference for local and imported fruits and vegetables. The country origin of fruits and vegetables affects the formation of attitudes. This means that information on the origin of the country of fruits and vegetables owned by the subject affects the subject's tendency to assess fruits and vegetables. Finally, attitude affects preferences in survey results. The subject's attitude towards local fruit and vegetables influenced the subject's selection of local fruits and vegetables or shape the subject's preference in choosing local fruits and vegetables.

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