ANALYSIS OF CONSUMER PREFERENCES IN CONSUMING PROCESSED COFFEE PRODUCTS AT CAFE NECTAR BALI

Isabel Divya Georgiana Walewangko[1][§], I Komang Gde Sukarsa[2], I Gusti Ngurah Lanang Wijayakusuma[3], I Putu Eka Nila Kencana[4], I Gusti Ayu Made Srinadi[5], Ratna Sari Widiastuti[6]

Program Studi Matematika, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Udayana

Email: isabeldivya@gmail.com, gedesukarsa@unud.ac.id, lanang_wijaya@unud.ac.id, i.putu.enk@gmail.com, srinadi@unud.ac.id, ratnasariwidiastuti@unud.ac.id

	ABSTRACT
Keywords: Coffee; Conjoint Analysis; Consumer Preferences	*Coffee beverages have become a highly sought-after product, particularly in tourist areas that are favoured by both local and foreign tourists. For this reason, there are many business owners who want to expand their business with coffee as the main menu. Cafe Nectar Bali, not far from the tourist attraction Garuda Wisnu Kencana (GWK), is one of the places frequented by both locals and foreign tourists. The purpose of this study is to identify the characteristics consumers often consider when consuming processed coffee products at Cafe Nectar Bali and to understand the preferences of local residents and foreign tourists regarding processed coffee products offered. The research method used is the analysis of local and foreign tourist preferences using conjoint analysis techniques. The findings show that consumers are prioritizing the type of coffee and how it is served. Both locals and foreign tourists value the diversity feature more than the presentation method feature. Local consumers choose the stimulus of latte variant and hot serving methods. On the other hand, foreign tourists chose the stimulus of latte variant and the cold serving method.*

INTRODUCTION

Business is a commonly heard term among many people. According to the viewpoint of (Angkat & Nawawi, 2022), business can be defined as the process of seeking livelihood or generating money, encompassing all the processes involved in producing goods and services with the aim of making a profit. By producing in line with consumer desires, this can yield advantages for businesses in enhancing the sustainability of products based on consumer demand (Sari et al., 2021; Sisca et al., 2021). One of the businesses frequently circulating within society is the food and beverage sector business.

Based on data from the Central Statistics Agency (BPS) in the middle of 2022, the food and beverage sector held the top position in being the largest contributor to the Gross Domestic Product (GDP) in the industrial sector (Badan Pusat Statistik, 2022). One type of food and beverage product that is widely circulated among the community is processed products using coffee as a base ingredient. Coffee is a beverage that is frequently consumed by various segments of the population, both young individuals and the elderly.

Based on the data provided by the (International Coffee Organization, 2022) it is stated that during the period of 2020/2021, coffee consumption in Indonesia reached five million bags, each

weighing 60 kg. It can also be observed that in 2021, Indonesia's coffee production was 774,6 thousand tons, which experienced an increase compared to the previous year. In 2020, the coffee production generated was only around 753,9 thousand tons.

According to Syafrudin, the Chairman of the Specialty Coffee Association of Indonesia (SCAI), as mentioned in (Zuhriyah, 2019) it is explained that coffee consumers tend to derive more enjoyment from their coffee beverages in coffee shops while engaging in other activities, rather than savoring instant coffee prepared at home. This phenomenon consequently presents an opportunity for entrepreneurs in the food and beverage industry who aspire to create products that will be embraced by a diverse cross-section of the population.

The consumer base for coffee keeps growing steadily, leading to ongoing advancements in coffee production, encompassing aspects from sales strategies to expanding into various regions (Puteri et al., 2021). The business chosen for the study to analyze coffee consumer preferences is Cafe Nectar Bali. In addition to serving local customers, foreign customers are also frequently encountered at the cafe. There are various techniques available to ascertain consumer preferences, and one of these methods is conjoint analysis.

The term "preference" means something that is liked more, a primary choice, or a prioritized need that can provide better benefits (KBBI, 2021). Consumer preference itself signifies the selection, both for products and services, provided by a business in line with the customer's interest or lack thereof towards the said product or service (Budi & Suprapti, 2022).

In accordance with the perspective of (Kotler et al., 2020), attributes in a product or service are features or characteristics that can influence consumers' perceptions of the quality of that product or service. On the other hand, attribute levels refer to the varying levels of specifications within different products, which exert an influence on consumer preferences.

Conjoint analysis is a statistical technique that assesses the combination or entirety of product or service attributes in individual preferences for various offerings of the goods or services. The goal of the analysis is to identify the most preferred combinations of product or service attributes for consumers. Conjoint analysis aids in comprehending what aspects of a offered product or service appeal to consumers.

A previous study conducted by (Rohmah & Subari, 2021) regarding consumer preferences for coffee beverage products at Coffee Janji Jiwa Jilid 324 in Surabaya elucidates that the attributes preferred by consumers are coffee with variations like iced milk coffee, ice cream toppings, sweet flavor, priced at Rp23.000. A subsequent study by (Angriva & Sunyigono, 2020) examined consumer perceptions and preferences towards PT. Kembang Joyo's honey products, revealing that the attribute combination favored by consumers in purchasing the honey products included Kaliandra honey type, sweet taste, price range of Rp30.000-Rp80.000, 660ml bottle packaging, with the sequential order of importance being packaging attribute, type attribute, flavor attribute, and price attribute. Another study by (Baghaskoro et al., 2021) on the attribute design of Coffee Colada based on consumer preference analysis using conjoint method with a full profile approach expounds that cafe facilities are the most significant attribute according to consumer preferences.

Drawing from several previous studies as mentioned earlier, this research opted for an on-site questionnaire distribution approach, allowing for the dissemination of said questionnaire among diverse coffee consumers at Cafe Nectar Bali, encompassing both the local populace and

tourists hailing from various regions. This approach was chosen with the intent of yielding more distinct and precise outcomes.

Conjoint analysis is widely employed in marketing for several objectives, including:
1) Assessing the relative significance of each attribute in consumer decision-making processes.
2) Predicting a product's market share with varying levels of attributes.
3) Identifying the most preferred product attribute combinations among consumers.
4) Forming market segmentation based on the similarities in preferences regarding attribute levels (Hair et al., 2017).

RESEARCH METHODOLOGY

Type and Source of Data

This study was conducted at Cafe Nectar Bali, involving a sample size of 60 respondents. Specifically, 30 respondents were drawn from the local consumer base, while the other 30 were sourced from foreign tourist consumers. This sample size of 60 respondents is deemed sufficient to represent the population, as it meets the criteria for a well-structured sample size in social research, being 5 to 10 times the number of variables or attributes intended for investigation (Nurdin & Hartati, 2019). The sample was selected using the purposive sampling method, which is based on specific criteria.

In this study, a single method of interviewing the owners of Cafe Nectar Bali was employed to ascertain the types of attributes often considered by consumers. Additionally, the distribution of questionnaires was conducted in three stages. The initial questionnaire aimed to identify the two primary attributes among the four options, distributed to 50 respondents. Subsequently, a stimulus card-form questionnaire was used for validity and reliability testing, involving 30 respondents. The final questionnaire involved the distribution to 60 respondents, encompassing both local and foreign tourist consumers, with a targeted 30 respondents each.

The attributes utilized in this study are as follows:
a. Variants with four attribute levels, namely latte, cappuccino, piccolo, and black coffee.
b. Sweetness level with two attribute levels, namely no sugar and with sugar.
c. Serving method with two attribute levels, namely hot and iced.
d. Service type with two attribute levels, namely dine-in and take away.

The stages involved in analyzing this research are as follows: (1) Determining the attributes and attribute levels to be utilized; (2) Constructing stimuli; (3) Conducting validity and reliability tests; (4) Performing conjoint analysis; and (5) Interpreting the results.

Data Analysis Technique

In a general sense, the basic model of conjoint analysis can be expressed as follows:

$$U(X) = \sum_{i=1}^{m} \sum_{j=1}^{k_i} \beta_{ij} x_{ij} \tag{1}$$

Description:
$U(X)$ = *Utility total*
β_{ij} = *Part worth* or utility value of attribute i −th at level j −th

k_i = Numerous levels of the i −th attribute
m = Number of attributes
x_{ij} = Dummy variable of the i −th at level j −th (It takes a value of 1 when the relevant level appears and a value of 0 when the relevant level does not appear)

According to (Hair et al., 2017) there are several stages that need to be undertaken when conducting research using the conjoint analysis method. These stages include:

1) Formulating the problem
2) Creating stimuli
3) Determining the data format
4) Conducting validity and reliability tests on the formulated questionnaire
5) Selecting the procedure for conjoint analysis method

$$Y = X_1 + X_2 + X_3 + \cdots + X_k \tag{2}$$

The independent variable (X) is an attribute that includes attribute levels and is typically non-metric data.
The dependent variable (Y) represents an overall opinion (preference) from each respondent regarding the attributes and attribute levels possessed by a product.

6) Conducting interpretation

The generated combinations depend on the total number of attributes and the number of levels for each product attribute. For instance, if there are three attributes with three levels each, the possible combinations would be $3 \times 3 \times 3 = 27$ combinations. This way, the total combinations can be understood in line with consumer preferences.

RESULTS AND DISCUSSION

The initial questionnaire was administered to 50 respondents to identify the two primary attributes. Based on Table 1, the process yielded two main attributes, namely the "Variants" attribute and the "Serving method" attribute.

Table 1. Determination of Two Primary Attributes

No.	Attributes	Total	Percentage (%)
1	Variants	61	12,2%
2	Sweetness Level	160	32%
3	Serving Method	120	24%
4	Service Type	159	31,8%

Subsequently, stimulus determination in this study was carried out employing a full-profile approach by combining attribute levels. Based on the attribute results and attribute levels obtained from the distributed questionnaires among the respondents, a total of 8 stimuli were derived, calculated as $4 \times 2 = 8$ stimuli.

The formulated questionnaire will be distributed to respondents, who will subsequently provide evaluations of the questionnaire. For each choice of combination, a score (rating) is assigned, using a Likert scale ranging from 1 to 8, where 1 signifies 'Not Interested at All' and 8

signifies 'Very Interested.' Thus, the stimuli to be distributed to respondents are obtained as follows.

Table 2. Formed Stimuli

Stimuli	Variants	Serving Method
1	*Latte*	Hot
2	*Latte*	Iced
3	*Cappuccino*	Hot
4	*Cappuccino*	Iced
5	*Piccolo*	Hot
6	*Piccolo*	Iced
7	*Black Coffee*	Hot
8	*Black Coffee*	Iced

The validity test utilized Pearson correlation analysis. Here, the correlation values among the stimuli were compared to the correlation values in the Pearson product-moment correlation table, considering a sample size of 30 respondents and degrees of freedom $df = 28$. As a result, the correlation values among the stimuli should be greater than or equal to the table's correlation value, which is 0,361 at a significance level of $\alpha = 0,05$.

Table 3. Validity Test

Stimuli	*Corrected Item-Total Correlation*	Description
Stimuli 1	0,523	Valid
Stimuli 2	0,599	Valid
Stimuli 3	0,414	Valid
Stimuli 4	0,453	Valid
Stimuli 5	0,501	Valid
Stimuli 6	0,395	Valid
Stimuli 7	0,680	Valid
Stimuli 8	0,669	Valid

The results of the validity test presented in Table 3 indicate that the correlation values among stimuli show results greater than 0,361. Thus, the statements within each stimulus found in the questionnaire can be considered valid and capable of reflecting consumer preferences.

Table 4. Reliability Test

Cronbach's Alpha	N of Items
0,619	8

The result of the reliability test on Table 4 is 0,619 indicating a satisfactory level of internal consistency or reliability. This implies that these stimuli consistently measure the intended construct and can be relied upon to gather consistent information from respondents.

Characteristics of respondents in the study are based on respondent type, gender, and age.

Table 5. Respondents Based on Gender

No	Consumer	Gender M	Gender F	Total
1	Local	14	16	30
2	Foreign Tourist	17	13	30
	Total	31	29	60

From Table 5 above, it can be observed that the aesthetic appeal of coffee shops, along with the possibility of enjoying artisanal and Instagram-worthy beverages, contributes to the overall experience for female local consumers. On the other hand, coffee shops offer male foreign tourists a blend of cultural immersion, relaxation, connectivity, and culinary exploration, making them appealing destinations during their travels.

Table 6. Respondents Based on Age

No	Age (Years Old)	Consumer Local	Consumer Foreign Tourist	Total
1	17-23	8	9	17
2	24-30	11	9	20
3	31-37	6	8	14
4	38-45	3	3	6
5	>45	2	1	3
	Total	30	30	60

Based on Table 6 above, local consumers within the older bracket might view coffee shops as part of routine activities, while younger foreign tourists could seek cultural immersion and social media-worthy experiences. The allure of capturing trendy café scenes on platforms like Instagram, combined with flexible travel budgets and a global fascination with coffee culture, likely contributes to this observed age variance.

The result of the conjoint analysis based on the data acquired from distributing questionnaires to local and foreign tourist consumers, processed using SPSS 26.0 software.

Table 7. Results of Local Consumer Analysis

No	Attribute	Attribute Level	Utility Value (*Part-Worth*)	Importance Value
1	Variants	*Latte*	0,492	61,875
		Cappuccino	−0,058	
		Piccolo	−0,442	
		Black Coffee	0,008	
2	Serving Method	Hot	0,542	38,125
		Iced	−0,542	

In Table 7 above, the reasons behind these preferences could be influenced by various factors, such as taste preferences, cultural norms, temperature considerations, and personal experiences. The popularity of the "Latte" variety might stem from its creamy texture and mild flavor, appealing to a broader palate. On the other hand, the aversion to "Piccolo" could be due to its stronger taste or lesser familiarity. Similarly, the preference for "Hot" preparation could be linked to the comfort of a warm beverage in certain cultural contexts, while the aversion to "Cold" might relate to local climate or taste preferences. These consumer preferences are likely shaped by a combination of sensory, cultural, and practical considerations.

Here are the results of the conjoint analysis conducted on foreign tourist consumers who have previously consumed coffee-based products at Cafe Nectar Bali.

Table 8. Results of Foreign Tourist Consumer Analysis

No	Attribute	Attribute Level	Utility Value (*Part-Worth*)	Importance Value
1	Variants	*Latte*	0,317	59,176
		Capp-uccino	−0,117	
		Piccolo	−0,083	
		Black Coffee	−0,117	
2	Serving Method	Hot	−0,283	40,824
		Iced	0,283	

From Table 8 above, These observed preferences among foreign tourist consumers could be attributed to a range of factors. The preference for the "Latte" variety might stem from its balanced flavor and familiarity in international coffee culture. The aversion to "Cappuccino" and "Black Coffee" could arise from differences in taste preferences or the perception of stronger flavors among foreign consumers. As for the "Cold" preparation method, it might offer a refreshing experience for tourists in a tropical environment or align with global trends in iced coffee consumption. The aversion to the "Hot" method might be influenced by the climate or cultural differences.

The preferences of both local and foreign tourist consumers in considering attributes and attribute levels indicate that the attribute type "Variants" becomes a key factor for consumers when consuming coffee-based products at Cafe Nectar Bali.

The differences in preferences could be attributed to a combination of factors including cultural background, previous experiences, climate considerations, and global coffee trends. Cultural nuances play a significant role in shaping taste preferences, and tourists often seek to experience local flavors and practices. Moreover, the influence of current trends and social media can't be ignored, as they can impact tourists' choices and their desire for unique and visually appealing experiences.

The differences between local and foreign tourist consumers' coffee preferences at Cafe Nectar Bali are influenced by a complex interplay of cultural, environmental, and trend-related factors. The analysis underscores the importance of catering to diverse preferences and understanding the motivations behind these choices to effectively serve both customer segments.

Previously, in selecting the stimuli to be distributed to the respondents, this study intended to utilize the orthogonal array method to facilitate the formation of stimuli. However, there are limitations associated with using the orthogonal array approach. One of these limitations is that the use of orthogonal arrays restricts the selection of stimuli based on the method, potentially

leading to the exclusion of certain stimuli without clear reasons, even if respondents were interested in those omitted stimuli.

The orthogonal array might also be considered unsuitable when aiming to analyze consumer preferences in evaluating products and services. This is because consumers assess a product or service based on their individual perceptions, which might not yield definitive and precise results when evaluating the provided stimuli.

Orthogonal array was not employed in this study, and the decision was made to distribute questionnaires among a select group of respondents to determine the key attributes and facilitate the formation of stimuli to be presented to both local and foreign tourist respondents.

CONCLUSION AND RECOMMENDATIONS
Conclusion

Overall, of the four attributes obtained from interviews with cafe owners, the attributes most considered by consumers at Cafe Nectar Bali are Variants and Serving Methods.

The type of variants attribute is the attribute with the highest relative importance value and the type of presentation attribute is the attribute with the next relative importance value based on assessments from local consumers and foreign tourist consumers.

From the stimuli formed, local consumers prefer stimuli with the Latte attribute type and the hot Serving Method attribute type. Meanwhile, foreign tourist consumers prefer stimuli with the Latte attribute type and the Cold Serve attribute type. So that from the two types of consumers, they both choose the type of attribute with the same variant but with a different way of presentation.

Recomendations

To effectively cater to the preferences of both local and foreign tourist consumers, Cafe Nectar Bali should consider a nuanced approach. Diversifying the coffee menu by incorporating a range of options favored by each group, while providing context and explanations about the cultural significance of certain choices, can enhance the overall experience. Leveraging the visual appeal of beverages for social media sharing and offering educational sessions to elevate customers' appreciation of the coffee offerings are strategies that could attract both segments. Additionally, recognizing the preference for cold coffee among foreign tourists and providing refreshing chilled options could contribute to customer satisfaction.

For future research endeavors, exploring demographic nuances, especially related to age, gender, and cultural background, can provide a deeper understanding of the factors shaping coffee preferences. Investigating the influence of marketing strategies and tracking long-term trends to gauge evolving preferences are also avenues worth exploring. It is expected to be able to analyze other types of attributes that can help understand consumer preferences in various types of product and service fields.

The use of orthogonal arrays allows results that are not ideal in the context of research that aims to understand preferences that depend on individual consumer perceptions, so that for further research it is hoped that orthogonal arrays should be used in conducting research that can provide definite results and do not depend on individual perceptions.

REFERENCES

Books

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2017). Multivariate Data Analysis (MVDA). In *Pharmaceutical Quality by Design: A Practical Approach* (7th ed.). Pearson. https://doi.org/10.1002/9781118895238.ch8

Kotler, P., Armstrong, G., Harris, L. C., & He, H. (2020). Principles of Marketing Eighth Europe an Edition. In *Pearson education ltd* (8th Europe, Issue 17th Edition). Pearson Education, Inc.

Nurdin, I., & Hartati, S. (2019). *Metodologi Penelitian Sosial* (Lutfiah (ed.)). Media Sahabat Cendekia.

Articles

Angkat, E. Y., & Nawawi, Z. M. (2022). Food and Beverage Business Development Strategy at Time Depot to AET Surabaya. *Jurnal Akuntansi, Manajemen Dan …*, *1*(2), 327–332. https://jurnal.unived.ac.id/index.php/jambd/article/view/2594%0Ahttps://jurnal.unived.ac.id/index.php/jambd/article/download/2594/2162

Angriva, S., & Sunyigono, A. K. (2020). Persepsi Dan Preferensi Konsumen Terhadap Produk Madu Pt Kembang Joyo. *Agriscience*, *1*(1), 186–199. https://doi.org/10.21107/agriscience.v1i1.7850

Baghaskoro, S., Suhendra, A. A., & Wulandari, S. (2021). Studi Perancangan Atribut Coffee Colada Berdasarkan Analisis Preferensi Konsumen Menggunakan Metode Conjoint. *E-Proceeding of Engineering*, *8*(1), 575–579. https://repository.telkomuniversity.ac.id/pustaka/files/166854/jurnal_eproc/studi-perancangan-atribut-coffee-colada-berdasarkan-analisis-preferensi-konsumen-dengan-metode-conjoint.pdf

Budi, A. S., & Suprapti, I. (2022). Preferensi Konsumen Keripik Jagung Tatochis Produksi UD. Tajul Anwar. *Agriscience*, *2*(3), 841–855.

Puteri, A. S., Santoso, D., & Fajeri, H. (2021). Preferensi Konsumen Remaja pada Kafe Kopi di Kota Banjarbaru. *Frontier Agribisnis*, *5*(1), 177–186.

Rohmah, A. N., & Subari, S. (2021). Preferensi Konsumen Terhadap Produk Minuman Kopi Di Kopi Janji Jiwa Jilid 324 Surabaya. *Agriscience*, *1*(3), 548–562. https://doi.org/10.21107/agriscience.v1i3.9129

Sari, S., Suherman, & Nst, M. L. (2021). Analisis Konjoin pada Pengukuran Preferensi Mahasiswa FMIPA UNP dalam Memilih Smartphone. *Journal of Mathematics UNP*, *4*(2), 62–66.

Sisca, Wijaya, A., Chandra, E., & Ervina. (2021). Peran Citra Merek Dalam Memediasi Pengaruh Kualitas Produk Terhadap Kepuasan Konsumen Produk Es Krim Aice. *Maker: Jurnal Manajemen*, *7*(2), 214–222. https://doi.org/10.37403/mjm.v7i2.397

Websites

Badan Pusat Statistik. (2022). *Makanan dan Minuman Jadi Kontributor Terbesar PDB Sektor Industri Kuartal II-2022*. Databoks.

https://databoks.katadata.co.id/datapublish/2022/08/10/makanan-dan-minuman-jadi-kontributor-terbesar-pdb-sektor-industri-kuartal-ii-2022

International Coffee Organization. (2022). Berapa Konsumsi Kopi Indonesia pada 2020/2021? *International Coffee Organization*. https://dataindonesia.id/sektor-riil/detail/berapa-konsumsi-kopi-indonesia-pada-20202021

KBBI. (2021). *Arti Kata Preferensi*. Kamus Besar Bahasa Indonesia (KBBI). https://kbbi.web.id/preferensi

Zuhriyah, D. A. (2019). *Industri Kedai Kopi Ditaksir Tumbuh 20% Tahun Ini*. Bisnis.Com. https://ekonomi.bisnis.com/read/20190822/12/1139918/industri-kedai-kopi-ditaksir-tumbuh-20-tahun-ini