

Social Media Over Marketplace : Conjoint Analysis Of E-Commerce Platform Preferences Among Ornamental Plant MSMEs In Bogor City

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Abstract: The rapid expansion of e-commerce has emerged as a strategic approach to strengthening the competitiveness of micro, small, and medium enterprises (MSMEs), including those operating in the ornamental plant agribusiness sector. This research seeks to examine the preferences of ornamental plant MSMEs regarding e-commerce adoption and to identify the most suitable implementation strategy in Bogor City. The study was carried out between January and October 2025, involving the entire population of ornamental plant MSMEs in Bogor City. A purposive sampling technique was applied, resulting in 30 MSME respondents. Primary data were obtained through structured questionnaires, supported by field observations and short interviews. The collected data were processed using conjoint analysis combined with descriptive statistical analysis. The findings indicate that attributes related to e-commerce platforms represent the most influential factors in e-commerce adoption, followed by transaction costs and payment systems. Facebook emerged as the most favored platform due to its high level of usability, promotional incentives such as vouchers or discounts, bank transfer payment options, and relatively low transaction fees ranging from 5–10%. Model validation results demonstrate a Pearson's r value of 0.871 and Kendall's tau coefficient of 0.719 at a significance level of 0.000, confirming strong accuracy and consistency of the model. The study concludes that platform compatibility, operational simplicity, and cost efficiency are critical determinants of successful e-commerce implementation among ornamental plant MSMEs. Accordingly, MSME actors are encouraged to enhance the utilization of social media as an effective and cost-efficient digital marketing channel.

Keywords: Conjoint analysis; E-commerce; MSMEs; Ornamental plants; Social Media

INTRODUCTION

The development of information and communication technology has driven significant changes across various economic sectors, including Micro, Small, and Medium Enterprises (MSMEs). One form of this transformation is reflected in the use of e-commerce as a key strategy for facing an increasingly dynamic and competitive market. Digitalization through e-commerce not only changes marketing patterns but also creates a new, more efficient and integrated trading system. Laudon and Traver (2020) state that e-commerce can improve transaction cost efficiency, accelerate the flow of information, and expand market reach to a global scale for small business actors. In line with this, Kotler and Keller (2016) assert that the implementation of e-commerce-based digital marketing

enables direct relationships between producers and consumers without intermediaries, thereby providing greater added value for MSMEs.

MSMEs play a strategic role in the national economy, particularly in job creation and improving community welfare. However, limitations in market access, capital, and technological mastery remain the main challenges faced by MSME actors. Several studies show that e-commerce adoption can be a solution to overcome these limitations. Haholongan et al. (2024) demonstrated that the use of e-commerce has a significant effect on increasing MSME income. In addition, Utami and Syahbudi (2022) found that e-commerce makes a positive contribution to increasing sales, particularly when supported by product innovation.

In the agribusiness sector, e-commerce plays a role in shortening distribution chains, increasing producers' added value, and expanding market access for agricultural products. However, the level of e-commerce adoption in this sector is still relatively lower than in other sectors due to limited digital literacy, infrastructure, and human resource readiness (Triandra et al., 2019). One agribusiness subsector with great potential but still limited research is the ornamental plant MSME sector. Ornamental plant products have high aesthetic value and require strong visual media in marketing, as emphasized by Hanafiah and Saefuddin (2020), who state that aesthetic-based products depend heavily on interactive visual promotional media to increase purchase interest.

Bogor City is one of the centers of ornamental plant production and trade in the Jabodetabek (Jakarta, Bogor, Tangerang, Bekasi) MRegion. The high demand for ornamental plants, driven by lifestyle trends, gives this sector great potential to be developed through digital marketing systems. However, research on e-commerce implementation among ornamental plant MSMEs, particularly in Bogor City, is still very limited. Most previous studies have focused more on MSMEs in general or on food agricultural commodities, and thus have not been able to specifically describe the characteristics of e-commerce implementation in ornamental plant businesses, which have distinct product characteristics such as high aesthetic value and risk of product damage.

This study aims to identify the preferences of ornamental plant MSMEs in implementing e-commerce using a conjoint analysis approach in Bogor City. In addition, this study is also directed at analyzing the most suitable e-commerce implementation strategy to improve business performance. The implementation of e-commerce attributes that align with MSME owners preferences is expected to encourage increased sales and support the sustainability of ornamental plant MSMEs in Bogor City.

METHOD

Research Time and Location

This research was conducted in Bogor City, West Java Province, as one of the centers of ornamental plant production and marketing in the Jabodetabek region. Data collection was carried out during the January–October 2025 period. The research location was selected based on the high level of ornamental plant MSME activity and the development of digital media and e-commerce use in the area.

Population and Sample

1. Population

The population in this study covers all ornamental plant MSME Owners operating in Bogor City, both those who have adopted e-commerce and those still using conventional marketing systems. These MSMEs are engaged in the sale of various types of ornamental plants, including foliage plants, flowering plants, and potted ornamental plants. According to Sugiyono (2022), a population is a generalized area consisting of objects or subjects with certain characteristics determined by the researcher to be studied and from which conclusions are drawn.

2. Sample

The research sample was determined using a purposive sampling technique, a method of selecting respondents based on specific criteria relevant to the research objectives. The respondent criteria used in this study include MSME Owners who meet the characteristics established by the researcher. The sample criteria in this study include MSMEs engaged in the ornamental plant

business, domiciled and operating in Bogor City, having run the business for at least one year, and currently using or having previously used e-commerce media in their marketing activities.

The number of research samples was 30. The determination of the sample size was adjusted to the needs of conjoint analysis, which requires respondents to be able to evaluate several combinations of product and marketing attributes. According to Orme (2019), a sample size in the range of 30–50 respondents is adequate for exploratory conjoint research to obtain a stable preference pattern.

Data Sources

This study utilizes two types of data sources, namely primary and secondary data. Primary data were obtained directly from respondents through questionnaires and brief interviews with ornamental plant MSME Owners as research subjects. Meanwhile, secondary data were obtained from publications of related institutions, previous research findings, scientific journals, and textbooks relevant to the topics of e-commerce and MSMEs. According to Sekaran and Bougie (2017), the simultaneous use of primary and secondary data can improve the completeness and sharpness of research analysis.

Data Collection Technique

The data collection process in this study was carried out by distributing structured questionnaires developed based on the main attributes related to e-commerce implementation among ornamental plant MSMEs. In addition to questionnaires, data were also obtained through direct observation of MSME business activities and documentation related to the use of e-commerce platforms. Data collection was conducted both offline and online to accommodate the respondents' conditions. According to Malhotra (2019), the combination of questionnaires and observation is effectively used in marketing research to explore the behavior and preferences of both business actors and consumers.

Data Analysis Technique

Conjoint analysis was used to measure the relative importance value of each e-commerce attribute and the part-worth utility value of each attribute level based on respondent preferences. This method assumes that a respondent's preference for an alternative is the sum of the utilities of each attribute that makes it up. Thus, each attribute and attribute level makes a certain contribution to shaping the respondent's decision. Mathematically, the basic conjoint analysis model can be formulated as follows:

$$U = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$$

or in more detail:

$$U(X) = \beta_0 + \sum_i \sum_j \beta_{ij} X_{ij}$$

Where:

$U(X)$ = total utility of an attribute combination

β_0 = constant

β_{ij} = part-worth utility value of the j-th level of the i-th attribute

X_{ij} = dummy variable (1 if the attribute level is selected, 0 if not)

The part-worth utility value indicates the respondent's level of preference for an attribute level, where a higher value indicates a greater level of liking. In addition to conjoint analysis, this study also uses descriptive analysis to describe the characteristics of respondents and the profile of ornamental plant MSMEs. Descriptive analysis is used to present data in the form of frequency distribution, percentage, mean value, and standard deviation, thereby providing a general overview of the respondents' conditions before further analysis. Ghazali (2021) states that descriptive analysis aims to provide a summary and initial overview of research data so that researchers can understand the characteristics of the data systematically and objectively.

RESULTS AND DISCUSSION

Results Based on Utility Value and Level of Importance

Conjoint analysis is a multivariate statistical method used to identify respondent preferences for a product or service based on a combination of several attributes and their levels. According to Orme (2019), conjoint analysis allows researchers to measure the part-worth utility value of each attribute so that the combination of attributes most preferred by respondents can be identified. The utility value reflects the respondent's level of liking or disliking for each attribute level. The importance value indicates the relative contribution of each attribute in shaping overall preference (Ghozali, 2021). Therefore, the utility and importance level estimation results in this study serve as the scientific basis for understanding the preference patterns of ornamental plant MSMEs in Bogor City in implementing e-commerce. The findings of this study are presented in Table 1.

TABLE 1. UTILITY AND IMPORTANCE LEVEL RESULTS

Attribute	Attribute Level	Utility	Importance
Platform Type	Shopee	-0.191	27.447
	Tokopedia	-0.269	
	Instagram	-0.013	
	Facebook	0.309	
Ease of Use	TikTok	0.164	
	Difficult to use	-0.061	15.591
	Fairly easy	-0.039	
	Very easy	0.100	
Features	None	-0.091	10.031
	Voucher/discount	0.093	
	Paid advertising	-0.002	
Logistics	Slow	0.028	13.332
	Fairly fast	0.011	
	Fast	-0.039	
Payment Method	Bank transfer	0.217	16.049
	Cash on Delivery (COD)	-0.122	
	E-wallet	-0.094	
Cost	<5%	-0.065	17.550
	5-10%	0.057	
	>10%	0.007	
Constant		2.819	

Source: processed data (2025)

The results of the conjoint analysis show that the e-commerce platform attribute has the highest importance level (27.447%) in e-commerce implementation among ornamental plant MSMEs in Bogor City. The dominance of the platform attribute as the most influential factor in e-commerce implementation supports the view of Kotler and Keller (2016), who state that the selection of the right marketing channel is a key determinant of successful digital marketing strategy. This finding indicates that the choice of digital marketing media is the most determining factor in supporting MSME marketing activities. Other influential attributes are transaction cost (17.550%), payment method (16.049%), and ease of use (15.591%), while logistics (13.332%) and application features (10.031%) have a relatively smaller influence. This pattern shows that MSMEs place greater emphasis on business efficiency and operational ease rather than the completeness of technological features.

Based on the utility values, Facebook has the highest utility value (0.309) compared to other platforms, while Tokopedia (-0.269) and Shopee (-0.191) show the lowest utility values. This indicates that ornamental plant MSMEs prefer social media as a marketing tool over marketplaces. The high preference for Facebook shows that social media remains the main instrument for MSME marketing because it is flexible, low-cost, and capable of building direct interaction with consumers, as stated by Tjiptono (2015), who noted that social media excels at building emotional engagement between sellers and buyers. This condition is influenced by the visual

nature of ornamental plant products, which require direct interaction with consumers. This finding is in line with previous research stating that social media is more effective for marketing visually based products.

For the ease-of-use attribute, the 'very easy to use' category (0.100) is the main preference. This result confirms that system ease of use is an important factor in technology adoption by MSMEs. For the application feature attribute, the 'voucher or discount' category (0.093) has the highest utility value, indicating that promotional incentives remain a key strategy for increasing consumer appeal. This is in line with the sales promotion theory proposed by Belch and Belch (2018), which states that short-term price incentives are highly effective in stimulating consumer purchase decisions, especially for products with a high level of repeat purchase such as ornamental plants. For the logistics attribute, the 'slow' category (0.028) actually has the highest utility value, indicating that delivery speed is not a major consideration in ornamental plant marketing, whose transactions are relatively local. For the payment method attribute, bank transfer (0.217) is the most preferred option compared to e-wallet and COD. This shows that conventional payment systems are still considered the safest and easiest for MSMEs to control. Meanwhile, for the transaction cost attribute, the 5–10% range (0.057) is the most acceptable cost level for business actors.

Overall, the combination of attributes most preferred by ornamental plant MSMEs in Bogor City for e-commerce implementation is the use of Facebook as the main platform, a very easy-to-use system, the availability of voucher or discount features, payment via bank transfer, and a transaction cost in the range of 5–10%. This finding confirms that the success of e-commerce implementation among ornamental plant MSMEs is largely determined by the compatibility of the platform with product characteristics, operational ease, and cost efficiency.

Goodness-of-Fit Test of the Conjoint Analysis Model

The goodness-of-fit test in conjoint analysis aims to assess the extent to which the constructed model can accurately represent respondent preferences. The level of model accuracy reflects the correspondence between the model's estimation results and the observed actual preference data. The results of the goodness-of-fit test of the conjoint analysis model in this study are presented in Table 2.

TABLE 2. GOODNESS-OF-FIT TEST OF THE CONJOINT ANALYSIS MODEL

Correlations	Value	Sig.
Pearson's r	.871	.000
Kendall's tau	.719	.000

Source: processed data (2025)

Based on the test results in Table 2, a Pearson's r value of 0.871 with a significance of 0.000 and a Kendall's tau value of 0.719 with a significance of 0.000 were obtained. A significance value smaller than 0.05 indicates that the relationship between actual preferences and the model's estimated preferences is statistically significant.

A Pearson's r value close to 1 indicates a very strong relationship between the estimated utility values and the respondents' actual preference data. This shows that the conjoint model constructed has very good predictive power in explaining the preference patterns of MSMEs toward e-commerce implementation in the ornamental plant business in Bogor City. Meanwhile, the relatively high Kendall's tau value confirms that the order of respondent preferences and the model's estimation results have a strong level of correspondence, so the model is considered stable and consistent.

CONCLUSION

Based on the results of the MSME preference analysis using the conjoint analysis approach, Facebook is the most preferred e-commerce platform for marketing ornamental plants in Bogor City, as it is considered most suitable for the visual nature of the product and the need for direct interaction with consumers. In terms of ease of use, a very easy-to-use system is the main preference, indicating that technological simplicity is a key factor in e-commerce adoption by MSMEs. Regarding application features, the availability of vouchers or discounts is the biggest draw, as it can boost consumer buying interest. Meanwhile, the most preferred payment method is bank transfer, as it is considered safer and easier to control, with the most acceptable transaction cost level in the

range of 5–10%. The results of the model accuracy test show a high level of accuracy, so the resulting preferences can be trusted to represent MSME behavior. This finding shows that e-commerce implementation that is aligned with operational needs, cost efficiency, and the characteristics of ornamental plant products has the potential to increase marketing effectiveness and the sustainability of MSME entrepreneurs in Bogor City.

REFERENCES

- [1]. Belch, G. E., & Belch, M. A. (2018). *Advertising and Promotion: An Integrated Marketing Communications Perspective*. New York: McGraw-Hill Education.
- [2]. Creswell, J. W. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). Thousand Oaks, CA: Sage Publications.
- [3]. Ghozali, I. (2021). *Aplikasi analisis multivariate dengan program IBM SPSS 26*. Semarang: Badan Penerbit Universitas Diponegoro.
- [4]. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Andover: Cengage Learning.
- [5]. Haholongan, R., Antaty, S. N. I., Yan, S. K., Azzahra, J. P., Zahra, J. A., Dasura, A., & Pratama, R. A. (2024). Pengaruh e-commerce terhadap peningkatan pendapatan UMKM. *Innovative: Journal of Social Science Research*, 4(3), 6073–6082.
- [6]. Hanafiah, A., & Saefuddin, R. (2020). Strategi pemasaran produk agribisnis berbasis visual. *Jurnal Agribisnis Indonesia*, 8(2), 113–124.
- [7]. Kotler, P., & Keller, K. L. (2016). *Marketing Management* (15th ed.). New Jersey: Pearson Education.
- [8]. Laudon, K. C., & Traver, C. G. (2020). *E-commerce: Business, technology, society* (16th ed.). Pearson Education.
- [9]. Malhotra, N. K. (2019). *Marketing research: An applied orientation* (7th ed.). Pearson Education.
- [10]. Orme, B. (2019). *Getting started with conjoint analysis* (4th ed.). Research Publishers LLC.
- [11]. Rahayu, R., & Day, J. (2017). E-commerce adoption by SMEs: Evidence from Indonesia. *Journal of Business Research*, 69(6), 2108–2115.
- [12]. Sekaran, U., & Bougie, R. (2017). *Research methods for business: A skill-building approach* (7th ed.). Wiley.
- [13]. Sugiyono. (2022). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.
- [14]. Triandra, N., Hambali, D., Nurasia, & Rosalina, N. (2019). Analisis pengaruh e-commerce terhadap peningkatan kinerja UMKM. *Jurnal Ekonomi dan Bisnis Indonesia*, 4(1), 12–22.
- [15]. Utami, N., & Syahbudi, M. (2022). Pengaruh e-commerce dan inovasi produk dalam meningkatkan penjualan UMKM. *Jurnal Masharif Al-Syariah*, 7(4), 955–968.
- [16]. Widiastuti, R., Suryani, E., & Hidayat, A. (2021). Pemanfaatan e-commerce dalam pemasaran produk pertanian berbasis UMKM. *Jurnal Agribisnis Indonesia*, 9(2), 101–112.