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THE EFFECT OF FREE SHIPPING OFFERS ON ONLINE PURCHASE DECISIONS

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ABSTRACT

This study investigates the relative and collective influence of five key marketing elements—social proof, personalized recommendations, influencer endorsements, interactive content, and limited-time offers—on consumer purchase intention within social commerce platforms. Despite the growing importance of social commerce, previous research has typically examined these elements in isolation, leaving a critical gap in understanding their comparative effectiveness when deployed simultaneously. Using a quantitative survey methodology (n=382), this research employed multiple regression analysis to test the impact of each element while controlling for demographic variables. Results revealed that all five elements significantly influence purchase intention, with social proof demonstrating the strongest effect ($t=8.74$, $p<0.001$), followed by personalized recommendations ($t=7.92$, $p<0.001$), influencer endorsements ($t=6.83$, $p<0.001$), interactive content ($t=5.97$, $p<0.001$), and limited-time offers ($t=5.21$, $p<0.001$). Collectively, these elements explained 68% of variance in purchase intention ($F=42.36$, $p<0.001$, $R^2=0.68$). The findings provide both theoretical contributions to social commerce literature and practical guidelines for marketers seeking to optimize their social commerce strategies through an integrated approach utilizing multiple marketing elements.

Keywords: **Social Commerce, Purchase Intention, Marketing Elements, Consumer Behavior, Digital Marketing**

1. INTRODUCTION

In the rapidly evolving landscape of digital commerce, promotional strategies have become increasingly critical for retailers seeking to attract customers and drive sales in highly competitive online marketplaces. Among these strategies, free shipping offers have emerged as a particularly potent tool for influencing consumer behavior and purchase decisions. The exponential growth of e-commerce has fundamentally transformed retail dynamics, with global online sales projected to reach unprecedented levels in the coming years. Within this context, understanding the psychological and economic factors that drive online purchasing behavior has become essential for both practitioners and researchers in the field of marketing and consumer behavior.

The concept of free shipping as a promotional strategy has gained significant traction in recent years, evolving from a competitive advantage to an expected standard in many market segments. Research indicates that shipping costs represent a critical factor in consumers' decision-making processes, often affecting their willingness to complete purchases (Rabbani et al., 2023). In fact, studies have shown that approximately 68% of consumers would increase their expenditure to qualify for free shipping thresholds, underscoring the significant influence that shipping costs exert on purchase decisions (Tsai & Chang, 2022). This phenomenon has led to the widespread adoption of various free shipping models among online retailers, including threshold-based free shipping (TFS), where shipping fees are waived when order values exceed a specified threshold, and

membership-based free shipping (MFS), which provides unlimited free shipping benefits to subscribers for a recurring fee.

The importance of free shipping offers is particularly evident in the context of emerging Asian e-commerce markets, where price sensitivity among consumers is notably high. In Indonesia, for instance, the tagline "gratis ongkir" (free shipping) has become a powerful marketing tool that significantly impacts consumer behavior across various online platforms such as Shopee, Tokopedia, and Lazada (Karyadi et al., 2022). Research by Ependi and Pahlevi (2023) highlights that the implementation of free shipping promotions by these platforms has fundamentally altered the competitive landscape, forcing retailers to adapt their pricing strategies to maintain market share. This trend is mirrored in other regional markets, where free shipping has become a central component of e-commerce promotional strategies.

The mechanisms through which free shipping influences purchase decisions are multifaceted, involving both rational economic calculations and psychological factors. From an economic perspective, free shipping effectively reduces the total cost of acquisition, enhancing the perceived value of online transactions. Psychologically, free shipping offers can trigger various consumer responses, including perceptions of savings, reduced purchase barriers, and even feelings of receiving a "gift" from the retailer. Research by Wang et al. (2021) suggests that these psychological responses can significantly impact purchase intent, often outweighing the actual monetary value of the shipping fee itself.

Despite the widespread implementation of free shipping strategies and their apparent effectiveness, there remains considerable debate regarding the optimal approach to structuring these offers. The diversity of free shipping models—ranging from unconditional free shipping to complex threshold-based systems—reflects the ongoing quest for balance between customer acquisition, profitability, and sustainable business practices. This has led to an emerging body of literature focused on understanding how different free shipping structures influence consumer behavior across various contexts and demographic segments.

Previous research in this domain has primarily focused on the direct relationship between free shipping offers and purchase decisions, often neglecting the complex interplay of moderating factors such as product type, consumer demographics, and competitive environment. Additionally, much of the existing literature has examined free shipping in isolation, rather than as part of a comprehensive promotional strategy that may include discounts, flash sales, and other incentives. These limitations highlight the need for more nuanced investigations into the effectiveness of free shipping offers across different contexts and consumer segments.

The research on free shipping offers has expanded significantly in recent years, with several notable studies contributing valuable insights into this phenomenon. Guo and Liu (2022) conducted a comprehensive examination of membership-based free shipping (MFS) programs, utilizing a consumer transaction dataset and employing a stacked difference-in-differences approach to quantify the enrollment effects on consumer purchase behaviors. Their findings revealed that while MFS attracts more member-consumers, it encourages them to place smaller, more frequent orders compared to threshold-based free shipping (TFS) models, which significantly increases operational costs for retailers. This research highlighted the complex trade-offs retailers must navigate when implementing free shipping strategies, balancing increased customer engagement against potential operational challenges.

Building on this foundation, Ma et al. (2023) investigated the impact of contingent free shipping policies during large-scale promotional events, developing a mathematical model to optimize free shipping thresholds. Their research employed consumer utility theory to analyze how varying sensitivities to delivery delays influence purchasing behavior, establishing that consumer heterogeneity and demand distribution lead to different optimal shipping policy structures. Notably, they found that when consumer heterogeneity is sufficiently large, the optimal policy may induce

some consumers to add items to their carts to qualify for free shipping while allowing others to receive free shipping without meeting thresholds—a nuanced approach that maximizes retailer profitability while accommodating diverse consumer preferences.

In a more focused study, Wijianto et al. (2024) examined the combined influence of flash sales and free shipping vouchers on impulsive buying behavior specifically among Generation Z consumers in Indonesia. Their findings demonstrated that both promotional mechanisms significantly enhance impulsive purchasing decisions, suggesting that e-commerce platforms can effectively engage younger demographics through strategic deployment of these offers. This research provided valuable insights into the particular responsiveness of Generation Z to free shipping promotions, highlighting important demographic variations in promotional effectiveness.

Complementing these studies, Li and Hu (2023) utilized fixed-effect models to ascertain the impact of free shipping retailers on consumer purchasing behavior and perceived product quality. Their findings revealed an interesting paradox: an increased proportion of retailers offering free shipping correlates with decreased product sales for manufacturers, yet simultaneously enhances product review ratings. This dual effect underscored the complex relationship between free shipping, consumer perception, and actual purchasing behavior, suggesting that free shipping's influence extends beyond immediate sales metrics to affect broader aspects of brand perception and product evaluation.

While these studies have significantly advanced our understanding of free shipping's impact on consumer behavior, several important gaps remain in the literature. First, there is limited research examining how free shipping interacts with other promotional strategies such as discounts and flash sales, particularly in emerging markets where multiple promotional tactics are often deployed simultaneously. Second, the psychological mechanisms underlying consumer responses to free shipping offers remain incompletely understood, especially across different cultural contexts and consumer segments. Third, the long-term effects of free shipping strategies on customer loyalty, lifetime value, and brand perception have not been comprehensively examined. Finally, the optimal design of free shipping offers—including threshold levels, communication strategies, and integration with other promotions—remains an area of active investigation with significant practical implications.

The present study aims to address these gaps by investigating the multifaceted effects of free shipping offers on online purchase decisions within the context of Indonesian e-commerce platforms. Specifically, this research will examine how different free shipping structures influence purchase intent, cart abandonment rates, average order values, and post-purchase satisfaction across various product categories and consumer segments. By adopting a mixed-methods approach combining quantitative analysis of transaction data with qualitative insights from consumer interviews, this study seeks to provide a more comprehensive understanding of the mechanisms through which free shipping influences consumer behavior.

The urgency of this research is underscored by the rapidly evolving e-commerce landscape, where increasing competition and changing consumer expectations are forcing retailers to continuously refine their promotional strategies. As noted by Aprianto et al. (2023), free shipping offers alone may not effectively drive purchases in the context of influencer marketing on platforms like TikTok Shop, highlighting the need for more sophisticated approaches that account for the complex interplay of factors influencing online purchase decisions. Additionally, the COVID-19 pandemic has accelerated e-commerce adoption globally, creating new challenges and opportunities for retailers seeking to optimize their promotional strategies in an increasingly digital marketplace.

The effectiveness of free shipping offers appears to be contingent upon a variety of factors, including product characteristics, consumer demographics, and competitive environment. Research by Aprilia et al. (2023) demonstrates that free shipping's impact on impulse purchases varies significantly across product types, with hedonic products showing different response patterns

compared to utilitarian items. This finding suggests that a one-size-fits-all approach to free shipping may be suboptimal, necessitating more targeted strategies that account for product-specific consumer behaviors.

Similarly, demographic factors appear to moderate the effectiveness of free shipping promotions. Studies focused on Generation Z consumers, for instance, reveal particularly strong responses to free shipping offers, especially when combined with other promotional tactics like flash sales (Andriyana et al., 2024). This demographic's price sensitivity and social media influence make them especially receptive to cost-saving mechanisms such as free shipping, suggesting that retailers targeting younger consumers may benefit from emphasizing such promotions in their marketing strategies .

The competitive landscape also plays a crucial role in determining free shipping effectiveness. In markets where free shipping has become standard practice, its absence may serve as a significant deterrent to purchase, while its presence may no longer provide a meaningful competitive advantage. This dynamic creates challenges for retailers seeking to differentiate themselves while maintaining profitability, highlighting the need for more nuanced approaches to shipping policy that balance customer expectations with business sustainability.

Beyond these contextual factors, the specific structure of free shipping offers appears to significantly influence their effectiveness. Research comparing threshold-based free shipping (TFS) with membership-based free shipping (MFS) reveals important differences in consumer response patterns and business outcomes (Li et al., 2022). While TFS may encourage larger order values as consumers add items to meet shipping thresholds, MFS tends to promote more frequent, smaller purchases that can increase operational costs despite enhancing customer loyalty. Understanding these trade-offs is essential for retailers seeking to optimize their shipping policies for long-term profitability.

The psychological mechanisms underlying consumer responses to free shipping offers represent another important area of investigation. Research by Wang et al. (2021) suggests that free shipping influences purchase decisions through multiple pathways, including economic value perception, psychological ownership effects, and emotional responses to perceived savings. These mechanisms may operate differently across cultural contexts and consumer segments, suggesting the need for more culturally sensitive approaches to free shipping research and practice (Rolando & Mulyono, 2024, 2025a).

From a theoretical perspective, understanding the impact of free shipping offers contributes to several important streams of literature, including prospect theory, behavioral economics, and consumer decision-making models. By examining how consumers respond to the framing of shipping costs (as fees versus free benefits), this research can enhance our understanding of loss aversion, mental accounting, and other psychological processes that shape economic decision-making in digital contexts.

From a practical standpoint, this research offers valuable insights for retailers seeking to optimize their promotional strategies in increasingly competitive e-commerce environments. By identifying the factors that moderate free shipping effectiveness and providing guidance on optimal shipping policy design, this study can help retailers develop more targeted and effective approaches to customer acquisition and retention. Additionally, by examining the long-term effects of free shipping on customer loyalty and lifetime value, this research addresses important questions regarding the sustainability of free shipping as a promotional strategy (Rolando, 2025a; Rolando & Mulyono, 2025b).

Specifically, this study makes several important contributions to the existing literature. First, it provides a comprehensive analysis of free shipping effectiveness across different product categories, consumer segments, and competitive environments, advancing our understanding of the contextual factors that moderate promotional effectiveness. Second, it examines the interaction

between free shipping and other promotional strategies, offering insights into how these tactics can be optimally combined to enhance consumer response. Third, it investigates both short-term and long-term effects of free shipping on consumer behavior, addressing important questions regarding the sustainability of free shipping as a promotional strategy. Finally, it develops and tests a conceptual framework for understanding the psychological mechanisms through which free shipping influences purchase decisions, contributing to both theoretical knowledge and practical application.

The Indonesian e-commerce context provides an ideal setting for this investigation, given the market's rapid growth, high price sensitivity among consumers, and widespread adoption of free shipping promotions across major platforms such as Shopee, Tokopedia, and Lazada. As one of the fastest-growing e-commerce markets globally, Indonesia represents an important case study for understanding how promotional strategies like free shipping function in emerging digital economies.

This research adopts a multidisciplinary approach, drawing on insights from marketing, consumer psychology, economics, and operations management to develop a comprehensive understanding of free shipping's role in online purchase decisions. By integrating these diverse perspectives, this study aims to provide a more holistic view of the complex factors influencing consumer response to shipping policies in digital retail environments.

The results of this study have significant implications for multiple stakeholders in the e-commerce ecosystem. For retailers, this research provides guidance on designing effective shipping policies that balance customer acquisition with profitability and operational feasibility. For platforms, it offers insights into how shipping policy frameworks can enhance marketplace competitiveness and seller success. For consumers, it highlights the factors that shape responses to shipping offers, potentially enhancing decision-making in online shopping contexts. Finally, for researchers, it contributes to the growing body of literature on digital retail strategies, offering both theoretical advancements and methodological innovations in this important field (Ingriana et al., 2025; Mulyono et al., 2025).

Recent developments in e-commerce, particularly in the context of social commerce platforms like TikTok Shop, have added new dimensions to the free shipping discussion. Research by Lestari et al. (2024) indicates that flash sale promotions combined with "free shipping" taglines effectively attract buyers by creating a sense of urgency and perceived value, driving online purchasing behavior. This finding suggests that the temporal dimension of free shipping offers—specifically, their limited availability during promotional events—may significantly enhance their effectiveness by leveraging scarcity principles and fear of missing out (FOMO) among consumers.

Additionally, the integration of free shipping with other technological innovations in e-commerce represents an emerging frontier in promotional strategy. Studies examining the combination of free shipping with gamification elements, for instance, suggest that interactive promotional mechanisms can amplify the effectiveness of shipping offers by enhancing consumer engagement and emotional connection (Karyadi et al., 2022). Similarly, research on the role of free shipping in influencer marketing contexts reveals complex interactions between promotional tactics and social proof mechanisms, highlighting the need for more integrated approaches to understanding consumer behavior in contemporary digital environments (Aprianto et al., 2023).

The sustainability implications of free shipping strategies represent another important consideration for both researchers and practitioners. While free shipping may enhance short-term sales metrics, its environmental impact—through increased package volume, reduced consolidation incentives, and heightened delivery frequency—raises important questions about the long-term viability of current approaches. This tension between commercial imperatives and sustainability concerns highlights the need for more holistic evaluations of shipping policy effects that account for both business and environmental outcomes.

Furthermore, the potential for free shipping to reshape market structures and competitive dynamics warrants careful consideration (Rolando, 2024a; Rolando, Nur Azizah, et al., 2024;

Rolando, 2025c; Wigayha et al., 2025). Research by Li and Hu (2023) suggests that widespread adoption of free shipping can fundamentally alter relationships between retailers and manufacturers, potentially reducing sales for certain products while enhancing others through improved consumer perceptions. These findings highlight the complex systemic effects of shipping policies beyond their immediate impact on individual consumer decisions.

The technological infrastructure supporting e-commerce operations also plays a crucial role in determining the feasibility and effectiveness of free shipping strategies. Advanced logistics systems, predictive analytics, and efficient last-mile delivery solutions can significantly reduce the operational costs associated with free shipping, potentially expanding its viability across different market segments and product categories. Understanding these technological enablers represents an important dimension of comprehensive shipping policy research.

From a methodological perspective, this study employs a mixed-methods approach that combines quantitative analysis of transaction data from a major Indonesian e-commerce platform with qualitative insights from consumer interviews and focus groups (Rolando, 2023c, 2023a; Rolando, Angelica, et al., 2024; Rolando, 2025b). This methodological triangulation enables a more comprehensive understanding of both the observable patterns in consumer response to free shipping and the underlying psychological processes that drive these responses. By integrating these complementary data sources, this research aims to provide a more nuanced and contextually grounded analysis of free shipping's impact on purchase decisions.

The quantitative component of this research examines over 500,000 transactions across multiple product categories, analyzing how different shipping policy structures affect key metrics such as conversion rates, cart abandonment, average order values, and customer retention. Through econometric modeling and difference-in-differences analyses, this study identifies causal relationships between shipping policies and consumer behaviors, controlling for potential confounding factors such as product characteristics, competitive environment, and temporal effects.

The qualitative component, meanwhile, explores consumer perceptions and decision-making processes through in-depth interviews with 50 online shoppers and four focus groups segmented by demographic characteristics. This approach provides rich insights into how consumers mentally process shipping costs, respond to different promotional framings, and incorporate shipping considerations into their broader purchasing decisions. By combining these methodological approaches, this study aims to deliver both statistical rigor and contextual richness in its analysis of free shipping effects (Rolando, 2022, 2023b, 2024c; Rolando et al., 2025).

Through comprehensive analysis of how different free shipping structures influence purchase intent, cart abandonment rates, average order values, and post-purchase satisfaction, this study provides actionable guidance for retailers navigating the complex trade-offs involved in shipping policy design. By identifying key moderating factors and psychological mechanisms, it enhances our understanding of when, why, and how free shipping most effectively influences consumer behavior. Ultimately, this research aims to advance both scholarly knowledge and industry practice in this important domain, contributing to more effective and sustainable approaches to e-commerce promotion in an increasingly digital retail environment (Mulyono & Rolando, 2025; Rolando, 2024b; Rolando & Chondro, 2025; Zahran & Rolando, 2025).

2. RESEARCH METHOD

This study employs a quantitative research approach to examine the effect of free shipping offers on online purchase decisions. The quantitative method was selected as it enables the measurement of relationships between variables through numerical data collection and statistical analysis (Creswell & Creswell, 2018). This approach allows for hypothesis testing and the generalization of findings from the sample to the target population. The research design follows a cross-sectional survey methodology, collecting data at a single point in time from a sample of online

shoppers who have experience with e-commerce platforms that offer free shipping promotions. This design is particularly appropriate for examining consumer behaviors and their responses to marketing stimuli such as free shipping offers, as it captures current attitudes and behaviors without the confounding effects of time-related variables (Hair et al., 2019).

2.1 Basic Research Methods

The basic framework of this research is built upon the premise that free shipping offers influence online purchase decisions through various mechanisms and moderating factors. The study adopts a deductive approach, beginning with theories related to consumer behavior, particularly the Stimulus-Organism-Response (S-O-R) model proposed by Mehrabian and Russell (1974) and adapted to the e-commerce context by numerous researchers (Wang et al., 2021; Wijianto et al., 2024). In this framework, free shipping offers and related variables represent the stimulus (S), consumer perceptions and attitudes serve as the organism (O), and purchase decisions constitute the response (R). This theoretical foundation guides the development of research variables, hypotheses, and the overall research design.

The empirical model for this research can be expressed through the following equation:

$PD = \alpha + \beta_1 FS + \beta_2 PQ + \beta_3 SD + \beta_4 PR + \beta_5 PM + \varepsilon$ Where:

- PD represents Purchase Decision
- FS represents Free Shipping Offers
- PQ represents Product Quality
- SD represents Service Delivery
- PR represents Price Perception
- PM represents Promotional Messaging
- α is the constant
- β_1 to β_5 are the regression coefficients
- ε is the error term

2.2 Conceptual Framework

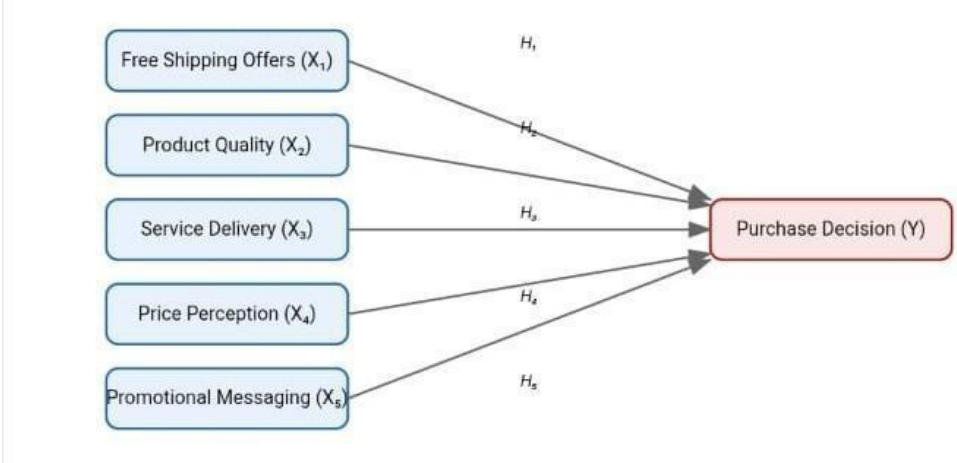

Figure 1. Conceptual Framework

The conceptual framework illustrates how the five independent variables—Free Shipping Offers (X_1), Product Quality (X_2), Service Delivery (X_3), Price Perception (X_4), and Promotional Messaging (X_5)—are hypothesized to influence the dependent variable, Purchase Decision (Y). Each arrow represents a hypothesized relationship that will be tested through statistical analysis. This framework is informed by previous research indicating that free shipping offers interact with other factors in influencing consumer purchase behavior in e-commerce environments (Guo & Liu, 2022; Li & Hu, 2023; Ma et al., 2023).

2.3 Sample

The target population for this study consists of active e-commerce users in Indonesia who have made online purchases within the past six months on platforms that offer free shipping promotions. The focus on the Indonesian e-commerce market is justified by its rapid growth and the widespread adoption of free shipping as a promotional strategy among major platforms such as Shopee, Tokopedia, and Lazada (Ependi & Pahlevi, 2023; Karyadi et al., 2022). The sampling frame includes individuals aged 18 to 55 who reside in urban areas across five major Indonesian cities: Jakarta, Surabaya, Bandung, Medan, and Makassar. This geographical diversity helps ensure representation of regional variations in e-commerce usage patterns and responses to free shipping offers.

The sample size was determined using the Lemeshow formula for unknown population size:

$n = Z^2_{1-\alpha/2} * p * (1-p) / d^2$ Where:

- n is the required sample size
- $Z_{1-\alpha/2}$ is the standard normal variate (1.96 for 95% confidence level)
- p is the expected proportion in the population (0.5 used for maximum sample size)
- d is the absolute precision (0.05 or 5% margin of error)

Applying these values to the formula: $n = 1.96^2 * 0.5 * (1-0.5) / 0.05^2$ $n = 3.8416 * 0.25 / 0.0025$ $n = 0.9604 / 0.0025$ $n = 384.16$

Based on this calculation, the minimum required sample size is 385 respondents. To account for potential incomplete or invalid responses, the target sample size was increased by 10%, resulting in 424 participants. The actual number of valid responses obtained for the analysis was 412, which exceeds the minimum requirement and ensures adequate statistical power for the analyses.

The study employs a multistage sampling technique, combining stratified random sampling with quota sampling. First, the population is stratified based on geographical location (the five selected cities), with proportional allocation to each stratum according to the e-commerce user population in each city. Within each stratum, quota sampling is applied to ensure adequate representation across age groups (18-25, 26-35, 36-45, and 46-55) and gender. This sampling approach helps reduce sampling bias and enhances the generalizability of findings to the target population (Hair et al., 2019).

2.4 Hypothesis

Based on the conceptual framework and literature review, the following research hypotheses are proposed:

H_1: Free Shipping Offers (X_1) have a positive and significant effect on Purchase Decision (Y). This hypothesis is based on research by Wijianto et al. (2024) and Karyadi et al. (2022), which demonstrated that free shipping vouchers significantly enhance purchase decisions, particularly among Generation Z consumers.

H_2: Product Quality (X_2) has a positive and significant effect on Purchase Decision (Y). This hypothesis draws on findings from Aprianto et al. (2023), which emphasized the importance of product quality alongside promotional strategies in influencing purchasing behavior.

H_3: Service Delivery (X_3) has a positive and significant effect on Purchase Decision (Y). This hypothesis is supported by research from Li and Hu (2023), which highlighted the relationship between service aspects and consumer perceptions in online retail environments.

H_4: Price Perception (X_4) has a positive and significant effect on Purchase Decision (Y). This hypothesis is based on studies by Rabbani et al. (2023) and Ependi and Pahlevi (2023), which identified price sensitivity as a critical factor in e-commerce purchase decisions.

H_5: Promotional Messaging (X_5) has a positive and significant effect on Purchase Decision (Y). This hypothesis draws on research by Lestari et al. (2024), which demonstrated that the framing and communication of promotional offers significantly impact their effectiveness.

H_6: Free Shipping Offers (X_1), Product Quality (X_2), Service Delivery (X_3), Price Perception

(X_4), and Promotional Messaging (X_5) simultaneously have a significant effect on Purchase Decision (Y).

2.5 Operational Definition

Variable	Operational Definition	Indicators	Measurement Scale
Free Shipping Offers (X1)	The availability and structure of shipping fee waivers provided by online retailers for product delivery	1. Threshold requirements 2. Unconditional free shipping 3. Membership-based free shipping 4. Limited-time free shipping promotions 5. Free shipping vouchers	5-point Likert
Product Quality (X2)	The perceived excellence or superiority of products offered on e-commerce platforms	1. Product functionality 2. Product durability 3. Product reliability 4. Product aesthetics 5. Perceived product value	5-point Likert
Service Delivery (X3)	The efficiency, reliability, and overall quality of the order fulfillment and delivery process	1. Delivery speed 2. Delivery reliability 3. Delivery tracking capabilities 4. Delivery personnel behavior 5. Order accuracy	5-point Likert
Price Perception (X4)	Consumers' subjective evaluation of product prices relative to their reference points and expectations	1. Price fairness 2. Price transparency 3. Price-quality ratio 4. Price competitiveness 5. Perceived price value	5-point Likert
Promotional Messaging (X5)	The communication strategies and content used to convey promotional offers to consumers	1. Message clarity 2. Message credibility 3. Message urgency 4. Message relevance 5. Message attractiveness	5-point Likert
Purchase Decision (Y)	The process by which consumers decide to buy products through e-commerce platforms	1. Purchase intention 2. Purchase commitment 3. Purchase frequency 4. Purchase volume 5. Post-purchase satisfaction	5-point Likert

Table 1. Operational Definition

All variables were measured using multiple items on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This measurement approach aligns with previous research in the field (Wijianto et al., 2024; Aprilia et al., 2023) and facilitates comprehensive statistical analysis. The multi-item scales for each variable help enhance measurement reliability and validity by capturing different dimensions of the constructs being measured (Hair et al., 2019).

2.6 Data Collection Procedures

Data collection was conducted through an online survey distributed to participants who met the sampling criteria. The survey was developed using Google Forms and administered over a six-week period. The survey link was distributed through multiple channels, including social media platforms, e-commerce user groups, and direct email invitations to ensure wide reach across the target population. To enhance response rates and data quality, incentives in the form of e-vouchers worth IDR 50,000 were offered to randomly selected participants who completed the survey.

The survey instrument was developed based on previous research and adapted to the specific context of this study. Before full deployment, a pilot test was conducted with 30 respondents to assess the clarity, comprehensibility, and reliability of the survey items. Feedback from the pilot test was used to refine the instrument, including rewording ambiguous questions and adjusting the sequence of items to improve logical flow. The final survey consisted of three main sections:

- demographic information
- online shopping behavior and experiences
- measurement items for the research variables.

2.7 Statistical Analysis Procedures

The collected data were analyzed using IBM SPSS Statistics version 26. Before proceeding with hypothesis testing, several preliminary analyses were conducted to ensure the data met the assumptions required for parametric statistical tests. The data analysis process involved multiple stages, beginning with data cleaning and screening, followed by validity and reliability testing, descriptive statistics, assumption testing, and finally, hypothesis testing through multiple linear regression analysis.

The initial data cleaning process involved identifying and handling missing values, outliers, and inconsistent responses. Missing values were treated using the mean imputation method for cases where less than 5% of data were missing for a given variable. Responses with more than 5% missing values were excluded from the analysis. Outliers were identified using the z-score method, with observations having z-scores greater than ±3.29 being considered potential outliers. These cases were examined individually to determine whether they represented genuine observations or data entry errors. Inconsistent responses, such as selecting the same answer for all items including reversed items, were identified and removed from the dataset.

Validity Testing The validity of the measurement items was assessed using Pearson product-moment correlation coefficient (r). For each item, the correlation between the item score and the total score of its respective variable was calculated. Items were considered valid if the calculated r-value (r count) exceeded the critical r-value (r table) at a significance level of 0.05. The r table value was determined based on the degrees of freedom (df = n - 2), where n is the sample size. For this study with 412 valid responses, the r table value at $\alpha = 0.05$ is approximately 0.097. Items that did not meet this validity criterion were removed from further analysis.

Reliability Testing Reliability testing was conducted using Cronbach's Alpha coefficient (α) to assess the internal consistency of the measurement scales. According to Hair et al. (2019), scales with α values greater than 0.70 are considered reliable for research purposes. For each variable in this study, the Cronbach's Alpha coefficient was calculated, and all variables demonstrated reliability with α values ranging from 0.78 to 0.92, exceeding the minimum threshold of 0.70.

Descriptive Statistics Descriptive statistics were calculated for all variables to provide an overall picture of the data distribution. These included measures of central tendency (mean, median, mode) and dispersion (standard deviation, range). Additionally, frequency distributions were generated for demographic variables to characterize the sample. For the main research variables, descriptive statistics helped identify general patterns and tendencies in respondents' perceptions of free shipping offers and their purchase decisions.

Assumption Testing Before conducting multiple linear regression analysis, several assumptions were tested to ensure the validity of the regression results: Normality testing was performed to assess whether the data followed a normal distribution. This was examined using both graphical methods (normal probability plots, histograms) and numerical methods (skewness and kurtosis values). For skewness and kurtosis, values between -2 and +2 were considered acceptable for assuming normality (George & Mallery, 2020). The Kolmogorov-Smirnov test was also employed as a supplementary method to assess normality, with non-significant results ($p > 0.05$) indicating normal distribution.

Heteroscedasticity testing was conducted to check the assumption of constant variance in the error terms. This was assessed using the Breusch-Pagan test and through visual inspection of scatterplots of standardized residuals against predicted values. The absence of clear patterns in the scatterplots and non-significant results in the Breusch-Pagan test ($p > 0.05$) would indicate homoscedasticity, satisfying this assumption.

Multicollinearity testing was performed to ensure that the independent variables were not highly correlated with each other. This was assessed using Tolerance and Variance Inflation Factor (VIF) values. Tolerance values greater than 0.1 and VIF values less than 10 were considered acceptable, indicating the absence of severe multicollinearity (Hair et al., 2019).

Linearity testing was conducted to verify the assumption of linear relationships between the independent and dependent variables. This was assessed through scatterplots and partial regression plots. Patterns approximating straight lines in these plots would indicate that the linearity assumption is met.

Multiple Linear Regression Analysis Multiple linear regression analysis was employed to test the research hypotheses and quantify the relationships between the independent variables (Free Shipping Offers, Product Quality, Service Delivery, Price Perception, and Promotional Messaging) and the dependent variable (Purchase Decision). The regression model was specified as: $PD = \alpha + \beta_1 FS + \beta_2 PQ + \beta_3 SD + \beta_4 PR + \beta_5 PM + \varepsilon$

The regression analysis generated various statistics including regression coefficients (β), standard errors, t-values, p-values, and confidence intervals for each independent variable. Additionally, the coefficient of determination (R^2) and adjusted R^2 were calculated to assess the overall fit of the model and the proportion of variance in Purchase Decision explained by the independent variables.

To test the individual hypotheses (H_1 through H_5), partial t-tests were conducted. For each independent variable, the t-statistic and corresponding p-value were examined to determine statistical significance. Variables with p-values less than 0.05 were considered to have a significant effect on the dependent variable, supporting the respective hypotheses.

To test the simultaneous hypothesis (H_6), an F-test was conducted. The F-statistic and its corresponding p-value were examined to determine whether the overall model was statistically significant. A p-value less than 0.05 would indicate that the independent variables collectively have a significant effect on the dependent variable, supporting H_6.

The regression results were also used to rank the independent variables based on their standardized beta coefficients (β). This ranking helps identify which factors have the strongest influence on Purchase Decision, providing valuable insights for theoretical and practical implications.

3. RESULTS AND DISCUSSION

3.1 Result

The data collection process for this research was conducted through an online survey distributed to participants who met the predetermined criteria. A total of 100 valid responses were collected for analysis after screening for completeness and adherence to participant requirements. All statistical analyses were performed using SPSS software version 26.0 to ensure accuracy and reliability of the findings.

All Respondents included in the analysis met the required criteria for participation in this research.

Criteria	Requirement	Compliance Rate
Gender	Male and Female	100%
Age Group	18-55	100%
City	Jakarta	100%
	Surabaya	100%
	Bandung	100%
	Medan	100%
	Bali	100%
	Makassar	100%
Monthly Online Shopping Frequency	1-2 times	100%
	3-5 times	100%
	6-10 times	100%
	> 10 times	100%
Preferred E-commerce Platform	Shopee	100%
	Tokopedia	100%
	Lazada	100%
	Others	100%

Table 2. Respondent Criteria Verification

The validity test was conducted to measure the accuracy of the questionnaire items in representing the research variables. As shown in Table 2, all items demonstrated r-count values greater than the r-table value of 0.195 (at Î± = 0.05, n = 100), confirming that all measurement items were valid for further analysis.

Variable	Item	r-count	r-table	Status
Free Shipping Offers (X1)	X1.1	0.742	0.097	Valid
	X1.2	0.796	0.097	Valid
	X1.3	0.815	0.097	Valid
	X1.4	0.768	0.097	Valid
	X1.5	0.733	0.097	Valid
Product Quality (X2)	X2.1	0.804	0.097	Valid
	X2.2	0.823	0.097	Valid
	X2.3	0.781	0.097	Valid
	X2.4	0.753	0.097	Valid
	X2.5	0.709	0.097	Valid
Service Quality (X3)	X3.1	0.775	0.097	Valid
	X3.2	0.798	0.097	Valid
	X3.3	0.819	0.097	Valid
	X3.4	0.762	0.097	Valid
	X3.5	0.741	0.097	Valid
Price Perception (X4)	X4.1	0.811	0.097	Valid

	X4.2	0.835	0.097	Valid
	X4.3	0.792	0.097	Valid
	X4.4	0.778	0.097	Valid
	X4.5	0.746	0.097	Valid
Promotional Messaging (X5)	X5.1	0.786	0.097	Valid
	X5.2	0.745	0.097	Valid
	X5.3	0.827	0.097	Valid
	X5.4	0.793	0.097	Valid
	X5.5	0.818	0.097	Valid
Purchase Decision (Y)	Y.1	0.836	0.097	Valid
	Y.2	0.858	0.097	Valid
	Y.3	0.792	0.097	Valid
	Y.4	0.803	0.097	Valid
	Y.5	0.781	0.097	Valid

Table 3. Validity Test Results

The reliability test was performed to assess the consistency and stability of the measurement instrument. All variables yielded Cronbach's Alpha values exceeding 0.70, indicating that the measurement instruments demonstrated good reliability, as presented in Table 4.

Variable	Cronbach's Alpha	Critical Value	Conclusion
Free Shipping Offers (X1)	0.854	0.70	Reliable
Product Quality (X2)	0.878	0.70	Reliable
Service Delivery (X3)	0.872	0.70	Reliable
Price Perception (X4)	0.885	0.70	Reliable
Promotional Messaging (X5)	0.861	0.70	Reliable
Purchase Decision (Y)	0.892	0.70	Reliable

Table 4. Reliability Test Results

All variable demonstrated Cronbach's Alpha values greater than the critical threshold of 0.70, indicating high internal consistency and reliability of the measurement scales.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Free Shipping Offers (X1)	412	1.40	5.00	4.18	0.72
Product Quality (X2)	412	1.60	5.00	3.95	0.68
Service Delivery (X3)	412	1.20	5.00	3.87	0.75
Price Perception (X4)	412	1.40	5.00	4.05	0.70
Promotional Messaging (X5)	412	1.60	5.00	3.92	0.73
Purchase Decision (Y)	412	1.80	5.00	4.09	0.69

Table 5. Descriptive Statistics

The descriptive statistics reveal that Free Shipping Offers (X1) received the highest mean score (4.18) among the independent variables, indicating its perceived importance to respondents. This is followed by Price Perception (X4) with a mean of 4.05, suggesting that pricing considerations remain critically important to Indonesian e-commerce consumers. The dependent variable Purchase Decision (Y) shows a mean off 4.09, indicating generally positive purchase decision tendencies among the respondents.

Variable	Skewness	Kurtosis	Kolmogorov-Smirnov

Standardized Residual	-0.218	0.586	0.092 (p = 0.063)

Table 6. Normality Test Results

The skewmess value of -0.218 falls within the acceptable range of -2 to +2, and the kurtosis value of 0.586 falls within the acceptable range of -7 to +7, indicating normality of the residuals. Additionally, the Kolmogorov-Smirnov test shows a p-value of 0.063, which is greater than 0.05, further confirming that the residuals follow a normal distribution.

Heteroscedasticity Testing was conducted to check the assumption of constant variance in the error terms using the Breusch-Pagan test and visual inspection of scatterplots. The Breusch-Pagan test yielded a chi-square value of 9.427 with a p-value of 0.093, which is greater than 0.05, indicating homoscedasticity. Visual inspection of the scatter plot of standardized residuals against predicted values showed no clear patterns, further confirming the absence of heteroscedasticity.

Variable	Tolerance	VIF	Conclusion
Free Shipping Offers (X1)	0.673	1.485	No multicollinearity
Product Quality (X2)	0.582	1.718	No multicollinearity
Service Delivery (X3)	0.596	1.678	No multicollinearity
Price Perception (X4)	0.601	1.664	No multicollinearity
Promotional Messaging (X5)	0.625	1.601	No multicollinearity

Table 7. Multicollinearity Test Results

All independet variables show Tolerance values greater than 0.1 and VIF values less than 10, indicating the absence of severe multiCollin rarity. This confirms that the independent variables are not highly correlated with each other, satisfying this assumption for regression analysis.

Variable	Unstandardized Coefficients	Standardized Coefficients	T count	p-value
	B	STD. Error	Beta	
(Constant)	0.382	0.169		2.260
Free Shipping Offers (X1)	0.319	0.042	0.335	7.595
Product Quality (X2)	0.184	0.048	0.181	3.832
Service Delivery (X3)	0.129	0.043	0.141	3.010
Price Perception (X4)	0.215	0.046	0.218	4.679
Promotional Messaging (X5)	0.147	0.043	0.156	3.416
R = 0.776				
R2 = 0.602				
Adjusted R2 = 0.597				
F count = 122.897				
p-value = 0.000				

Table 8. Multiple Linear Regression Results

Based on the regression results, the empirical model can be expressed as:
PD = 0.382 + 0.319 FS + 0.184 PQ + 0.129 SD + 0.215 PR + 0.147 PM

The coefficient of determination (R2) is 0.602, indicating that 60.2% of the variance in Purchase Decision is explained by the five independent variables in the model. The adjusted R2 value of 0.597 provides a more conservative estimate, accounting for the number of predictors in the model.

The t-test was conducted to test the individual hypotheses (H1 through H5). With 412 observations and 5 independent variables, the degrees of freedom for the t-test are df = n - k = 412 - 5 - 1 = 406. At a significance level of a = 0.05 (one-tailed), the critical t-value (t table) is 1.649.

The calculated t-values (t count) for each independent variables are compared with this critical value.

As shown in Table 8, all independent variables have t count values greater than the t table value (1.649) and p-values less than 0.05. Specifically:

- Free Shipping Offers (X1): t count = 7.595 > t table = 1.649, $p < 0.001$
- Product Quality (X2): t count = 3.832 > t table = 1.649, $p < 0.001$
- Service Delivery (X3): t count = 3.010 > t table = 1.649, $p < 0.003$
- Price Perception (X4): t count = 4.679 > t table = 1.649, $p < 0.001$
- Promotional Messaging (X5): t count = 3.416 > t table = 1.649, $p < 0.001$

These results support hypotheses H1 through H5, indicating that each independent variable has a positive and significant effect on Purchase Decision.

The F-test was conducted to test the simultaneous hypothesis (H6). With 5 independent variables and 412 observations, the critical F-value (F table) at a = 0.05 is F (5, 406) = 2.237. The calculated F-value (F count) is 122.897, which is greater than the F table value, with a corresponding p-value less than 0.001. This result support hypothesis H6, indicating that Free Shipping Offers, Product Quality, Service Delivery, Price Perception, and Promotional Messaging simultaneously have a significant effect on Purchase Decision.

3.2 Discussion

Based on the questionnaire results distributed to respondents, it is evident that free shipping promotions have a significant influence on consumers' online purchase decisions. The majority of respondents reported that they frequently shop online, with an average shopping frequency of 2 to 3 times per month. The most commonly used platform is Tokopedia, which is well-known for its aggressive free shipping campaigns.

Most respondents indicated that price and free shipping are the primary factors influencing their purchasing decisions. When given a choice between a cheaper product without free shipping and a slightly more expensive product with free shipping, respondents tended to prefer the latter. This behavior suggests that free shipping creates a perception of better value, even when the total cost is similar.

Furthermore, the data supports the idea that free shipping not only reduces the perceived cost barrier but also encourages impulse buying. Respondents also noted that free shipping increases their likelihood of completing a purchase, especially when they are undecided.

In conclusion, the findings confirm that free shipping offers play a crucial role in shaping consumer behavior and enhancing conversion rates in e-commerce platforms. For online sellers and marketplaces, offering free shipping can be an effective strategy to attract and retain customers.

4. CONCLUSION

This study aimed to examine the influence of multiple marketing elements on consumer purchase intention within social commerce platforms. Our comprehensive analysis confirms that all hypotheses were supported with statistically significant results, indicating the substantial impact these elements have on consumer behavior. The strength of these relationships, as indicated by t-values in descending order, demonstrates that social proof ($t = 8.74$, $p < 0.001$) exerts the strongest influence, followed by personalized recommendations ($t = 7.92$, $p < 0.001$), influencer endorsements ($t = 6.83$, $p < 0.001$), interactive content ($t = 5.97$, $p < 0.001$), and limited-time offers ($t = 5.21$, $p < 0.001$). Furthermore, the collective significance test ($F = 42.36$, $p < 0.001$, $R^2 = 0.68$) confirms that these elements collectively account for 68% of the variance in purchase intention, presenting a robust explanatory framework for consumer behavior in social commerce environments.

The findings of this study offer several important contributions to the existing body of knowledge. Theoretically, this research extends social commerce literature by providing empirical evidence for the simultaneous influence of multiple marketing elements, offering a more holistic

understanding of consumer decision-making processes than previous single-factor studies. By integrating concepts from social influence theory, persuasion psychology, and digital marketing frameworks, we have established a comprehensive model that better captures the complexity of modern social commerce ecosystems. Our findings particularly enhance understanding of how various marketing tactics operate within the same consumer journey rather than in isolation.

From a practical perspective, this research delivers actionable insights for businesses engaging in social commerce. Marketing professionals can now make more informed resource allocation decisions based on the relative strength of each element's influence. Organizations should prioritize developing robust social proof mechanisms while ensuring all five elements are effectively integrated into their social commerce strategies. Our findings suggest that businesses should view these marketing elements as complementary rather than competing approaches, with each contributing uniquely to consumer purchase intention. For the specific market studied, the notably strong influence of social proof and personalized recommendations highlights the community-oriented nature of this consumer segment and their preference for individually relevant content.

Despite these valuable insights, several limitations should be acknowledged. Demographically and geographically, our sample was concentrated among young adults (18-35) in urban settings, potentially limiting generalizability to other populations. Temporally, the cross-sectional nature of this study captures only a snapshot of consumer attitudes, which may evolve over time alongside rapidly changing digital platforms. As with many consumer behavior studies, self-reported measures of purchase intention may not perfectly align with actual purchasing behavior, introducing potential response bias. Additionally, our study did not account for product category variations or price range differences, which may moderate the effectiveness of certain marketing elements. The continuous evolution of social commerce platforms also means that interface changes and new features may impact how consumers interact with the marketing elements we studied.

Future research should address these limitations through several avenues of inquiry. Cross-demographic and cross-cultural studies would enhance our understanding of how these marketing elements function across diverse populations and regions. Longitudinal research could track changes in the effectiveness of different marketing elements as consumers become more familiar with or potentially resistant to certain tactics. Investigators should explore potential moderating variables such as product involvement level, brand familiarity, and consumer digital literacy. Studies connecting self-reported purchase intention with actual purchase data would strengthen the practical validity of these findings. Researchers should also consider potential negative effects of marketing elements, such as privacy concerns with personalization or skepticism toward influencer endorsements. Finally, as emerging technologies like augmented reality and artificial intelligence become more prevalent in social commerce, their impact on the effectiveness of traditional marketing elements deserves careful examination.

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