

# **A STUDY ON THE INFLUENCE MECHANISM OF INCENTIVES ON IMPULSE BUYING IN THE CONTEXT OF TAOBAO LIVE STREAM FOR BEAUTY PRODUCTS IN CHINA**

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## **Abstract**

Live stream shopping has rapidly emerged as a new form of e-commerce, revolutionizing consumer purchasing behavior through real-time interaction and engagement. The beauty industry is in full swing, and the competition is becoming increasingly fierce. This study examines how various types of incentives (red envelopes, coupons, lottery draws, and sec-killing) influence impulse buying in the context of Taobao live stream for beauty products in China. Drawing upon the Stimulus–Organism–Response (SOR) framework, we propose that incentives (stimuli) affect consumers' impulse buying (response) by altering their cognitive and affective states (organism). A quantitative survey of 488 female Taobao Live users (aged 18 and above) who purchased beauty products was conducted. This study used Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the collected data. The results show that coupons and sec-killing positively affect impulse buying, but red envelopes and lottery draws do not positively affect impulse buying. This study contributes to the live-stream consumer behavior literature by refining the SOR model for a real-time online shopping environment. Moreover, it offers practical guidance for live-stream merchants of beauty products and platform operators in designing effective incentive structures.

**Keywords:** Live Stream Shopping, Impulse Buying, Incentives, Beauty products, SOR Model

## **Introduction**

The rapid development of internet technologies and e-commerce platforms has led to new business models such as live stream e-commerce (Lyu & Ratasuk, 2024a, 2024b). Live stream shopping typically involves a host or influencer showcasing products in real-time, interacting with viewers via chat, and offering promotional incentives (Chen et al., 2024). This interactive, experiential format has notably transformed consumer purchasing behaviors, as it integrates entertainment, immediacy, and social engagement (Wongsunopparat & Deng, 2021). The beauty industry is a dynamic and fiercely competitive market characterized by constant innovation and evolving consumer trends (Niu & Ratasuk, 2024). Increasingly, online channels are driving sales, with live-stream shopping emerging as a particularly powerful force, especially in China (Chu, 2024). For beauty brands, livestream shopping presents a unique opportunity to engage with consumers and drive sales. However, the rapid growth of this channel has also led to intense competition, with brands vying for attention and market share in a crowded digital space (Niu & Ratasuk, 2024). The fierce competition challenges beauty brands, driving them to use various strategies, especially incentives, to stimulate immediate purchasing decisions. These incentives can range from traditional discounts and coupons to more innovative tactics such as “red envelopes” (digital cash gifts), lottery draws, and “sec killing” (flash sales with deep discounts) (Huang & Suo, 2021a).



Understanding how these incentives influence consumer behavior, particularly impulse buying, is crucial for developing effective livestream marketing strategies.

Impulse buying, characterized by unplanned and immediate purchase decisions driven by emotions and situational cues rather than rational deliberation, is a significant driver of sales in many retail contexts (Moser, 2020). In live-stream shopping, the platform's interactivity and targeted incentives can enhance impulse buying. This study explores the effect of coupons, red envelopes, lottery draws, and sec-killing on impulse buying in live-stream beauty product shopping in China. This research is grounded in the Stimulus-Organism-Response (S-O-R) model, which posits that external stimuli (incentives) influence an organism's internal state (emotions, thoughts), leading to a behavioral response, impulse buying (Laato, Islam, Farooq, Dhir, & Services, 2020). Furthermore, the study also applies the Scarcity Principle, emphasizing the value of limited items, particularly in sec killing.

These independent variables, coupons, red envelopes, lottery draws, and sec killing, have been chosen due to their prevalence in Chinese live-stream shopping and their potential to influence consumer emotions and perceptions, ultimately leading to impulse buying behaviour (Huang & Suo, 2021b; Lin, 2024; J. Yang, Zeng, Liu, & Li, 2022). While existing research has explored impulse buying in traditional retail and online shopping contexts, there is a limited understanding of how specific incentives, particularly those culturally relevant to the Chinese market, influence impulse buying in the unique environment of live-stream shopping. This research aims to fill these gaps by examining the impact of specific incentives on impulse buying in live-stream shopping, exploring the mediating role of consumer emotions and perceptions (e.g., pleasure, risk), and investigating how individual and cultural factors (e.g., age, materialism, risk aversion) moderate impulse buying behavior in Chinese beauty product live-stream selling.

This study aims to: 1) identify which of the four incentives are most effective in triggering impulse buying behavior in live stream shopping for beauty products in China; 2) investigate the psychological mechanisms underlying the relationship between these incentives and impulse buying, specifically focusing on the mediating role of consumer emotions and perceptions; and 3) examine the moderating influence of individual and cultural factors on the effectiveness of these incentives in driving impulse purchases. This research is expected to make several academic contributions, including enhancing the theoretical understanding of impulse buying in the context of live stream shopping, particularly within the Chinese market; providing empirical evidence on the effectiveness of different culturally relevant incentives in driving impulse purchases, and contributing to the growing body of knowledge on consumer behavior in the digital age.

Practically, this study offers insights for optimizing live-stream marketing, boosting impulse buying, and promoting ethical practices in China's beauty market. By addressing these research gaps and objectives, this study aims to provide valuable insights for academics and practitioners in the beauty industry, contributing to a deeper understanding of consumer behavior and effective marketing strategies in the dynamic world of live-stream shopping.

### **Research Objective (S)**

The research objectives of this study are to explore the impacts of different types of incentives (red envelopes, coupons, lottery draws, and sec killing) on consumers' impulse buying in the context of Taobao Live stream in China.



## **Literature Review**

This study investigates the influence of various incentives on impulse buying behavior within the context of live-stream shopping for beauty products in China. This literature review examines the key concepts and theories relevant to the study to establish a theoretical foundation for this research. This includes a general overview of impulse buying, coupons, red envelopes (hongbao), lottery draws, sec killing (miaosha), the Stimulus-Organism-Response (S-O-R) model, and the Scarcity Principle. Each concept is defined and discussed in relation to its role in influencing consumer behavior, drawing upon existing research and relevant examples. The review offers critical context for understanding the research hypotheses and analyzing the findings.

### **1. Impulse Buying**

Impulse buying has been a central topic in consumer research for decades. Different scholars are constantly enriching the definition of impulse buying. Impulse buying is generally defined as an unplanned behavior involving quick decision-making and a tendency to acquire the product immediately. (Muruganantham & Bhakat, 2013). Consumers make quick purchase decisions without rational analysis because they are immersed in the joy of obtaining a certain product while ignoring other choices.

Impulse buying has been widely studied in various contexts, including traditional retail, online shopping, and tourism. In particular, impulse buying has been investigated by academics from different research disciplines, including marketing (Ampadu et al., 2022), information systems (Zafar et al., 2021), and tourism (KONG, 2017). The research findings are inconsistent and divided, preventing a complete understanding of factors affecting impulse buying behavior (Redine et al., 2023). With the development of technology, live streaming has gradually become one of the main online shopping channels. Incentives are one of the most commonly used means to stimulate consumers to buy in live streams. Now, more and more scholars have begun to study the impact of incentives on impulse buying. In this research, impulse buying is being investigated as the dependent variable, specifically focusing on how various incentives within the unique context of live-stream shopping for beauty products in China influence it.

### **2. Coupons**

Coupons are a common sales promotion technique offering a price reduction on a product or service (Bondarenko & Vyshnivska, 2023). They are widely used in various industries and contexts to attract customers, encourage trial, and drive sales. The survey found that consumers' awareness of digital coupons is growing with technology development. The increasingly diverse online shopping channels and online payment methods have made digital coupons have a greater impact on consumer purchasing behavior (Pandey, Gupta, & Rastogi, 2024). Some scholars have specifically studied the impact of the immediacy and convenience of electronic coupons on consumer purchasing behavior (Tiderman, Mohammed Mustafa, & Aziz Azad, 2024). Studies have also examined the impact of coupon characteristics, such as face value, expiration date, and redemption requirements, on consumer response (H. J. Lee, Choeh, & research, 2021). In this research, coupons are being investigated as an independent variable, examining their potential to trigger impulse buying behavior in the context of live-stream shopping for beauty products in China.

### **3. Red Envelopes (Hongbao)**

Red envelopes (hongbao) are a culturally significant form of gift-giving in China, typically associated with holidays and special occasions. They traditionally contain cash, but they have evolved to include digital cash gifts and coupons in the digital age. Red envelopes have been studied in various contexts, including social media, e-commerce, and online gaming, and have been found to influence purchase intentions (J. Liu, Zhang, & applications, 2024). Researchers suggested that marketers can establish fan groups (such as Taobao fan groups, Xiaohongshu fan groups, etc.), increase fan activity through red envelopes in fan groups, promote fan purchases, and deepen the interaction between consumers and anchors, and between consumers, helping anchors and consumers to establish a close interpersonal network (Huang & Suo, 2021a). Red envelopes have a special meaning for Chinese consumers. Consumers regard red envelopes as "good luck signals," which increases unplanned purchases. In addition, the number, amount, and validity period of red envelopes issued by shopping platforms are limited, which creates a sense of scarcity and urgency, prompting consumers to make impulse purchases. In this research, red envelopes are being investigated as an independent variable, exploring their unique cultural influence on impulse buying behavior in the context of live-stream shopping for beauty products in China.

### **4. Lottery Draws**

A lottery draw is a form of gambling that involves the random selection of winners from a pool of participants. They are often used as a promotional tool to attract customers and generate excitement (Yeboah-Asiamah, Quaye, Nimako, & Studies, 2016). Lottery draws have been studied in various contexts, including marketing, psychology, and economics, and have been found to influence risk-taking behavior, purchase intentions, and brand attitudes (Fu, Hsu, & Systems, 2023). The study found that the lottery draw is an effective marketing method, which effectively stimulates the purchase behavior of consumers, and the higher the value of the lottery draw, the more significant the stimulating effect, and the marketer can significantly increase the sales and traffic of the live stream room by designing the lottery draw (X.-y. Chen et al., 2024). Other studies have found that lottery draws increase the intimacy between the inference and the audience, improve the audience's sense of participation, and thus drive the audience to impulse buying (Junghwa & YOON, 2024). In this research, lottery draws are being investigated as an independent variable, examining their potential to trigger impulse buying behavior through the element of chance and potential reward in the context of live-stream shopping for beauty products in China.

### **5. Sec Killing (Miaosha)**

Sec killing (miaosha) is a Chinese term that refers to flash sales with deep discounts and limited quantities, creating a sense of urgency and competition among consumers. The term "Miao sha" originally comes from computer games, meaning "killing in second." When associated with online shopping, "Miao sha" (seckill) refers to the quick sell-out of newly-advertised goods (Wenchao & Ke, 2018). This sales promotion tactic has become increasingly popular in online shopping, particularly in China, and has been found to be effective in driving sales and attracting new customers (L. Yang, 2025). Sec killing is a very important means of live e-commerce. It will make consumers in the live stream fear missing opportunities, so they will quickly place orders (Y. Zhang, Zhang, Yan, & Services, 2024). Sec killing can create a tense atmosphere in the live stream, thus stimulating consumers to make impulse buying (Duan & Song, 2024). In this research, sec killing is being investigated as an independent variable, examining its potential to trigger impulse buying behavior through the creation of scarcity and urgency in the context of live-stream shopping for beauty products in China.

## 6. Stimulus-Organism-Response (S-O-R)

The Stimulus-Organism-Response (S-O-R) model is a theoretical framework that explains how external stimuli influence an organism's internal state, leading to a behavioral response. Originally, the SOR model was invented by Mehrabian and Russell (1974), in which an environmental stimulus (S) results in an emotional response (O), thereby fostering a behavioral response (R). Numerous SOR-based research works in the marketing context confirm the relationship between emotional response and consumer response in terms of intention, purchase, consultation, and return (Zhu, Kowatthanakul, & Satanasavapak, 2020). This model has been widely applied in various fields, including psychology, marketing, and environmental studies, to understand how individuals respond to their environment. In marketing, the S-O-R model is often used to explain consumer behavior, with stimuli such as product features, advertising messages, and promotional activities influencing consumers' emotions, cognitions, and, ultimately, their purchase decisions (Jeong et al., 2022). In this research, the S-O-R model provides the theoretical foundation for understanding how the four incentives (coupons, red envelopes, lottery draws, and sec killing) act as stimuli, influencing viewers' internal states (emotions, perceptions) and ultimately leading to the behavioral response of impulse buying in the context of live stream shopping for beauty products in China.

### Hypothesis Development

The following hypotheses are grounded in the Stimulus-Organism-Response (S-O-R) model, which suggests that external stimuli (incentives) can influence an individual's internal state (emotions, cognitions), ultimately leading to a behavioral response (impulse buying). Furthermore, the Scarcity Principle posits that perceived scarcity increases the value and desirability of products and services, and provides additional theoretical support for the proposed hypotheses (Oruc, 2015).

In the context of this study, the four incentives (coupons, red envelopes, lottery draws, and sec killing) are considered external stimuli that can trigger various internal responses in consumers. Coupons, by offering price reductions, can create a perception of value and savings, leading to positive emotions and a reduced perception of risk, which can encourage impulse buying (Gonzalez, 2021). With their cultural significance in China, red envelopes can evoke feelings of reciprocity and goodwill, further stimulating impulse purchases (Xu, 2021). Lottery draws introduce an element of chance and potential reward, triggering excitement and anticipation that can lead to impulsive actions (M.-Y. Chen, 2016). Finally, sec killing leverages the Scarcity Principle by creating a sense of urgency and fear of missing out through limited-time offers and limited quantities, prompting consumers to make quick purchase decisions (Wei, 2024).

Based on these theoretical underpinnings, the following hypotheses are proposed:

- H1: Coupons have a positive effect on impulse buying behavior in Taobao live stream shopping for beauty products in China.
- H2: Red envelopes have a positive effect on impulse buying behavior in Taobao live stream shopping for beauty products in China.
- H3: Lottery draws have a positive effect on impulse buying behavior in Taobao live stream shopping for beauty products in China.
- H4: Sec killing has a positive effect on impulse buying behavior in Taobao live stream shopping for beauty products in China.



## Methodology

This study adopted a quantitative research design to investigate the influence of coupons, red envelopes, lottery draws, and sec-killing on impulse buying behavior among Taobao beauty product customers in China.

### 1. Population and Sampling

The target population for this research consisted of Taobao customers in China who purchase beauty products. The sample was drawn using purposive sampling, focusing on individuals aged 18 and above who had experience purchasing beauty products through Taobao's live stream platform. Given the target population's unknown size, the formula of Cochran and Chambers (1965) was employed to determine the minimum required sample size. Assuming a 95% confidence level and a 5% margin of error, the formula yielded a sample size adequate for robust statistical analysis. Thus, a minimum of 400 respondents was set as the goal for data collection.

### 2. Sampling Method, Data Collection and Tool

This study utilized purposive sampling to ensure all participants were qualified Taobao beauty product consumers. Data were collected via self-administered online questionnaires distributed through targeted online community groups frequented by this consumer demographic. The questionnaire consisted of three sections: screening questions to confirm eligibility, such as recent Taobao beauty product purchases, demographic and behavioral questions, and scales measuring perceptions of promotional tactics (coupons, red envelopes, lottery draws, and flash sales, referred to as sec killing) and their influence on impulse buying. These perceptions were assessed using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). All measurement scales were adapted from previously validated and reliable instruments, ensuring the robustness of the study's findings (Russo, Tomei, Serra, & Mello, 2021).. This methodology allowed for focused data collection from the specific target population, enabling an examination of the relationship between Taobao promotional strategies and impulse purchasing behaviour.

### 3. Data Analysis

Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyze the collected data. PLS-SEM is a variance-based SEM technique that is particularly well-suited for social science research, where data often deviates from normality (Joseph Hair & Alamer, 2022; Ratasuk, 2019). Unlike Covariance-Based SEM (CB-SEM), which focuses on confirming factor structures and requires multivariate normality (Dash & Paul, 2021; Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Ratasuk, 2023a), PLS-SEM is designed for prediction and is robust to non-normal data (Ratasuk, 2023b; Ratasuk & Gajesanand, 2023). This makes it a suitable choice for this study, as social science data frequently exhibit non-normal distributions, particularly in consumer behavior research (Bono et al., 2017; Ratasuk, 2024). Additionally, PLS-SEM is effective for complex models with multiple latent variables and is less sensitive to sample size constraints (Sarstedt, Hair Jr, Nitzl, Ringle, & Howard, 2020).

Specifically, PLS-SEM was used to assess the measurement model, including the reliability and validity of the scales (Mohd Dzin & Lay, 2021; Ratasuk & Charoensukmongkol, 2019). It evaluates the structural model, examining the relationships between the independent and dependent variables (Ratasuk & Gajesanand, 2020). It also tests the proposed hypotheses regarding the influence of coupons, red envelopes, lottery draws, and sec-killing on impulse buying. The use of PLS-SEM allowed for a comprehensive analysis of the proposed model, providing insights into the direct and indirect effects of the independent variables on impulse buying behavior in the context of Taobao's live stream shopping for beauty products in China.

## Results

This section presents the findings of the study, starting with a descriptive analysis of the demographic and behavioral characteristics of the 488 respondents. The sample comprised exclusively female consumers who had prior experience purchasing beauty products through Taobao live-stream shopping. The majority of respondents were between the ages of 18 and 30 (89.96%), with a significant proportion holding a Bachelor's degree (64.14%) or a Master's degree or higher (25.41%). Students comprised the largest occupational group (56.35%), followed by those employed full-time (30.74%). The largest group of respondents earned between RMB 1501 and RMB 3000 (39.34%). All participants had purchased through Taobao live streams, with 41.6% shopping "depending on demand."

Before testing the proposed hypotheses, the data and model quality should be confirmed. The following tests have been conducted, including convergent validity, discriminant validity, reliability, multicollinearity, common method bias(CMB), normality, and a model fit.

Table 1 shows that the convergent validity and reliability of the measurement model were assessed using several indicators. All factor loadings were above 0.7, demonstrating strong relationships between the items and their respective latent variables, thus confirming convergent validity (J. F. Hair, Risher, Sarstedt, & Ringle, 2019; Ratasuk, 2022). Furthermore, the composite reliability values for all constructs exceeded 0.7, indicating good internal consistency reliability (Hair Jr, Howard, & Nitzl, 2020; Ratasuk, 2020). This was further supported by Cronbach's alpha values, which were also above 0.7 for all constructs (Joe Hair, Hollingsworth, Randolph, & Chong, 2017). Finally, the average variance extracted (AVE) values for all constructs were above 0.5, signifying that each construct explains more variance in its items than the error variance, further supporting convergent validity (Fithri, Hasan, Syafrizal, & Games, 2024; Joseph Hair & Alamer, 2022). These results collectively demonstrate that the measurement model exhibits good convergent validity and reliability, ensuring the constructs are well-measured and suitable for further analysis.

**Table 1:** Convergent Validity and Reliability

Variable	Question Items	Factor Loadings	Composite Reliability (CR)	Cronbach's Alpha	Average Variance Extracted (AVE)
Impulse Buying	ImpBuy1	.829	.911	.877	.671
	ImpBuy2	.812	-	-	-
	ImpBuy3	.811	-	-	-
	ImpBuy4	.838	-	-	-
	ImpBuy5	.807	-	-	-
Red Envelop	RedEnv1	.849	.899	.85	.689
	RedEnv2	.823	-	-	-
	RedEnv3	.828	-	-	-
	RedEnv4	.821	-	-	-
Coupons	Coupon1	.822	.899	.851	.691
	Coupon2	.84	-	-	-
	Coupon3	.853	-	-	-
	Coupon4	.809	-	-	-
Lottery	Lottery1	.844	.897	.846	.684
	Lottery2	.83	-	-	-
	Lottery3	.818	-	-	-
	Lottery4	.817	-	-	-

Variable	Question Items	Factor Loadings	Composite Reliability (CR)	Cronbach's Alpha	Average Variance Extracted (AVE)
Sec Killing	SecKill1	.771	.879	.816	.644
	SecKill2	.824	-	-	-
	SecKill3	.791	-	-	-
	SecKill4	.824	-	-	-

**Note:** Author's calculation, ImpBuy=Impulse Buying, RedEnv=Red Envelope, Lottery=Lottery Draw, SecKill=Sec Killing.

Table 2 shows that discriminant validity, which assesses the distinctiveness of the constructs, was evaluated using the Heterotrait-Monotrait (HTMT) ratio (Rönkkö & Cho, 2022). This method examines correlations between constructs and is considered more reliable than traditional approaches. The HTMT ratios were all below the recommended threshold of 0.90, with most falling well below the more stringent threshold of 0.85 (Joseph Hair & Alamer, 2022; Radomir & Moisesu, 2020). This indicates that the constructs, impulse buying, red envelopes, coupons, lottery draws, and sec killing, are distinct from each other, demonstrating good discriminant validity. In essence, this confirms that the measurement scales are capturing different concepts as intended. This evidence of discriminant validity, in conjunction with the previously established convergent validity and reliability, further strengthens the robustness of the measurement model and provides a solid foundation for analyzing the structural relationships between the variables.

**Table 2:** HTMT ratios (good if <.90, best if <.85)

	ImpBuy	RedEnv	Coupon	Lottery	SecKill
ImpBuy					
RedEnv	.27***				
Coupon	.359***	.474***			
Lottery	.35***	.439***	.443***		
SecKill	.28***	.292***	.465***	.319***	

**Note:** Author's calculation, \*\*\*= $p < .001$ , ImpBuy=Impulse Buying, RedEnv=Red Envelope, Lottery=Lottery Draw, SecKill=Sec Killing

To ensure the robustness of the analysis, several diagnostic tests were conducted. Multicollinearity was assessed using the full collinearity Variance Inflation Factor (VIF) (Bayman & Dexter, 2021). The results, as presented in the table, show that all VIF values were well below the common threshold of 5, ranging from 1.178 for Impulse Buying to 1.442 for Coupons (Kock, 2015; Ratasuk, 2024). This indicates that multicollinearity is not a concern in this model, as the predictor variables are not excessively correlated. Regarding normality, both the Jarque-Bera (Normal-JB) and Robust Jarque-Bera (Normal-RJB) tests indicated non-normality for all variables, as denoted by "No" in the table (Jarque & Bera, 1980). This confirms the suitability of Partial Least Squares Structural Equation Modeling (PLS-SEM) for this study, as it is robust to deviations from normality. Common method bias (CMB) was assessed using Harman's single-factor test, and the results (not shown in the table) indicated that no single factor accounted for a majority of the variance (Aulakh & Gencturk, 2000), suggesting that CMB is not a significant concern as presented in Table 3.



**Table 3:** Multicollinearity, Common Method Bias (CMB), and Normality Test

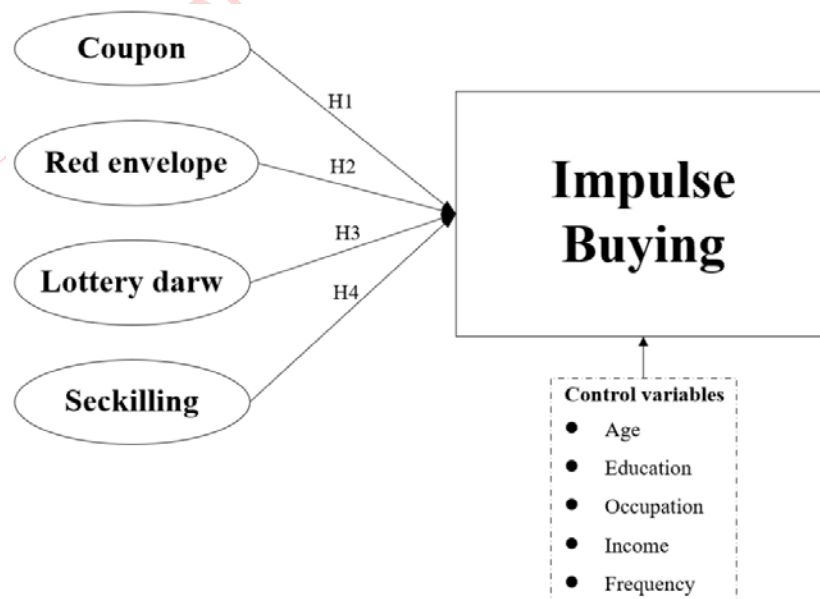
	ImpBuy	RedEnv	Coupon	Lottery	SecKill
Full Collin. VIF	1.178	1.299	1.442	1.313	1.219
Normal-JB	No	No	No	No	No
Normal-RJB	No	No	No	No	No

**Note:** Author's calculation, ImpBuy=Impulse Buying, RedEnv=Red Envelope, Lottery=Lottery Draw, SecKill=Sec Killing

Lastly, The overall fit and quality of the PLS-SEM model were evaluated using several key indices. The average path coefficient (APC) was .091, which was statistically significant ( $P = .011$ ), indicating that the model's paths are generally meaningful. The average R-squared (Sarstedt et al.) was .265, and the average adjusted R-squared (AARS) was .252, both of which were statistically significant ( $P < .001$ ), suggesting that the model explains a substantial portion of the variance in the dependent variable. Multicollinearity was assessed using the average block VIF (AVIF) and average full collinearity VIF (AFVIF), which were 2.833 and 1.166, respectively. Both values are well within the acceptable range ( $\leq 5$ ) and close to the ideal range ( $\leq 3.3$ ), indicating no significant multicollinearity issues. The Tenenhaus GoF (GoF) was .466, which is above the threshold for large effect size ( $\geq .36$ ), indicating a strong overall model fit. The Simpson's paradox ratio (SPR) was 0.875, the R-squared contribution ratio (RSCR) was .998, the statistical suppression ratio (SSR) was 1.000, and the nonlinear bivariate causality direction ratio (NLBCDR) was .875. All of these values were within their respective acceptable ranges, further confirming the robustness and quality of the model. In summary, the model fit and quality indices demonstrate that the PLS-SEM model provides a good representation of the relationships between the variables (Ratasuk, 2021).

### Hypothesis Testing (PLS-SEM)

The proposed hypotheses were tested using the results of the PLS-SEM analysis, specifically focusing on the path coefficients and their corresponding p-values, as shown in Figure 1.



**Figure 1:** PLS-SEM Results

H1: Coupons have a positive effect on impulse buying behavior in live-stream shopping for beauty products in China.

Result: Supported. The path coefficient for Coupons ( $\beta = .297, p < .001$ ) was positive and statistically significant, indicating that coupons have a positive effect on impulse buying.

H2: Red envelopes have a positive effect on impulse buying behavior in live-stream shopping for beauty products in China.

Result: Not Supported. The path coefficient for Red Envelopes ( $\beta = .018, p = .347$ ) was positive but not statistically significant, indicating that red envelopes do not have a significant effect on impulse buying.

H3: Lottery draws have a positive effect on impulse buying behavior in live-stream shopping for beauty products in China.

Result: Not Supported. The path coefficient for Lottery Draws ( $\beta = .047, p = .149$ ) was positive but not statistically significant, indicating that lottery draws do not have a significant effect on impulse buying.

H4: Sec killing has a positive effect on impulse buying behavior in live-stream shopping for beauty products in China.

Result: Supported. The path coefficient for Sec Killing ( $\beta = .160, p < .001$ ) was positive and statistically significant, indicating that Sec Killing has a positive effect on impulse buying.

The results of the hypothesis testing indicate that coupons and sec killing have a significant positive effect on impulse buying behavior in live stream shopping for beauty products in China. However, red envelopes and lottery draws do not appear to have a significant impact on impulse buying.

This study also included control variables, age, education, income, and purchase frequency, to account for potential confounding factors. However, none of these control variables showed a statistically significant effect on impulse buying behavior. This suggests that, within this study's context, these factors did not significantly influence impulse purchases during live-stream shopping for beauty products. While these variables are often important in consumer behavior research, their non-significance here could be attributed to sample characteristics, the unique nature of the live stream shopping environment, or the presence of other unmeasured factors with stronger influences. Nonetheless, the inclusion of these control variables contributes to the study's rigor and helps to isolate the effects of the primary independent variables.

## Discussion and Conclusion

This study investigated the impact of various incentives on impulse buying in the context of Taobao livestream shopping for beauty products in China. The findings reveal that coupons and sec killing (miaosha) significantly influence impulse buying behavior, while red envelopes and lottery draws do not have a significant impact. These results are largely consistent with the theoretical framework and prior studies used for hypothesis development (Huang & Suo, 2021b; Lin, 2024; J. Yang et al., 2022).

The significant positive effect of coupons on impulse buying aligns with the S-O-R model, which suggests that external stimuli (coupons) can influence internal states (perceived value, positive emotions) and lead to a behavioral response (impulse buying). This finding is also supported by prior research on coupons and sales promotions, which has consistently shown their effectiveness in driving purchase decisions (Wang, Du, & Hu, 2020).

Similarly, the significant positive effect of sec killing on impulse buying is consistent with the Scarcity Principle, which posits that perceived scarcity increases the value and desirability of products and services (Hamilton et al., 2019). The limited-time nature and limited quantities associated with sec

killing create a sense of urgency and fear of missing out, triggering impulse buying behavior. This finding is supported by prior research on scarcity and consumer behavior, which has demonstrated the effectiveness of scarcity cues in driving purchase decisions (Verhallen, 1982).

However, the non-significant effects of red envelopes and lottery draws on impulse buying were somewhat unexpected. While these incentives are culturally relevant in China and have been shown to influence consumer engagement and purchase intentions in other contexts, they did not appear to significantly trigger impulse buying in this study. This could be attributed to several factors specific to the live-stream shopping context.

Firstly, red envelopes, while appreciated as gifts, might not be perceived as directly linked to immediate purchase decisions (Q. Zhang, Li, Wang, & Zhou, 2018). Their association with gifting and social exchange might dilute their perceived value as a purchase incentive. Secondly, while creating excitement and anticipation, lottery draws might not be strong enough to trigger impulse buying on their own (Y. H. Lee & Qiu, 2009). The element of chance and the uncertainty of winning might not provide the immediate gratification that drives impulse purchases.

In summary, this study provides valuable insights into the effectiveness of different incentives in driving impulse buying behavior within the unique context of live-stream shopping for beauty products in China. The findings support the S-O-R model and the Scarcity Principle, highlighting the importance of understanding both psychological mechanisms and cultural nuances when designing promotional strategies for this rapidly growing market.

### **Academic Contributions and Implications**

This research makes several key academic contributions. First, it provides empirical evidence supporting the S-O-R model and the Scarcity Principle in the context of live-stream shopping, demonstrating how external stimuli (incentives) influence internal states (emotions, perceptions) and lead to behavioral responses (impulse buying). Secondly, it contributes to the growing literature on consumer behavior in online shopping environments, particularly within the Chinese market, where live-stream shopping is highly popular. Thirdly, it offers insights into the effectiveness of different types of incentives, highlighting the importance of understanding cultural nuances when designing promotional strategies. Last but not least, previous studies have focused on macro aspects such as marketing strategies, but this study comprehensively examines and analyzes four incentives commonly used in live-stream shopping.

### **Practical Implications**

The findings of this study have important implications for marketers and practitioners in the beauty industry. By understanding which incentives are most effective in driving impulse purchases, brands can optimize their livestream marketing strategies and allocate resources efficiently. The results suggest that coupons and sec-killing are particularly effective in triggering impulse buying, while red envelopes and lottery draws may be less impactful. This knowledge can help brands tailor their promotional activities to maximize sales and engagement during live-stream shopping events. Sellers can better understand consumer behavior and optimize incentive strategies to promote sustainable growth in the live-stream e-commerce sector.



## Limitations and Recommendations for Future Studies

This study acknowledges certain limitations. Firstly, its focus on Taobao beauty product customers in China may limit the generalizability of findings. Future studies could explore the impact of incentives on impulse buying in diverse cultural settings and product categories. Secondly, the reliance on self-reported data through online questionnaires may be subject to biases. Future research could employ a mixed-methods approach, combining quantitative and qualitative data for a more comprehensive understanding. Thirdly, the study did not examine the long-term effects of incentives on customer loyalty and brand relationships, which could be explored in future research.

Future studies could also explore the influence of other factors, such as personality traits, social influence, and product characteristics, on impulse buying in live-stream shopping. Investigating the moderating role of cultural values and individual differences in the relationship between incentives and impulse buying is also recommended. Additionally, examining the ethical implications of using incentives to promote impulse purchases, particularly in vulnerable populations, and developing interventions to mitigate the negative consequences of excessive impulse buying are crucial areas for future research. By addressing these limitations and pursuing further research, we can better understand impulse buying behavior in the digital age and develop more effective and responsible marketing strategies for the live-stream shopping environment.

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