

Analyzing Factors Affecting loyalty on Group-Buying Platforms: A Case Study of Pinduoduo

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ABSTRACT

In the current global economy, group-buying e-commerce platforms like Pinduoduo continuously adapt to changing consumer attitudes and behaviors. The rapid development of e-commerce has transformed shopping habits and consumption patterns globally, especially after the emergence of Covid-19 where consumers changed from physical purchasing to online purchasing. Therefore, attracting and retaining customers and increasing consumer loyalty is a core concern amidst fierce competition, especially when there are so many group-buying e-commerce platform emerged during the pandemic. Despite the success of platforms like Pinduoduo, improving user loyalty remains a critical challenge to survive in this gruesome competition. Frequent price fluctuations, inconsistent product quality, and poor after-sales service are key points for users, negatively affecting consumer satisfaction and loyalty. By the end of 2022, over six group-buying platforms in China ceased operations due to low user retention and engagement rates. Therefore, this study aims to explore how Pinduoduo can effectively retain customers and enhance loyalty by evaluating consumer loyalty through constructs such as price, product quality, and service quality. Data from 418 consumers were collected via an online questionnaire, and structural equation modeling was adopted to test the research hypotheses. The results show that product price, product quality, and service quality have significantly impact on consumer satisfaction, which plays a crucial mediating role in loyalty. Based on these key factors, the study provides guidance for group-buying e-commerce platforms to cultivate customer loyalty and attract potential customers. This will subsequently increase the revenue from group-buying e-commerce platforms, which is essential to the growth of the company.

Keywords: customer satisfaction, customer loyalty, e-commerce, Pinduoduo

INTRODUCTION

In recent years, the rapid development of e-commerce has transformed shopping habits and consumption patterns globally (Cheng, 2022). Group-buying platforms, a significant e-commerce model, have gained popularity due to their price advantages and social shopping experiences (Erdoğan & Çiçek, 2011). In China, Pinduoduo has emerged as a leading platform, particularly in rural markets and among low-income groups. Since its establishment in 2015, Pinduoduo's annual transaction volume has exceeded \$100 billion, solidifying its position as a major player in the Chinese e-commerce market (Liu et al., 2023). However, the community group-buying sector faces significant challenges, including intense competition, platform uniformity, and declining user engagement. By the end of 2022, over six group-buying platforms in China ceased operations due to low user retention and engagement rates (Song et al., 2023). These dynamics underscore the urgent need for research on consumer loyalty and sustained usage intentions in this sector

Despite the success of platforms like Pinduoduo, improving user loyalty remains a critical challenge. Frequent price fluctuations, inconsistent product quality, and poor after-sales service are key points for users,

negatively affecting consumer satisfaction and loyalty (Shao et al., 2024; Lin et al., 2021; Lu et al., 2018). Research indicated that consumers struggle to resolve after-sales issues and experience dissatisfaction due to product quality not meeting expectations and unaddressed complaints (Sung et al., 2023). These challenges underscore the need to address product quality, pricing stability, and service efficiency to enhance satisfaction and loyalty.

Product quality is central to fostering consumer satisfaction and repeat purchases. High-quality products that consistently meet customer expectations foster trust, enhance loyalty, and distinguish a business from its competitors (Li & Green, 2011; Shao et al., 2024). Examining the relationship between product quality and user satisfaction provides opportunities to refine quality management and improve the overall user experience. Consumer satisfaction is widely recognized as a critical driver of loyalty (Kumar et al., 2024). Satisfied customers are more likely to share positive experiences and demonstrate brand loyalty, a dynamic that has been validated in e-commerce contexts (Liu et al., 2023; Rita et al., 2019). By analyzing how factors such as product quality, pricing strategies, and service quality influence consumer satisfaction and loyalty, businesses like Pinduoduo can better understand ways to enhance their competitive edge in the evolving e-commerce landscape.

Addressing these areas will not only improve user satisfaction and loyalty but also strengthen Pinduoduo's market position and competitiveness in the group-buying sector. Understanding the interplay between these variables is critical for sustaining growth in a competitive and dynamic e-commerce industry. Therefore, this study aims to explore the formation mechanism of user loyalty on Pinduoduo, focusing on the impact of product quality, price, and service quality on customer loyalty, and investigating the mediating role of customer satisfaction.

The remaining details of this paper are as follows. The literature review of the study is presented in Section 2. Thereafter, the methodology consisting of research design, data collection methods, and analysis techniques are presented. It is followed by the results and discussion of the analysis. Finally, the paper is concluded with the conclusion and future studies of this research.

LITERATURE REVIEW

Consumer loyalty forms as consumers analyze and evaluate platforms and decide on continued purchases (Park et al., 2015). The Stimulus-Organism-Response (SOR) Model is a widely used framework in behavioral science and marketing research. It explains how external stimuli influences individuals' internal processes, which subsequently drive behavioral responses. Originally proposed by Mehrabian and Russell (1974), the model has been applied extensively in consumer behavior studies, including e-commerce, retail, and technology adoption (Guo et al., 2022; Qing et al., 2018). The SOR model is fundamental for explaining consumer behavior and is applicable to Pinduoduo users. This study uses the SOR model to explore factors influencing loyalty among Pinduoduo users, considering product price, quality, and service as external factors and customer satisfaction as an internal factor.

Product Price

Product price refers to the monetary value assigned to a product or service, representing the value customers exchange to acquire or utilize it (Safitri, 2018). Previous research such as Kumar et al. (2024) has indicated a close association between consumers' perception of price and their satisfaction with products or services. Price is often considered a pivotal factor in consumer purchasing decisions. When consumers perceive that the price of a product or service aligns with or exceeds their expectations, their satisfaction tends to increase. Therefore, fluctuations in price on the Pinduoduo platform may directly impact consumer satisfaction. High-value products or services may lead to higher consumer satisfaction, consequently enhancing their loyalty to the platform. In previous studies, some scholars have delved into the influence of price on consumer satisfaction. For instance, Cho (2014) found a significant positive relationship between consumers' perception of price and their satisfaction with products or services. In their research, they observed that consumers tend to be satisfied with products or services with lower prices, thereby increasing their loyalty to

the brand or platform. This finding aligns with our hypothesis that prices have a significant impact on consumer satisfaction.

Hypothesis 1 (H1): Product Price has a positive and significant effect on Customer Satisfaction.

Product Quality

Product quality has a consistently positive and significant effect on customer satisfaction across various industries and contexts. Research demonstrates that maintaining high-quality standards not only fosters trust but also ensures repeated engagement and customer loyalty. In the e-commerce sector, Budhathoki et al. (2024) reveal that consistent product quality with effective service delivery, is pivotal in enhancing consumer satisfaction, as evidenced by their analysis of farmed salmon imports in China. Kini et al. (2024) highlights the importance of product quality in FinTech services, where it strengthens customer engagement and self-brand connection, ultimately boosting brand loyalty. The emotional aspect of satisfaction is explored by Pang and Zhang (2024), who demonstrate how product quality fosters user identification and emotional attachment, particularly in social media commerce. This emotional resonance leads to increased satisfaction and long-term consumer retention. Moreover, Shafait and Huang (2024) emphasize the role of quality in sustainable practices, where high product standards, combined with green innovation, significantly enhance consumer satisfaction, catering to the rising demand for ethical products. Therefore, hypothesis 2 has been developed as follows.

Hypothesis 2 (H2): Product quality has a positive and significant effect on customer satisfaction.

Service Quality

Service quality plays a crucial role in driving customer satisfaction across various industries, as highlighted by several recent studies. Zhang and Yu (2024) explored the hospitality industry, specifically focusing on island bed-and-breakfast accommodations. Their findings reveal that service quality factors such as facilities, security, and personalized care significantly enhance customer satisfaction. These results emphasize the importance of prioritizing service quality improvements to boost customer experience in niche hospitality sectors. Olayiwola et al. (2024) examined cleaning companies in Finland and found that Total Quality Management (TQM) practices have a direct and positive impact on service quality and customer satisfaction. This study underscores the importance of structured management approaches to improve service delivery and exceed customer expectations, particularly in operationally intensive industries.

In the aviation sector, Eshaghi et al. (2024) conducted a meta-analysis demonstrating that perceived service quality and value significantly affect airline passenger satisfaction. Their study also highlights the cascading effects of satisfaction on passengers' behavioral intentions, such as loyalty and recommendations. Similarly, Hameed et al. (2024) focused on sustainable airlines, showing that service quality and brand image collectively enhance customer satisfaction and loyalty, providing a competitive edge in the increasingly sustainability-driven aviation market. Dou et al. (2024) explored urban transport systems, utilizing a data-driven approach to measure how service quality influences customer satisfaction. Their findings emphasize the need for urban planners to focus on improving public transport amenities and services to foster satisfaction and encourage greater utilization. The hypothesis 3 is developed as follows.

Hypothesis 3 (H3): Service Quality has a positive and significant effect on Customer Satisfaction.

Customer Satisfaction

Customer satisfaction can be seen as the feeling of contentment or disappointment experienced by an individual when comparing the anticipated performance or outcomes to their expectations (Bollenbach et al., 2024). Gazi and Masud (2024) emphasize the significance of customer satisfaction as a mediator between customer relationship management efforts and loyalty in the telecommunications sector. Their study highlights that aligning services with customer expectations enhances satisfaction, ultimately driving profitability and loyalty. In the aviation industry, Eshaghi et al. (2024) conducted a meta-analysis revealing

that customer satisfaction is directly linked to perceived service value and loyalty. The findings show that passengers who are satisfied with the service quality are more likely to exhibit repeated behaviors, reinforcing loyalty. Hameed et al. (2024) explores sustainable practices in airlines and identify customer satisfaction as a critical mediator. They show how satisfaction connects service quality and brand image to loyalty, providing actionable insights for companies adopting sustainability-driven strategies.

In the context of online retail, Saputra et al. (2024) examines how product quality and online shopping experiences contribute to consumer loyalty through customer satisfaction. Their findings indicate that satisfaction significantly bridges the gap between positive online experiences and loyalty intentions, particularly in industries like local skincare products. Similarly, Orden-Mejía and Moreno-Manzo (2024) explore satisfaction as a key predictor of loyalty within gourmet food halls, highlighting its influence on behavioral intentions such as repeat purchases and recommendations. Therefore, this study hypothesizes that on the Pinduoduo platform, there exists a significant positive relationship between consumers' satisfaction levels and their loyalty. The hypothesis 4 is generalised as follows.

Hypothesis 4 (H4): Customer Satisfaction has a positive and significant effect on Customer Loyalty.

Conceptual Framework of the Study

Based on the literature reviewed, a conceptual framework is developed to provide a basis for research design and data analysis. Table 1 shows the interpretation of variables in the conceptual framework. The independent variables consist of Price, Product Quality, and Service Quality. Mediating variable consists of Customer Satisfaction. These variables are analyzed to determine the influenced of these factors on loyalty as shown in Figure 1.

Table 1 Interpretation of the variables in a conceptual framework.

Variables	Indicators
Independent Variables	Price
	Product Quality
	Service Quality
Mediating Variable	Customer Satisfaction
Dependent Variable	Loyalty

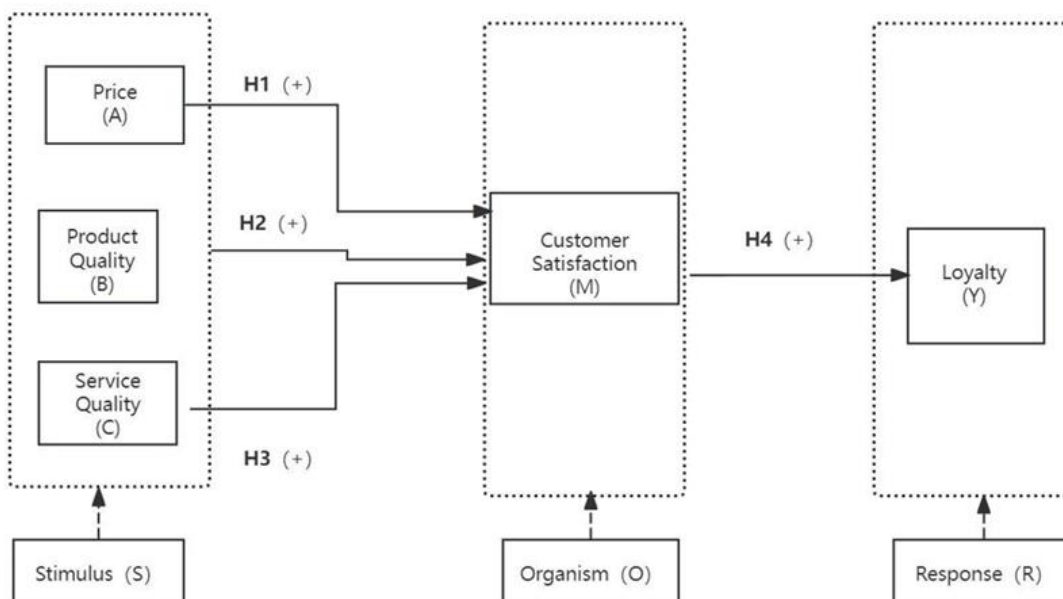


Figure 1 Conceptual Framework

METHODOLOGY

Data sampling involves selecting a subset of the population to represent the study. Identifying the target population is crucial before starting the research. Although more data can improve the reliability of results, studying the entire population is impractical due to high costs, time constraints, and manpower requirements (Acharya et al., 2013). Therefore, selecting a sufficiently large and representative sample is essential to obtain quality data with fewer resources. This research targets consumers with experience purchasing products on Pinduoduo. Determining the sample size is a critical step. The main objective is to ensure the sample size is sufficient to meet the study's objectives (Lakens, 2022). Recent findings suggest using power analysis to decide the sample size. This technique considers the model's predictors, effect size, significance level, and power. Suggested effect sizes are 0.02 (small), 0.15 (medium), and 0.35 (large). A significance level of 0.05 and a power level of 80% or higher are appropriate for social science research (Memon et al., 2021).

This study uses a mediation model with three independent variables and one dependent variable. With a medium effect size (0.15), power of 0.80, significance level of 0.05, and five predictors, G*Power indicates a minimal sample size of 103. However, given that previous studies with customer satisfaction as a mediating variable typically used samples of 300-400, a sample size of 400 is recommended for this study.

Questionnaire Design

Based on an extensive literature review, existing applicable scales that have been empirically tested in relevant fields were collected. Subsequently, a preliminary measurement scale of the questionnaire for this study was designed based on the understanding of Pinduoduo and the new retail industry. The initial measurement scale was then adjusted to develop the initial questionnaire. Through a pre-investigation, the reliability and validity of the collected data were empirically analyzed, and any unqualified items were deleted or modified to enhance the questionnaire.

After the initial questionnaire design was completed, multiple rounds of discussion were conducted with supervisors, classmates, and some consumers with purchasing experience on Pinduoduo. During this process, duplicate and unnecessary items were removed, and any ambiguous or vague measurement items in the questionnaire were clarified. The content and wording of the questionnaire were appropriately adjusted to improve its readability, ensuring accuracy and completeness. The final questionnaire consists of three parts. The first part includes a survey of basic personal information of consumers, including gender, age, occupation, income, and city of residence as shown in Figure 2.

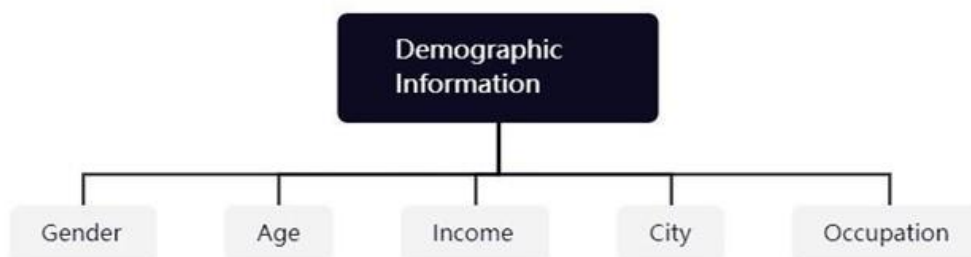


Figure 2 Demographics Questions in the Questionnaire.

The second part tests the effectiveness of the questionnaire, including fixed options and whether respondents have shopped on Pinduoduo. The third part comprises 19 evaluation items corresponding to the factors of the proposed research model. To summarize, closed-ended questions can be quantified which makes statistical analysis more efficient and easier since every point is assigned in the questions based on the Likert scale. For this study, the use of closed-ended questions is suitable and appropriate. This paper conducted data

collection targeting Chinese consumers through online platforms, which offers a method unrestricted by time and space, with low cost and wide coverage. The questionnaire was distributed on "https://www.wjx.cn/", one of the most popular professional online survey platforms in China, and shared via mainstream social platforms such as WeChat, Weibo, and QQ. To expedite data acquisition, participants were encouraged to further disseminate the survey through social channels. Prior to the survey, the purpose and reasons for the study were clearly explained to the participants. In the questionnaire, participants made choices based on their own circumstances and feelings, without any compulsory requirement for providing correct or incorrect answers. All participants were explicitly informed that the questionnaire was anonymous, and the information obtained from the survey would be solely used for academic research purposes, with no disclosure of respondents' personal information.

Table 1 Scale Items

Variable	Item	Content	Source
Product Price (A)	A1	When purchasing commodities on Pinduoduo, I will pay attention to the commodity price	Liu et al., 2023
	A2	When purchasing goods on Pinduoduo, I will search and compare the price information of the goods	
	A3	When browsing commodities on Pinduoduo, the commodity price will affect my purchase	
Product Quality (B)	B1	I think the products purchased on Pinduoduo is consistent with the picture description of the platform	Liu et al., 2023
	B2	I think the products purchased on Pinduoduo are very good	
	B3	I think the products purchased on Pinduoduo meet my expectations	
Service Quality (C)	C1	The purchasing process was not difficult	Rita et al., 2019
	C2	Pinduoduo provides me with convenient options for returning items	
	C3	Pinduoduo has customer service representatives available online	
	C4	Overall, my purchase experience on Pinduoduo is excellent	
	C5	The overall quality of the service provided by Pinduoduo is excellent	
	C6	My overall feelings toward Pinduoduo are very satisfied	
Customer Satisfaction (M)	M1	I am very happy with the trading process of purchasing products on Pinduoduo Platform	Liu et al., 2023
	M2	The services and products provided by the platform meet my expectations	
	M3	I think it is wise to buy goods through Pinduoduo Platform	
	M4	Overall, I am satisfied with purchasing products through Pinduoduo Platform	

Preliminary Data Assessment

To ensure that the questionnaire questions are well-designed and that each variable is accurately developed, a pre-survey was conducted. To enhance the quality of the sample data, the judgment sampling method was used for data collection. A total of 120 questionnaires were distributed, and 112 valid responses were received. SPSS 26.0 was employed for statistical analysis to test the reliability and validity of the sample data. After the data collection, the following step will be the preliminary data assessment. In this stage, those data with low quality will be identified and filtered to avoid them from affecting the result analysis and increase the reliability of the study results. The Cronbach Alpha is employed to assess the reliability of

various factors. Typically, values exceeding 0.7 are deemed valid, with values over 0.8 indicating a high level of confidence (Chatzoglou et al., 2022). The results of the reliability analysis from the pre-survey are presented in Table 2. As shown in Table 2 that Cronbach’s alpha coefficients of product price, product quality, service quality, customer satisfaction and customer loyalty are 0.804, 0.888, 0.869, 0.895, 0.845 and 0.857 respectively. It is concluded that the scale has good reliability.

Table 2 Pre-survey reliability test results

Variable	Cronbach’s Alpha
Product Price	0.804
Product Quality	0.888
Service Quality	0.895
Customer satisfaction	0.845
Customer Loyalty	0.857

For validity analysis, the Kaiser-Meyer-Olkin (KMO) statistical test is applied, where values above 0.5 are deemed acceptable and values above 0.7 are considered satisfactory. SPSS 26.0 was utilized to evaluate the validity of the collected questionnaire data. The overall KMO statistic is 0.869, which exceeds 0.8. The Bartlett’s test result is 1275.249 with p less than 0.01, indicating that there is a correlation between variables, making the data suitable for factor analysis. The results of the KMO and Bartlett’s tests are presented in Table 3.

Table 3 Pre-survey KMO and Bartlett’s test.

Measures		Value
KMO Measure of Sampling Adequacy		0.869
Bartlett’s Test of Sphericity	Approx. Chi-Square:	1275.249
	Sig.:	0.000

RESULTS AND DISCUSSION

The demographic analysis of the 418 respondents reveals a slight female majority, with 54.5% females and 45.5% males. The predominant age group is 19-30 years, accounting for 48.3% of the sample, followed by 24.4% in the 31-40 age range. In terms of income, 34.7% of respondents earn between 2001-3000, and 31.8% earn between 3001-5000. Regarding geographic distribution, 27% of respondents reside in New Tier 1 cities, and 21.8% in Tier 2 cities. Occupationally, 36.1% are employees, and 26% are students. This diverse demographic spread offers a comprehensive view of the consumer base for fresh product e-commerce platforms, highlighting key segments such as young adults, urban residents, and working professionals. The descriptive statistical analysis of samples is presented in Table 4.

Table 4 Descriptive statistics of the sample (N = 418).

Measure	Category	N	Ratio (%)
Gender	Male	190	45.5%
	Female	228	54.5%
Age	<18	19	4.5%
	19-30	202	48.3%
	31-40	102	24.4%
	41-50	83	19.9%
	>51	12	2.9%

Income (RMB)	<2000	19	4.5%
	2001-3000	145	34.7%
	3001-5000	133	31.8%
	5001-10000	99	23.7%
	>10000	22	5.3%
City	Tier 1	91	21.8%
	New Tier 1	113	27%
	Tier 2	91	21.8%
	Tier 3,4, and 5	69	16.5%
	Others	54	12.9%
Occupation	Villager	45	10.8%
	Employee	151	36.1%
	Homemaker	25	6.0%
	Civil servant	44	10.5%
	Student	111	26%
	Others	42	10%

The results shown in Table 5 indicate that all variables have Cronbach’s alpha and McDonald's Omega coefficient values exceeding 0.8, demonstrating that the questionnaire exhibits high internal consistency and strong reliability.

Table 5 Reliability test results

Variables	Cronbach's Alpha	McDonald's Omega
Product Price	0.849	0.851
Product Quality	0.867	0.868
Service Quality	0.918	0.916
Customer Satisfaction	0.836	0.833
Customer Loyalty	0.813	0.813

The findings presented in Table 6 reveal a KMO value of 0.889 and a Sig value of 0.000 for the validity analysis, indicating that the analysis is significant and appropriate for factor analysis. The Total Variance Explained (TVE) is utilized to determine the significance of the factors, and it should exceed 50%. As shown in Table 7, the TVE is 76.551%, which surpasses 70%, signifying excellent construct validity.

Table 6 KMO and Bartlett’s test.

Measures		Value
KMO Measure of Sampling Adequacy		0.889
Bartlett’s Test of Sphericity	Approx. Chi-Square:	4671.137
	Sig.:	0.000

Table 7 Total Variance Explained (TVE)

Variable	Initial Eigenvalue			Extraction Sums of Squared Loadings Total		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	7.268	38.254	38.254	4.204	22.124	22.124
2	2.263	11.913	50.166	2.678	14.096	36.22

3	1.764	9.285	59.452	2.423	12.753	48.972
4	1.45	7.632	67.084	2.369	12.467	61.439
5	1.142	6.012	73.096	2.179	11.477	72.909
6	0.657	3.455	76.552	0.692	3.642	76.551

AMOS software was employed to construct structural equation models and test the research hypotheses. This software is well-suited for assessing model fit and identifying the underlying cause-and-effect relationships among variables. Additionally, AMOS can evaluate the overall validity of the model, analyze direct and indirect effects between factors, and provide modification indicators to aid researchers in developing additional causal pathways. The initial structural equation model is illustrated in Figure 3.

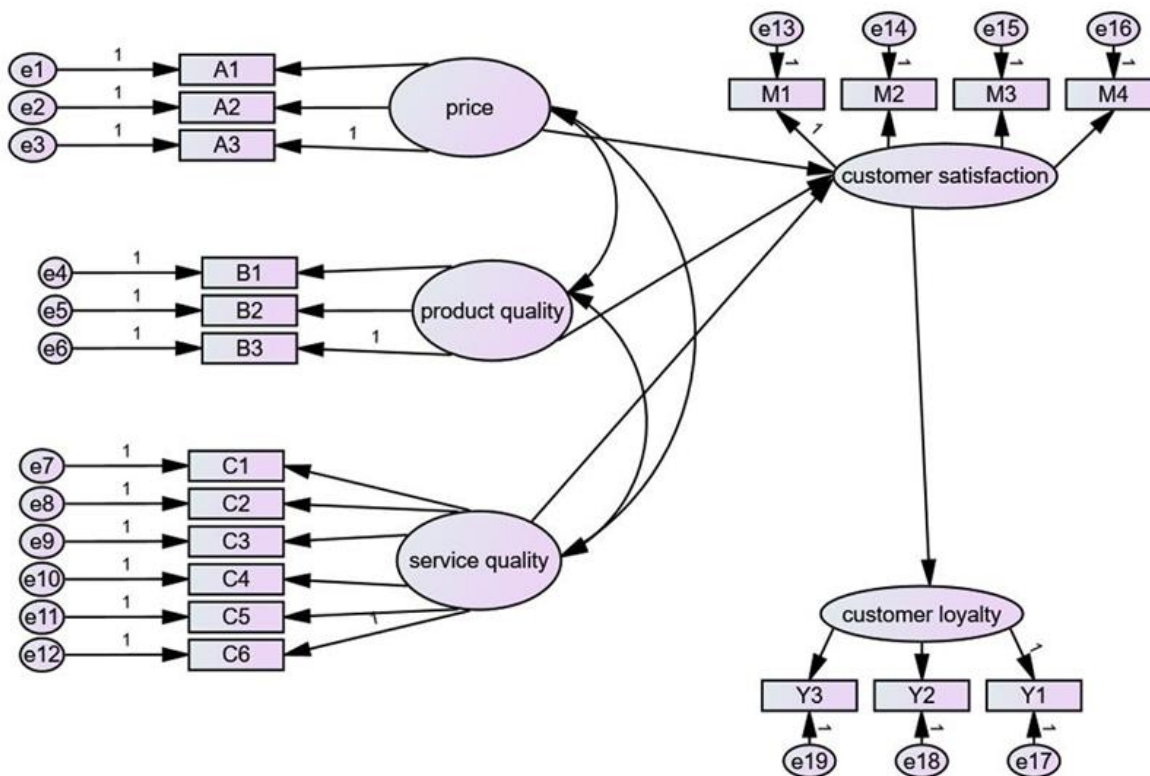


Figure 3 Structural Equations Model

The evaluation of the model's goodness of fit was conducted using Confirmatory Factor Analysis (CFA) as shown in Table 8, focusing on key fit indices to assess its adequacy in explaining the research factors. The results indicate that the Chi-Square/Degree of Freedom Ratio (CMIN/DF) is 3.213, based on a CMIN value of 456.223 and a degree of freedom (DF) of 142. This value falls within the acceptable range of 1 to 5, suggesting that the model is adequately specified. Additionally, several fit indices exceed the recommended threshold of 0.90, further supporting the model's validity. The Goodness-of-Fit Index (GFI) is 0.904, and the Normed Fit Index (NFI) is also 0.904, both indicating a good fit. The Relative Fit Index (RFI) and the Incremental Fit Index (IFI) are 0.918 and 0.904, respectively, demonstrating that the model fits the data well in comparison to a null model. Lastly, the Comparative Fit Index (CFI) achieves a value of 0.932, which significantly surpasses the critical value of 0.90, indicating strong comparative model fit. In summary, the results suggest that the model fits well with the sample data, with all key metrics meeting or exceeding their respective benchmarks. The acceptable Chi-Square/Degree of Freedom Ratio (CMIN/DF) and the consistently high values of Goodness-of-Fit Index (GFI), Normed Fit Index (NFI), Relative Fit Index (RFI), Incremental Fit Index (IFI), and Comparative Fit Index (CFI) confirm that the model is robust and capable of effectively testing and explaining the research hypotheses. These findings provide confidence in the structural integrity and relevance of the model for further analysis.

Table 8 Results of fitness test.

Index	CMIN/ DF	GFI	NFI	RFI	IFI	CFI
Numerical value	3.213	0.904	0.904	0.918	0.904	0.932
Adaptation index	< 5	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9

Table 9 Path coefficients

	Estimate	SE	CR	P	Decision
H1: A à M	0.208	2.293	4.064	<0.001***	Supported
H2: B à M	0.188	1.748	6.447	<0.001***	Supported
H3: C à M	0.519	0.505	3.973	<0.001***	Supported
H4: M à Y	0.367	3.812	10.177	<0.001***	Supported

Note: estimate is the estimated value of the path coefficient, SE. is the standard error of the estimated value, and CR is the critical ratio; P is significant*** Indicates $P < 0.01$. Generally, when the two tailed test $p < 0.05$, the path coefficient is significant

The results of the path coefficient analysis indicate that all tested hypotheses are supported. The relationship between Product Price (A) and Customer Satisfaction (M) is significant, with a path coefficient of 0.208, a critical ratio (CR) of 4.064, and a P-value of <0.001, demonstrating a positive and meaningful effect. Similarly, Product Quality (B) and Customer Satisfaction (M) show a stronger relationship, with a path coefficient of 0.188, a CR of 6.447, and a P-value of <0.001, confirming its significance. For Service Quality (C) and Customer Satisfaction (M), the path coefficient is 0.519, with a CR of 3.973 and a P-value of <0.001, indicating a strong and positive influence. Lastly, the relationship between Customer Satisfaction (M) and Customer Loyalty (Y) has the highest path coefficient at 0.367, a CR of 10.177, and a P-value of <0.001, highlighting the critical role of Customer Satisfaction in driving Customer Loyalty. The model test result is shown in Figure 4.

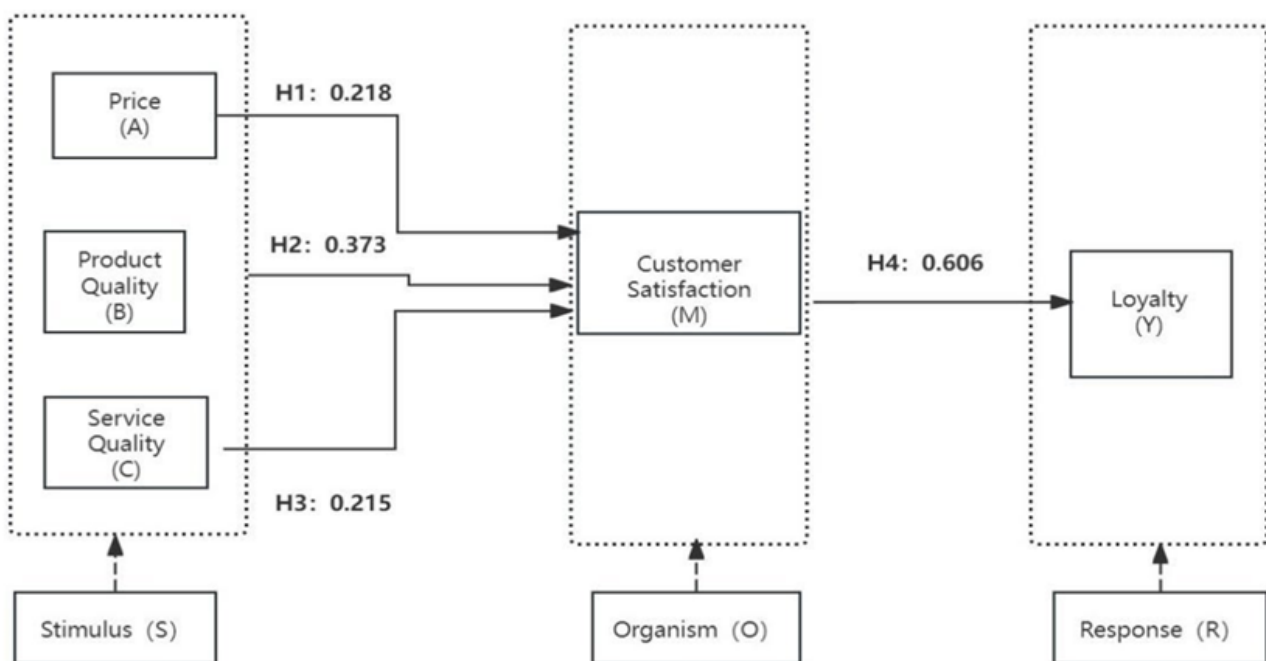


Figure 4 Model test results

The results of the hypothesis testing confirm that product price, product quality, and service quality significantly and positively impact consumer satisfaction, which, in turn, mediates their influence on consumer loyalty. Among these factors, product quality has the most substantial effect, consistent with findings from prior studies (Lewis, 2006; Liu et al., 2023; Jain et al., 2017). This highlights the critical role of product quality in shaping consumer satisfaction and loyalty behaviors. Product price is positively associated with consumer satisfaction, as supported by previous research (Yuan et al., 2019). Reasonable and fair pricing strategies enhance consumer satisfaction by offering perceived value for money and encouraging repeat purchases (Kumar et al., 2024). In platforms like Pinduoduo, the adoption of economical pricing not only attracts a larger consumer base but also fosters trust and long-term loyalty by addressing consumer cost concerns effectively.

Product quality has a significant positive impact on consumer satisfaction, aligning with findings from Budhathoki et al. (2024) and Kini et al. (2024). High-quality products instill confidence in consumers, enhancing satisfaction and promoting repeat patronage. This is particularly evident in fresh product e-commerce, where consistent quality standards contribute to building trust and strengthening the platform's reputation for reliability (Budhathoki et al., 2024). For platforms like Pinduoduo should focus in maintaining product quality which is essential for boosting satisfaction and sustaining competitive advantage. Service quality also plays a pivotal role in influencing consumer satisfaction, consistent with findings by Zhang and Yu (2024). Aspects such as timely delivery, easy returns, and responsive customer support enhance the overall consumer experience, making service quality a key driver of satisfaction. Platforms like Pinduoduo benefit significantly by investing in superior service quality, which reinforces consumer satisfaction and strengthens loyalty.

Consumer satisfaction, in turn, directly impacts customer loyalty, as supported by Bollenbach et al. (2024). Satisfied consumers are more likely to repurchase products, recommend the platform to others, and share positive experiences, emphasizing the strategic importance of fostering consumer satisfaction. Platforms that succeed in satisfying consumers can secure long-term loyalty, thereby gaining a competitive edge in the e-commerce market. This has shown that customer satisfaction play an important mediation role between price, product quality and service quality to loyalty.

CONCLUSION

This study investigates the factors influencing consumer loyalty to group-buying platforms, focusing on residents in China using Pinduoduo as a case study. The study highlights the significance of customer satisfaction as a mediating variable in shaping consumer loyalty. Empirical findings suggest that price, quality, and service factors significantly impact on customer satisfaction and subsequent loyalty. The research emphasizes the importance of offering cost-effective, high-quality products supported by efficient supply chains and tailored service interfaces to enhance consumer retention. Key findings reveal that service quality, influenced by system design, user characteristics, and task features, is crucial in retaining customers. Positive peer reviews and consumer group influences also play a significant role in fostering loyalty. The study provides actionable recommendations for platform managers such as improving product affordability, establishing direct supply chains, leveraging big data for cost optimization, and implementing intelligent inventory systems for pricing aspects. Service enhancements, such as simplified interfaces, personalized experiences, and faster logistics, are essential for improving consumer satisfaction and loyalty. Customization, such as user-friendly features for specific demographics, can further enhance the consumer experience, ensuring long-term competitiveness in the group-buying market.

The following limitations are recognized in this study: the use of self-administrated questionnaires may raise confounding factors; cross-sectional data does not allow making conclusions about causality; Pinduoduo as the only platform selected in this study. In future studies, data collection methods can be diversified by including mixed methods such as qualitative interviews alongside questionnaires to reduce potential bias and provide richer insights. Instead of just collecting cross-sectional data, a mixture of longitudinal research

design can also be adopted to understand the dynamic relationship between the variables changed over time. Also in future studies, other shopping platforms such as Taobao, Meituan, and JD.com can be included in the study for a better and more representative and understanding on the factors affecting customers satisfaction and loyalty.

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