

Analysis of Main Characteristics in Coffee Market Impact in Vietnam using PLS-SEM Model

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Abstract—The purpose of this article is to examine how the trends in Vietnam's coffee industry, particularly the investment in digital services to enhance customer experience, influence consumer behavior and satisfaction in Ho Chi Minh City. With many businesses focusing on leveraging technology to improve customer experiences, the coffee industry is no exception. This technological investment not only facilitates easier access to international markets but also aligns with current domestic consumption trends. The article aims to analyze the impact of these trends and market approaches on consumer satisfaction and purchasing behavior in Ho Chi Minh City. Data was collected via a questionnaire survey from 6,400 diners in the area. The data was then analyzed using PLS-SEM and IPMA to gather deeper insights and identify suitable strategies. The findings show that four independent variables significantly affect consumers' coffee purchase intentions, thus influencing their satisfaction levels. The article contributes to understanding consumer purchasing behavior and trends in the coffee market, providing actionable recommendations to improve customer satisfaction. It offers a new perspective and a deeper analysis of the coffee market in Ho Chi Minh City, aiming to enhance service quality, customer experience, and satisfaction during product use.

Keywords— Vietnamese Coffee, Consumer trends, Market approach, Satisfaction, purchase intention.

INTRODUCTION

In recent years, the coffee industry has witnessed significant fluctuations, especially in Vietnam, which is known for its annual coffee production ranking among the top two in the world. The rapid growth and expansion of consumption scales continue to increase, reflecting the high demand for quality coffee and shifting consumer trends. What is particularly interesting is the changing dynamics within the context of globalization and evolving consumer tastes. Analyzing consumption trends and market access for Vietnamese coffee, specifically in the Ho Chi Minh City area, has become increasingly important. This research aims to explore, analyze, and present the key factors influencing coffee consumption behavior in Ho Chi Minh City.

Currently, the Vietnamese coffee market, especially consumer preferences in Ho Chi Minh City, no longer revolves solely around factors like flavor, organic ingredients, or usage. It also centers on personal lifestyle demands, requiring differences and new experiences. To survive and meet these needs, a smarter and more innovative approach is essential. Furthermore, the application of new technology and market access via digital channels is reshaping how coffee brands interact with and approach customers. The rise of e-commerce and social networks has created new opportunities for product promotion and customer relationship building. However, this also brings challenges regarding the preservation of authenticity and brand integrity in the eyes of consumers.

This research article aims to provide a deeper and broader perspective on the coffee market in Ho Chi Minh City. It begins with an investigation into consumer behavior to identify the most influential factors affecting purchasing decisions, such as product quality, brand, and price, and the barriers to these influences. Additionally, the research will analyze whether purchasing decisions lead to customer satisfaction and repeat purchases. From this, we will conclude current consumption trends and approaches.

Vietnam is one of the largest coffee exporters globally, yet the domestic coffee market faces intense competition from international brands. Highland Coffee holds 30% of the market share, while Phúc Long has 15%, with expectations to rise to 20% by 2024. Meanwhile, local brands like Katinat and Trung Nguyên E-Coffee hold only a small share of the market. This gap highlights significant disparities in competitive capacity and raises questions about the development strategies of domestic enterprises. The main reason behind this disparity is that international brands not only focus on product quality but also heavily invest in creating modern experiential spaces that cater to the personalized needs and lifestyles of young consumers. In contrast, Vietnamese brands have yet to fully capitalize on their competitive advantages, such as local culture or domestic raw materials, and they have not sufficiently studied consumer behavior to develop appropriate strategies.

One of the major limitations of the current domestic coffee market is the lack of comprehensive, scientific solutions. Vietnamese companies have not conducted many structured studies on the factors influencing consumer behavior, particularly among the younger demographic in large urban centers like Ho Chi Minh City. Moreover, current solutions typically focus on price reduction or product improvement, without truly emphasizing customer experience or business model innovation. This research aims to analyze the factors affecting coffee consumption behavior in Ho Chi Minh City to shed light on these existing issues and provide practical, scientific solutions that can help local Vietnamese businesses strengthen their position in the domestic market.

This research is not only of practical significance but also serves as a valuable resource for training and research at Van Lang University. Specifically, the research team will develop reference materials and detailed guides, including video clips, to assist in teaching courses related to consumer behavior and business strategies. These materials will serve as essential resources for both instructors and students to better understand the application of the PLS-SEM model in analyzing factors impacting the Vietnamese coffee market. Furthermore, this research aims to serve the community, particularly domestic businesses, by providing strategic solutions based on scientific evidence to help them overcome current weaknesses while better meeting the increasing demands of consumers. Through these analyses, the team hopes to contribute to the sustainable development of the Vietnamese coffee industry and enhance the reputation and role of Van Lang University in the field of scientific research and education.. The structure of the research is as follows: Section 2 discusses Raw Material and Methodology, Section 3 presents the Results, Section 4 covers the Discussion, and Section 5 concludes.

THEORETICAL AND METHODOLOGICAL

Theoretical and theoretical development

In today's digital economy, offering a high-quality product is no longer enough. It must be accompanied by an engaging experience and attentive customer service. The Food and Beverage (F&B) industry is no exception, as young people in Ho Chi Minh City are seeking not just a great coffee flavor but also a trend, a personalized style, and additional experiential services. Recognizing this shift, this study aims to analyze and evaluate the key factors influencing consumer purchasing behavior and satisfaction, drawing on four main theoretical bases:

This area will address questions regarding preferences for different types of coffee, frequency of consumption, and brand choices. Consumer behavior refers to the activities, decisions, and attitudes of individuals when purchasing goods or services. It is shaped by various factors such as social influences, brand reputation, and the frequency of use. As highlighted by Delgado-Ballester & Munuera-Aleman (2001), brand trust plays a crucial role in consumers' peace of mind, leading them to be confident in their expectations. This trust positively impacts post-purchase satisfaction. In Ho Chi Minh City's coffee consumption trends, understanding frequency—whether consumers drink coffee regularly—can offer insight into preferences influenced by flavor or brand trust.

Hypothesis H1: *Current consumer trends affect purchasing intention and impact customer satisfaction.*

In the F&B industry, product quality is a key factor influencing purchasing decisions, particularly in a busy and developing city like Ho Chi Minh City. Due to various pressures such as work and family life, consumers place a higher importance on selecting safe and high-quality coffee. Price also plays a critical role in shaping consumers' perceptions of product quality. Research by Jun Eun Lee et al. (2018) and others suggests that price, product quality, and brand trust are all essential elements in influencing online purchasing behavior. Consumers are more likely to purchase when they trust product information and when the product quality meets or exceeds their expectations.

Hypothesis H2: *Product quality governs purchasing decisions and affects consumer satisfaction.*

Recent research highlights the significant role that technology and social psychology play in consumer purchasing behavior. Studies show that factors such as culture, economics, technology, and marketing strategies greatly influence shopping behavior. The rise of e-commerce and social media platforms further shapes consumer preferences, particularly during times like the COVID-19 pandemic, which saw a shift towards online purchasing. Research on social commerce and livestreams suggests that technological factors, including consumer trust and perceived risk, are critical in shaping buying decisions.

Hypothesis H3: *Technological and socio-psychological factors partly contribute to consumer purchase intention and satisfaction.*

In Ho Chi Minh City, where young people represent a large consumer base, there is an increasing demand for personalized experiences. Personalization enhances customer satisfaction and loyalty, particularly when businesses use data analytics to tailor services to individual preferences. Studies by OWD (One World Direct) emphasize the role of emotional connections created through product personalization, which in turn strengthens the relationship between customers and brands. Personalized marketing messages and offers, driven by customer data, further enhance the overall customer experience.

Hypothesis H4: *Personalization is important for customer purchase intention and satisfaction in today's society.*

Research indicates that purchase intention, which is the decision to buy a particular product, and customer satisfaction are closely linked. Consumer satisfaction is assessed based on the product's performance and the likelihood of repurchasing. Therefore, understanding the relationship between purchase intention and post-purchase satisfaction is crucial for businesses aiming to retain customers.

Hypothesis H5: *Previous purchase behavior has an impact on consumer satisfaction.*

Through this study, we aim to comprehensively analyze the factors influencing consumer behavior and provide strategic solutions that will help businesses improve customer experience, increase satisfaction, and remain competitive in the dynamic coffee market of Ho Chi Minh City. The research model is presented in figure 1.

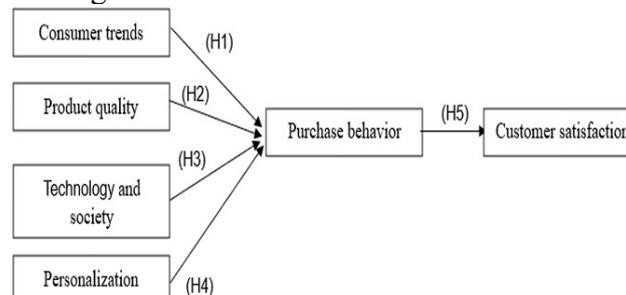


Figure 1. Research model

Research methodology

This study combines both qualitative and quantitative methods to achieve the research objectives. First, to assess the current state of coffee consumption behavior in Ho Chi Minh City, the research team employs qualitative methods through semi-structured interviews with industry experts and

customers. The questions focus on consumption habits, preferences, and the factors influencing coffee choice decisions, helping to build an initial theoretical framework. The data from the interviews is analyzed using content analysis, which identifies the key factors to include in the research model. Next, to analyze the factors affecting consumption behavior, the quantitative method is employed by designing a survey with a 5-point Likert scale. The data collected from the survey are processed using SmartPLS software and applying the Partial Least Squares Structural Equation Modeling (PLS-SEM) method. The analysis process includes two stages: measurement model analysis to test the reliability and validity of the scales through indicators such as factor loadings, composite reliability (CR), and average variance extracted (AVE); and structural model analysis to test the relationships between independent variables (attitudes, product quality, space experience, etc.) and the dependent variable (consumption behavior). Finally, to propose strategic solutions, the study continues using qualitative methods through in-depth interviews with managers of major coffee chains in Ho Chi Minh City. Combined with importance-performance map analysis (IPMA) using SmartPLS software, the research team identifies the most important factors to improve to enhance satisfaction and consumption behavior. The analysis is supplemented by PLS Predict to validate and evaluate the model. The results from these methods provide not only a comprehensive understanding of consumer behavior but also the foundation for strategic recommendations that will help businesses improve their operational effectiveness in the highly competitive coffee market of Ho Chi Minh City.

This study, with more than 6,400 results received after the survey (randomly), with 13 valid survey questions received, PLS 3.0 software, and IBM SPSS Statistics 20, was used to analyze research model data. The results were 72.9% Male and 27.1% Female. Between the ages of 18 and 52, and income ranges from 7 - 20 million and regardless of education level. Details of the questionnaire are as follows in table 2. And Table 1: Sample Characteristics.

Table 1. Sample Characteristics

VARIABLES	ITEMS	FREQUENCY	PERCENTAGE
GENDER	MALE	4665	72.9%
	FEMALE	1735	27.1%
AGE	18 - 22	773	12%
	22 - 32	3027	47.5%
	32 - 42	1425	22.2%
	42 - 52	1175	18.3%
INCOME	7 - 10	1531	23.9%
	11 - 15	1852	28.9%
	15 - 20	3017	47.2%

Table 2. Questions List

Construct	Items	Outer loadings
Consumer trends (H1)	CT-1 Brand factors influence decisions	0.847
	CT-2 How often do you use coffee?	0.809
	CT-3 The type of coffee affects purchasing decisions	0.731
Product quality (H2)	PQ-1 The importance of taste to purchase intention	0.641
	PQ-2 Food safety and hygiene issues influence purchasing decisions	0.767
	PQ-3 How much influence does price have?	0.780
Technology and Society (H3)	TS-1 Trends and trends on social networks are influential	0.921
	TS-2 Gender and age factors or online/offline	0.811
Personalization (H4)	P-1 Your need to experience personalized service	0.784
	P-2 Like products with unique style	0.903
Purchase behavior (H5)	PI-1 The above factors affect purchasing factors	1.000
Customer Satisfaction	CS-1 Satisfaction on a 5-point scale after purchase	0.808
	CS-2 Have decided to buy again	0.876

First, this research uses a SEM structural model using SmartPLS software. So we will have 2 steps of 2-step PLS analysis: - Analyze measurement models. - Analyze structural models. In addition, we use IPMA and PLS to predict to continue to make analysis and comments. This process to presented in Figure 2.

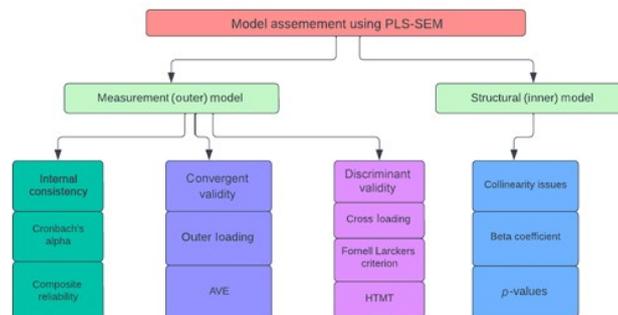


Figure 2. Flowchart of model assessment using PLS-SEM

RESULT

Measurement model:

The individual indices were considered valid if their correlation values were above 0.7. Some indicators measuring e-service quality had values below 0.6, but not all indicators exhibited such low loadings. Indicators with loadings between 0.5 and 0.6 were removed from the model. Data analysis was conducted using PLS software, and the results were deemed acceptable, as shown in Table 1 and Figure 2.

After running the data through SMARTPLS software, we observed that all observed variables had factor loading coefficients greater than 0.7, indicating that all observed variables were meaningful in the model. In other words, all measurement scales met the required reliability level. Cronbach's Alpha values for the scales were all above 0.7, ensuring good reliability. Additionally, the composite reliability (CR) values were greater than 0.7, indicating good internal consistency. The average variance extracted (AVE) for the scales was above 0.5, meeting the requirements for scale convergence. Furthermore, all HTMT values were below 0.8, confirming that discrimination was

guaranteed. Based on these findings, the structural model evaluation phase was carried out on the model.

Table 3. Reliability and Validity Construction

	Cronbach's Alpha	rho_A	CR	AVE
CS	0.701	0.782	0.830	0.710
CT	0.715	0.734	0.839	0.635
P	0.822	0.941	0.833	0.715
PI	1.000	1.000	1.000	1.000
PQ	0.854	0.835	0.775	0.536
TS	0.702	0.759	0.858	0.753

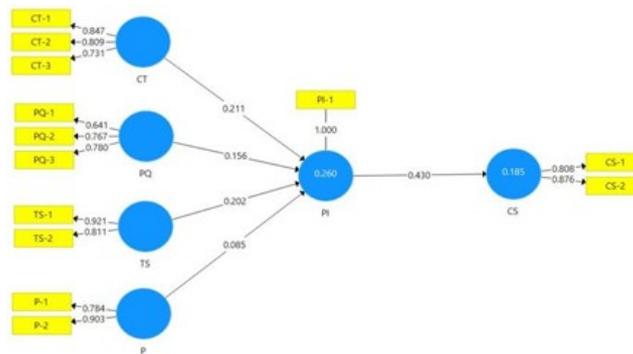


Figure 3: Results of PLS Algorithm

SEM analysis of direct effects with a 5% significance level, hypotheses H1 to H5 are accepted because all p values are < 0.05. The degree of impact of the independent variable on the dependent variable is evaluated using the impact coefficient. The results show that the level of impact of the hypotheses is the highest and the strongest impact is H5, followed by H1, H3, then H2, and then the lowest is H4. As follows: H5: The impact of the results of purchasing behavior on customer satisfaction is the 296 strongest with an impact coefficient of 0.430. H1: The impact of consumer trends affects purchasing behavior with an impact coefficient determined to be 0.211. H3: Ranked second with an impact coefficient of 0.202 from technology factors on customer consumption behavior. H2: Is a product quality factor with an impact coefficient of 0.156. H4: Is the weakest impact coefficient from the personalization trend on purchasing behavior, with a coefficient of 0.085.

All output VIF values give results < 5, so we can conclude that no multicollinearity occurs. Results estimate the impact of 4 independent variables related to 13 survey questions, all of which have an impact on the purchasing intention of consumers in Ho Chi Minh City, as well as customer satisfaction (including stores participating in the survey). There is no overlap, and both have a strong impact on the two dependent variables present in table 4.

Table 4. Result of VIF

Elements	VIF	Elements	VIF
CT-1	1.501	PQ -1	1.056
CT-2	1.398	PQ -2	1.348
CT-3	1.343	PQ -3	1.374
P -1	1.242	TS -1	1.368
P -2	1.242	TS -2	1.368
PI -1	1.000		

Structural model

Finally, we go to the step of testing the hypothesis results of PLS-SEM. These assumptions will be satisfied when $p < 0.05$. Through structural model evaluation with research of pls bootstrapping in Table 5.

Table 5. Result of PLS bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P-Values	Evaluate
CT=> PI	0.211	0.209	0.013	16.314	0.000	Accept
P => PI	0.085	0.085	0.019	4.342	0.000	Accept
PI =>CS	0.430	0.430	0.014	31.155	0.000	Accept
PQ =>PI	0.156	0.157	0.017	9.216	0.000	Accept
TS =>PI	0.202	0.201	0.016	12.531	0.000	Accept

When analyzing the SEM model, there is an indirect impact at the 5% significance level, the indirect relationship (H1 - 2 - 3 - 4 on consumer purchasing behavior, and from there, H5 plays an intermediary role to customer satisfaction). In this model, it is accepted because the p-value is < 0.05 , showing that the result of purchasing behavior is the factor that has the strongest impact on satisfaction, playing an intermediary role with the highest impact coefficient of the year. The assumption is 0.430. Among the four independent variables, the indirect impact is consumer tendency, 0.211, and next is final product quality and personalization, with the lowest coefficient, 0.085. The accepted hypothesis H1 contributes to clarifying the expectation of a positive relationship between consumer trends that will motivate and influence consumers' purchasing behavior, as well as the 3 surveyed questions about frequency, type, and brand influence on purchasing behavior. This result helps coffee chains/stores to be aware of the important approach of customers' consumption trends and make appropriate decisions. Accepting hypothesis H2 confirms the importance of product quality, no matter what field it is, it is always the top priority of customers, and is especially important for the F&B industry. The accepted hypothesis of H3 is also obvious because in today's society, the influence from KOLs and KOCs, with a strongly developed technology platform, will lead trends, creating popularity and influence. Influencing purchasing behavior is also inevitable. Finally, there are two hypotheses, H4 and H5: personalization affects customer satisfaction through behavioral mediation to measure satisfaction. When H4 is accepted, it proves that consumers' demand for products and services with a personalized experience is not high, but it can be made a somewhat subjective assessment that it will increase. high in the future. And H5 has proven that customers are satisfied and have a need to continue buying next time, which can be partly concluded as reasonable.

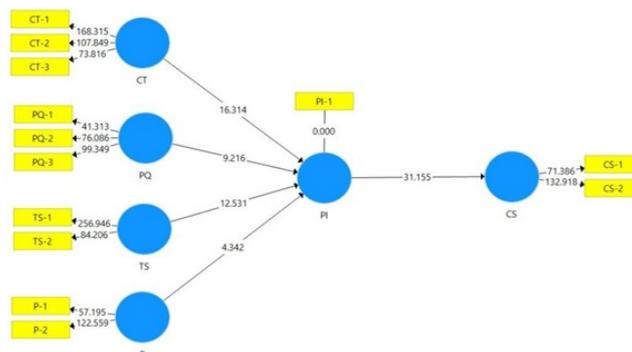


Figure 4: Bootstrapping Model

PLS-Predict

The analyzed model also shows high out-of-sample prediction, as evidenced by the results in Table 6, derived from the holdout sampling procedure implemented in SmartPLS. Therefore, the model is robust enough to predict the outcome value of a new case, i.e., cases not present in the analyzed sample. Indeed, this can be inferred from the fact that the PLS-LM difference is negative for all indices.

Table 6. Result PLS-Predict

Panel A. ConstructPredictionSummary						
	Q ²					
CS	0.214					
PI	0.210					
Panel B. IndicatorPredictionSummary						
	PLS			LM		
	RMSE	MAE	Q ²	RMSE	MAE	Q ²
CS - 1	0.980	0.826	0.128	0.880	0.691	0.297
CS - 2	0.960	0.750	0.112	0.894	0.703	0.229
PI - 1	0.815	0.613	0.258	0.795	0.613	0.295

Based on these values, it appears that for each metric, the Linear Model (LM) has lower RMSE and MAE values and higher Q² values than the Partial Least Squares (PLS) model. This may indicate that LM has better forecasting performance than PLS for the data and structure presented in the table.

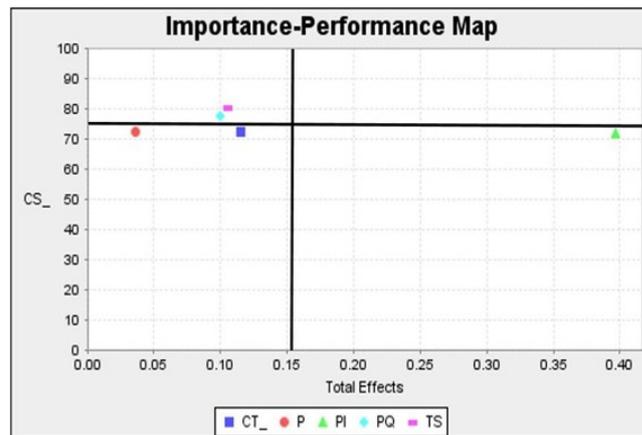


Figure 5. Results of IPMA

Based on the results shown in the chart, with an average importance value of 0.1508 and an image efficiency of 74.95, which measure the level of impact on customer satisfaction (CS), the analysis can be summarized as follows. The horizontal line X represents the level of importance, and the horizontal line Y represents performance. PI (Purchase Behavior) is positioned in the highest right quadrant, indicating it is highly important on the importance axis and also demonstrates relatively high performance across the four factors, although it is still below the average value (0.397–72). This suggests that PI is an important factor that requires improvement and could bring significant benefits to the overall goal. CT (Consumption Trend) has an importance and performance coefficient of (0.115–72.58), indicating it holds the second-highest level of importance. However, its performance is only near the average level, suggesting it does not require immediate focus. PQ (Product Quality), with a coefficient of (0.1–77.52), is closest to the center position in terms of both importance and performance. It should be maintained at the current level, with slight improvements recommended. TS (Technology and Society), with a coefficient of (0.106–80.22), shows high performance but relatively low importance. This may suggest that while TS is performing well, it is not a priority for additional investment at this time. P (Personalization), with a value of (0.036–

72.39), has a relatively high importance but low performance. This indicates that improvements are necessary for it to reflect its true level of importance.

Based on the chart analysis, the recommended improvement priorities are as follows: Focus on improving PI (Purchase Behavior), as it has the highest importance but is not performing adequately. Improve P (Personalization), which is also important but has low performance. Maintain the current performance of TS (Technology and Society), but evaluate its importance before deciding to invest additional resources. PQ (Product Quality) can be maintained or slightly improved depending on specific goals. CT (Consumption Trend) is not a high priority and can be addressed in later stages of the improvement process. These insights help guide resource allocation decisions by focusing efforts on improving performance where it has the greatest impact on customer satisfaction.

Discussion and Conclusion

This study has provided valuable insights into coffee consumption trends and market access factors in Ho Chi Minh City. The findings indicate that consumption trends (H1), product quality (H2), technology and society (H3), as well as personalization (H4), all significantly influence customers' purchase intentions and customer satisfaction (H5). In particular, purchase intention has a strong relationship with customer satisfaction, highlighting that effectively meeting customer needs and desires leads to high levels of satisfaction.

These findings contribute not only to enriching the theory of consumer behavior in the coffee industry but also offer practical guidance for businesses in developing strategies to reach customers. First, prioritizing product quality and addressing customers' personalized needs are essential for fostering satisfaction and loyalty. Second, incorporating technology and digital tools into marketing strategies can enhance customer engagement and understanding, optimizing the overall customer experience. Furthermore, the IPMA analysis shows that purchase behavior is the most critical factor to improve to boost customer satisfaction. This underscores the importance of understanding and addressing the factors that influence customers' purchasing decisions. In the increasingly competitive coffee market of Ho Chi Minh City, understanding and effectively applying consumer trends, product quality expectations, and the demand for personalized experiences will be crucial for success. Businesses need to invest in product research and development, as well as in marketing strategies and technology to create unique and personalized experiences, which will ultimately enhance satisfaction and loyalty. Specifically, businesses should focus on personalizing customer experiences and utilizing technology efficiently. Personalization goes beyond offering products that match customers' personal preferences—it should also include creating distinctive services and interactive experiences, as indicated by Hypothesis H4, which emphasizes the importance of personalization despite its unsatisfactory performance. Additionally, leveraging technology in marketing and customer relationship management (CRM) is crucial. Hypothesis H3 underscores the influence of technology and social psychology on purchasing behavior, demonstrating the potential of using online channels and social networks to foster customer interaction and enhance brand awareness. This is further reflected in the focus on trends and the use of KOLs (Key Opinion Leaders) and KOCs (Key Opinion Consumers) in marketing strategies. Customer satisfaction (H5) with products and services is the most important factor in ensuring customer loyalty and repeat purchases. This necessitates businesses continually improving product and service quality while maintaining competitive pricing to meet customer expectations.

In conclusion, in the competitive coffee market of Ho Chi Minh City, this study not only provides a comprehensive understanding of consumer trends and market access factors but also offers practical solutions to optimize the customer experience. Businesses must be adaptable and open to innovation—whether it's improving product quality, personalizing customer experiences, or utilizing technology and social networks effectively. Only by doing so can coffee brands differentiate themselves, increase customer satisfaction, and sustain customer loyalty in today's digital age.

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