

Research on factors influencing young consumers' decision to choose an e-commerce platform in the Red River Delta region



Nguyen Hung Cuong, The Tuan Tran *

Department of Economics Transport, University of Transport Technology, Hanoi, Vietnam

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ABSTRACT

This article investigates the factors influencing young consumers' choice of e-commerce platforms when shopping in the Red River Delta region. The authors propose a research model with six key factors: risk awareness, perceived usefulness, sales policies, interface and user experience, price, and user reviews. A quantitative approach was used, surveying 221 young consumers, and data was analyzed using structural equation modeling (SEM). The results show that four out of the six factors significantly influence young consumers' decisions: price (61.9%), interface and user experience (17.6%), sales policies (15.1%), and risk awareness (12%). Together, these four factors account for 89.7% of the variance in young consumers' decisions to select an e-commerce platform. Price was identified as the most influential factor, followed by interface and user experience, sales policies, and risk awareness.

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1. Introduction

The Vietnamese e-commerce industry is booming with an impressive growth rate (Minh et al., 2022). Vietnam's e-commerce revenue reached \$15 billion in 2023 and is expected to reach \$52 billion by 2025. The significant increase in e-commerce revenue stems mainly from the rapid growth of Vietnam's middle class. It is forecasted that the middle class in Vietnam will reach approximately 33 million people by 2025. This is a strong driving force for the increasing demand for online shopping. Therefore, it not only boosts revenue for e-commerce platforms but also promotes product and service diversification, creating a diverse and rich market (Hu et al., 2020). The e-commerce boom is also supported by the strong development of internet and mobile technology in Vietnam (Hu et al., 2020). A report by the Ministry of Information and Communications of Vietnam showed that there are over 70 million Internet users in Vietnam, accounting for more than 70% of the population. This demonstrates that accessing and participating in the online shopping space is becoming increasingly convenient for consumers. E-commerce

platforms such as Shopee, Lazada, and Tiki have heavily invested in the Vietnamese market, providing significant opportunities for the development of the domestic e-commerce industry (Nguyen, 2021). The increasing competition with the participation of many major players and online sellers poses numerous challenges for e-commerce platforms as well as traditional online stores (Le-Hoang, 2020).

The Red River Delta region comprises 11 provinces and cities, including Hanoi, Hai Phong, Quang Ninh, Vinh Phuc, Bac Ninh, Hai Duong, Hung Yen, Thai Binh, Ha Nam, Nam Dinh, and Ninh Binh. This area has a natural area of 21,253 km², a population of 22.92 million people, and a population density of 1,087 people/km², the highest among other regions and 3.66 times the average population density of Vietnam (Fialho and Diep, 2023).

The Red River Delta region is one of the most dynamic development areas in the country, with a GDP reaching 742 trillion VND in 2023, accounting for 18.3% of the national GDP. There were over 30 million online shoppers in the Red River Delta region, comprising 60% of the population. The revenue of e-commerce in The Red River Delta region reached 12 billion USD in 2023 and is projected to reach 24 billion USD by 2025. Young consumers in the Red River Delta region spend an average of 1.5 million VND per month on online shopping, and 70% of young consumers in the Red River Delta region reported that they frequently make online purchases on Shopee in the year 2022.

* Corresponding Author.

Email Address: tuantt83@utt.edu.vn (T. T. Tran)

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Corresponding author's ORCID profile:

<https://orcid.org/0000-0001-7901-2060>

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Therefore, this is a crucial force driving the development of e-commerce in the Red River Delta region in the coming time.

The main objective of this study is to identify the determining factors affecting the choices of e-commerce platforms among young consumers in the Red River Delta region. By assessing the effect of each factor, this research aims to provide an in-depth understanding of which factors are most crucial for consumers when they make online shopping decisions (Le-Hoang, 2020). Through this, e-commerce platforms and online business owners understand that these determining factors are crucial in building an effective business strategy (Qi et al., 2020). This will help them optimize the customer shopping experience and propose solutions to attract and retain customers in the context of intense competition in the Vietnamese e-commerce market.

2. Theoretical background

2.1. Choice

Choice is the mental and physical actions of customers to consider and evaluate alternative options to satisfy their needs. According to Phuc and Quyet (2022), choice is the product of a complex process involving emotions and experiences, actions, and the environmental influences of events occurring in an individual's life.

2.2. Affecting factors

Risk awareness: Issues such as account information, bank account details, and personal information being stolen, as well as online fraud, are the primary concerns that consumers worry about when using online shopping and payment (Colla and Lapoule, 2012; Ha et al., 2021). If the psychological feeling is insecure, negativity hinders the intention to use and choose an e-commerce platform for consumers (Madu and Madu, 2002; Maslow, 1970).

Usefulness: Usefulness is understood as the expected effectiveness, meaning the extent to which an individual believes that using the system will help them achieve benefits in task performance (Tay and Diener, 2011). Usefulness helps save transaction time, allowing users to easily check and manage their orders (Hedayatnia and Eshghi, 2011; Taher, 2021).

Interface and User Experience: The user-friendly interface and experience of the e-commerce platform (Venkatesh et al., 2003), as well as the perceived ease of use and perceived usefulness, are positively related to choice, satisfaction, and the intention to continue using the e-commerce platform (Qi et al., 2020; Madu and Madu, 2002).

Sale Policy: Flexible return, exchange, and shipping policies attract customers (Gunawan et al., 2021). Most consumers prioritize platforms with better policies for making decisions (Santos, 2003).

Price: Price emerges as the most critical factor, according to studies (Gunawan et al., 2021). Competitive pricing is a primary driver for 72% and 68% of consumers, respectively (Shetu et al., 2022; Joseph and Stone, 2003; Venkatesh et al., 2003).

User reviews: After purchasing and using a product on an e-commerce platform, satisfaction or dissatisfaction can affect subsequent buying behavior (Yunos and Lasi, 2020), and positive or negative reviews will affect the purchasing decisions of future buyers (Taher, 2021; Cuong, 2023).

3. Research model and methodologies

3.1. Research model

The research model was developed using group discussion techniques with 20 participants. These participants included 4 experts, 4 e-commerce platform managers, and 12 young consumers from the Red River Delta region. Drawing on existing theories, the study proposes a theoretical model identifying six factors that influence young consumers' decisions to choose an e-commerce platform for shopping in the Red River Delta region (DE). These factors are (i) Risk Awareness (RI), (ii) Usefulness (UF), (iii) SP, (iv) IU, (v) Price (P), and (vi) User Reviews (UR) (Fig. 1).

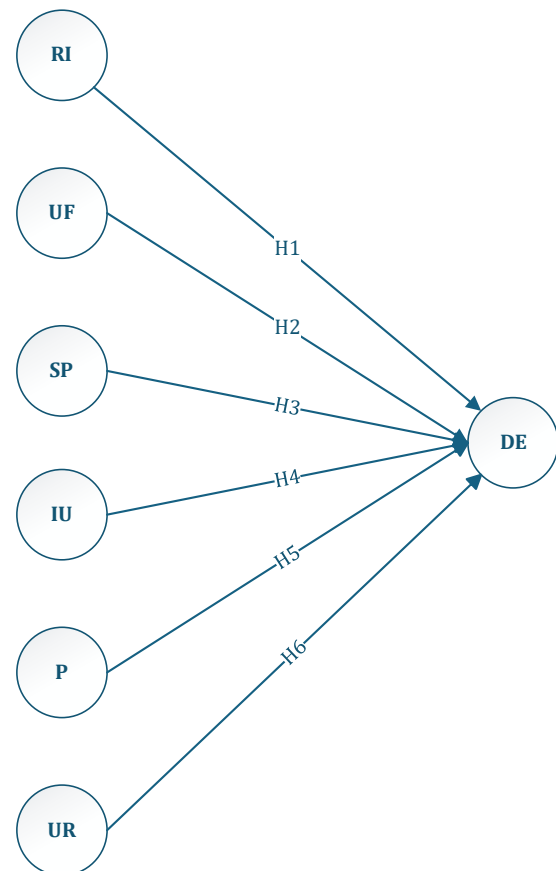


Fig. 1: Research model

Based on the theoretical background and research model, the authors' proposed hypotheses are shown in Table 1.

Table 1: Hypotheses

Hypotheses	Contents	
H1	RI affects the young consumers' decision to choose an e-commerce platform when shopping in the DE	Colla and Lapoule (2012), Ha et al. (2021), Maslow (1970), and Madu and Madu (2002)
H2	UF affects the young consumers' decision to choose an e-commerce platform when shopping in the DE	Tay and Diener (2011), Hedayatnia and Eshghi (2011), and Taher (2021)
H3	SP affects the young consumers' decision to choose an e-commerce platform when shopping in the DE	Qi et al. (2020) and Gunawan et al. (2021)
H4	IU affects the young consumers' decision to choose an e-commerce platform when shopping in the DE	Santos (2003), Madu and Madu (2002), and Venkatesh et al. (2003)
H5	P affects the young consumers' decision to choose an e-commerce platform when shopping in the DE	Shetu et al. (2022), Joseph and Stone (2003), Venkatesh et al. (2003), and Gunawan et al. (2021)
H6	UR affects the young consumers' decision to choose an e-commerce platform when shopping in the DE	Taher (2021), Cuong (2023), and Yunos and Lasi (2020)

3.2. Research methodologies

The research was built and designed with a scale appropriate to the practical conditions in the Red River Delta region, based on previous studies, inheriting and supplementing to align with the research objectives. All observed variables in the components use a 7-point Likert scale with choices ranging gradually from 1 to 7, where (1) "Totally Disagree" increases gradually to (7) "Totally Agree." The scale was designed with a total of 29 variables, including 26 independent variables and 3 dependent variables. The quantitative research method was conducted based on a pre-designed questionnaire, and data were collected through a convenient sampling method. The surveyed subjects were young consumers in the Red River Delta region who were shopping on e-commerce platforms during the period from December 2023 to February 2024. For Exploratory Factor Analysis (EFA), the minimum sample size was calculated using the formula $n \geq 7x$ (n is the sample size and x is the total observed variables) (Gunawan et al., 2021).

The survey questionnaire in this study includes 29 observed variables, so the minimum sample size is $n \geq 7 \times 29 = 203$ samples. The study distributed 250 questionnaires (greater than the minimum sample size of 203) to young consumers. After eliminating inappropriate questionnaires, the authors obtained 221 valid responses, meeting the criteria for the study (Kim and Srivastava, 2007).

Based on the results of the collected data, the research team carried out descriptive statistics and tested the scale. The study employed EFA to unveil the hidden structure of the data; Confirmatory Factor Analysis (CFA) aims to evaluate the fit of a hypothesized factor model with the collected data; and Structural Equation Modeling (SEM) to examine the relationships between observed and dependent variables (Hair et al., 2009). All analyses were conducted using SPSS 25 and AMOS 25.

4. Research results

4.1. Description of data collection

As shown in Table 2, 47.96% of the survey respondents are female, and 52.4% are male. In terms of age, 55.2% of the respondents are between 18 and 25 years old, while the remaining are between 25 and 35 years old. This indicates that

most respondents are relatively young, an age group more likely to adopt and use technology. Regarding income, over 32.5% of respondents earn less than 15 million VND, 36.6% earn between 15 and 30 million VND, 19.9% earn between 30 and 50 million VND, and 10.8% earn more than 50 million VND. The majority of respondents aged 18 to 35 have an income ranging from 15 to 30 million VND.

Table 2: Characteristics of research subjects

Criteria		N	Percentage (%)
Gender	Female	106	47.96
	Male	115	52.04
Age	18-25	122	55.20
	25-35	99	44.80
	<15	72	32.58
Average monthly household income (million VND)	15 - 30	81	36.65
	30 - 50	44	19.91
	>50	24	10.86
Total		221	100

4.2. Descriptive statistics

All the 29 observed variables have a minimum value of 1 and a maximum value of 7. In terms of a mean value, only one UR3 variable has a mean value smaller than 4, while others have a mean value greater than 4. This means that most customers evaluated these variables average from 4 to 6 (Table 3).

4.3. Reliability of the scale

The results of the reliability analysis of the scale using Cronbach's Alpha show that the values of the factor groups in the range from 0.792 to 0.96 meet the requirements for reliability ($0.6 < \text{Cronbach's alpha}$) and the total correlation coefficient of the observed variables is greater than 0.3, showing that these variables have a good correlation with the overall scale (Gunawan et al., 2021). Therefore, the variables in the model all reach the reliability of the scale.

4.4. EFA

The results of the initial EFA (Table 4) indicate that the cumulative variance explained is 73.098% (greater than 50%). Additionally, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.939 (greater than 0.5), and the Bartlett's test of sphericity is statistically significant (Sig. < 0.05) (Cuong, 2023) (Table 5). These results confirm that the EFA analysis is appropriate.

Table 3: Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Standard deviation
RI1	221	1	7	4.53	1.726
RI2	221	1	7	4.82	1.611
RI3	221	1	7	4.39	1.696
RI4	221	1	7	4.86	1.652
RI5	221	1	7	4.48	1.617
UF1	221	1	7	5.42	1.592
UF2	221	1	7	5.16	1.576
UF3	221	1	7	5.59	1.595
UF4	221	1	7	5.03	1.552
UF5	221	1	7	4.93	1.546
UF6	221	1	7	5.35	1.526
SP1	221	1	7	4.81	1.495
SP2	221	1	7	4.34	1.561
SP3	221	1	7	4.56	1.437
SP4	221	1	7	5.37	1.470
IU1	221	1	7	5.06	1.487
IU2	221	1	7	5.10	1.441
IU3	221	1	7	5.12	1.472
P1	221	1	7	4.63	1.476
P2	221	1	7	4.62	1.391
P3	221	1	7	4.95	1.426
P4	221	1	7	5.09	1.449
P5	221	1	7	5.37	1.470
UR1	221	1	7	5.27	1.380
UR2	221	1	7	4.83	1.494
UR3	221	1	7	3.89	1.396
DE1	221	1	7	4.79	1.277
DE2	221	1	7	5.05	1.403
DE3	221	1	7	4.90	1.450

Table 4: Testing the reliability of the scale

No.	Variables	Observation	Cronbach's alpha
1	Security (SE)	5	0.824
2	Financial Benefits (FB)	6	0.912
3	Brand (BR)	4	0.835
4	Risk awareness (AR)	3	0.916
5	Technology (TE)	5	0.878
6	Social affect (SA)	3	0.792
7	Decide on payment method (DP)	3	0.889

In addition, the EFA results also show that variables RI2, SP4, P2, and UR3 have a load factor of less than 0.5, so they are excluded from the factor analysis (Yu and Kim, 2019). The findings from Table 6 indicate that:

- Factor Security: includes observed variables SE1-SE4
- Factor Financial Benefits: including observed variables FB1-FB5
- Factor Brand: includes observed variables BR1-BR4

Table 5: KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		.939
Bartlett's test of sphericity	Approximate Chi-square	3922.916
	Degree of freedom	406
	P-value	.000

The results of testing the effect coefficients of independent variables on the young consumers' decision to choose an e-commerce platform when shopping in the DE are presented in Table 8.

The analysis results show that four variables, (i) RI, (ii) SP, (iii) IU, and (iv) P has p-values of 0.005, 0.019, 0.035, and 0.000, all of which are less than 0.05. Therefore, these four factors positively affect the dependent variable, the young consumers'

- Factor Risk awareness: including observed variables AR1-AR3
- Factor Technology: including observed variables TE1-TE4
- Factor Social Affect: including observed variables SA1, SA2, SA4
- Factor Decide on payment method: including observed variables DP1-DP3

After exploratory analysis, the model has no difference from the research model; only several unreliable observed variables should be excluded from the research model.

4.5. CFA

The results of CFA (Fig. 2) show that the standardized model has the following criteria to measure the model's fit: CMIN/DF = 2.607 < 3; GFI = 0.827 > 0.8; TLI= 0.918 > 0.9; CFI = 0.932 > 0.9; RMSEA= 0.078 < 0.08 All meet the requirements (Gunawan et al., 2021). Thus, the confirmatory factor analysis results ensure the necessary level of significance. The scales ensure the reliability (Kim and Srivastava, 2007; Gerbing and Anderson, 1988).

The correlation coefficient of each pair of concepts is different from 1 in the reliability of 95% (p-value = 0.000), so the concepts achieve discriminant value. The weights (standardized) are all more than 0.5, and the weights (non-standardized) in Table 7 are statistically significant (sig. <0.000), so the concepts achieve convergence value (Gunawan et al., 2021). This measurement model is compatible with market data, and there is no correlation among measurement errors, so it achieves uniqueness.

4.6. SEM

The model is tested for the fit including the following variables: (i) RI; (ii) UF; (iii) Sales Policies (SP); (iv) Interface and User Experience (IU); (v) P; (vi) UR; (vii) Young consumers' decision to choose an e-commerce platform when shopping in the DE (Fig. 3).

decision to choose an e-commerce platform when shopping in the DE.

The variables UF and UR have P-values of 0.142 and 0.691, respectively (greater than 0.05). Therefore, these two factors do not have statistical significance on the dependent variable, the young consumers' decision to choose an e-commerce platform when shopping in the DE, and should be excluded from the model.

4.6.1. Model after adjustment

The adjusted research model now only includes five components: (i) RI, (ii) SP, (iii) IU, (iv) P, and (v) Young consumers' decision to choose an e-commerce platform when shopping in the DE (Fig. 4).

Table 6: Rotated components

	Pattern matrix						
	Component						
	1	2	3	4	5	6	7
SE1	.750						
SE2	.697						
SE3	.834						
SE4	.843						
FB1		.625					
FB2		.578					
FB3		.578					
FB4		.570					
FB5		.593					
BR1			.753				
BR2			.844				
BR3			.694				
BR4			.764				
AR1				.815			
AR2				.896			
AR3				.907			
AR4				.861			
TE1					.784		
TE2					.827		
TE3					.879		
TE4					.771		
SA1						.742	
SA2						.715	
SA4						.753	
DP1							.797
DP2							.732
DP3							.812

Extraction method: Principal component analysis; Rotation method: Promax with Kaiser normalization; Rotation converged in 7 iterations

Table 7: Regression weights and standardized regression weights

			Estimate	SE	CR	P-value
RI5	<---	RI	1.000			
RI4	<---	RI	1.119	.077	14.503	***
RI3	<---	RI	.927	.079	11.692	***
RI1	<---	RI	.759	.085	8.944	***
UF6	<---	UF	1.000			
UF5	<---	UF	1.001	.063	15.797	***
UF4	<---	UF	.980	.065	15.152	***
UF3	<---	UF	1.008	.066	15.185	***
UF2	<---	UF	1.049	.063	16.583	***
UF1	<---	UF	1.034	.065	15.861	***
SP3	<---	SP	1.000			
SP2	<---	SP	.944	.074	12.783	***
SP1	<---	SP	.988	.069	14.413	***
IU3	<---	IU	1.000			
IU2	<---	IU	.982	.049	20.198	***
IU1	<---	IU	.971	.053	18.418	***
P5	<---	P	1.000			
P4	<---	P	1.062	.066	15.999	***
P3	<---	P	.969	.068	14.278	***
P1	<---	P	.828	.075	10.992	***
UR2	<---	UR	1.000			
UR1	<---	UR	1.007	.076	13.208	***
DE3	<---	DE	1.000			
DE2	<---	DE	1.024	.051	20.047	***
DE1	<---	DE	.818	.053	15.573	***

SE: Standard error; CR: Composite reliability; ***: P-value < 0.001

The results of CFA show that the standardized model has the following criteria to measure the model's fit: CMIN/DF = 2.523 < 3; TLI = 0.929 ≥ 0.9; CFI = 0.943 > 0.9; GFI = 0.873 > 0.8; RMSEA = 0.072 < 0.08. All meet the requirements (Gunawan et al., 2021). Thus, the confirmatory factor analysis results

ensure the necessary level of significance. The scales ensure the reliability (Kim and Srivastava, 2007; Gerbing and Anderson, 1988). The analysis results in Table 9 show that four variables, (i) RI, (ii) SP, (iii) IU, and (iv) P has p-values of 0.003, 0.019, 0.043, and 0.000, all of which are less than 0.05. Therefore, these four factors positively affect the dependent variable, the young consumers' decision to choose an e-commerce platform when shopping in the DE.

Table 8: Summary of coefficients in the model

			Estimate	SE	CR	P-value
DE	<---	RI	.116	.042	2.779	.005
DE	<---	UF	-.121	.082	-1.469	.142
DE	<---	SP	.158	.067	2.348	.019
DE	<---	IU	.198	.094	2.109	.035
DE	<---	P	.649	.196	3.306	***
DE	<---	UR	.088	.222	.398	.691

SE: Standard error; CR: Composite reliability; ***: P-value < 0.001

Table 9: Summary of coefficients in the adjusted model

			Estimate	SE	CR	P-value
DE	<---	RI	.114	.038	2.969	.003
DE	<---	SP	.151	.065	2.340	.019
DE	<---	IU	.171	.084	2.027	.043
DE	<---	P	.652	.118	5.530	***

SE: Standard error; CR: Composite reliability; ***: P-value < 0.001

5. Discussion and implication

From the results obtained through SEM analysis, the hypothesis testing result in Table 10 can be drawn.

The four factors that affect the Young consumers' decision to choose an e-commerce platform when shopping in the DE are (i) RI, (ii) SP, (iii) IU, and (iv) P with standardized regression coefficients from Table 11 being 0.120, 0.151, 0.1176, and 0.619. Therefore, the order of variables in decreasing effect is as follows: P; Interface and User Experience; Sales Policies; Risk Awareness. All four factors have a positive effect on the Decision.

Two factors that do not significantly affect the Young consumers' decision to choose an e-commerce platform when shopping in the DE are UF and UR.

Adjusted regression model:

$$DE = 0.120 \times RI + 0.151 \times SP + 0.179 \times IU + 0.619 \times P$$

The Standardized Coefficients Beta results indicate the importance of each variable independent of the dependent variable. Specifically, the standardized regression coefficients for the RI factor affect by 12%, SP by 15.1%, IU by 17.6%, and P by 61.9% on the Young consumers' decision to choose an e-commerce platform when shopping in the DE.

The R2 value of the model is 0.897, indicating that the 4 independent variables P, Interface and User Experience, Sales Policies, and Risk Awareness collectively explain 89.7% of the Young consumers' decision to choose an e-commerce platform when shopping in the DE.

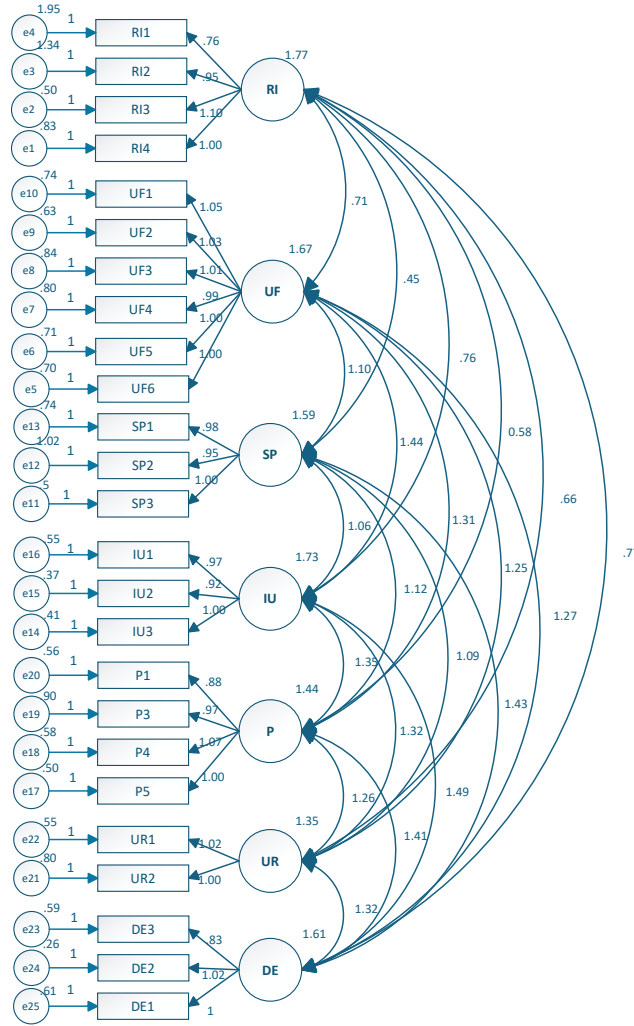


Fig. 2: Non-standardized CFA chart of the research model

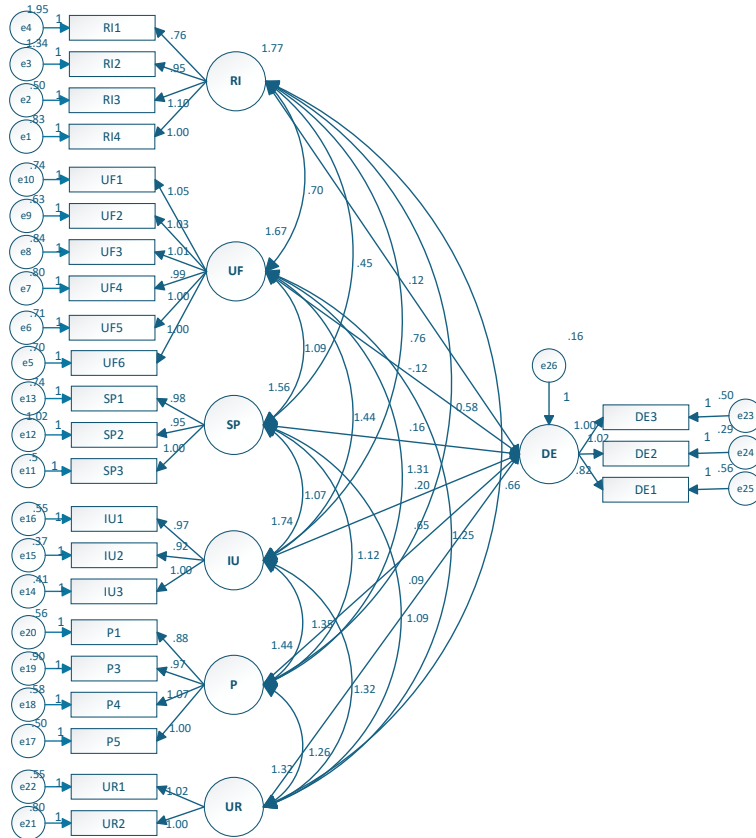


Fig. 3: Non-standardized SEM

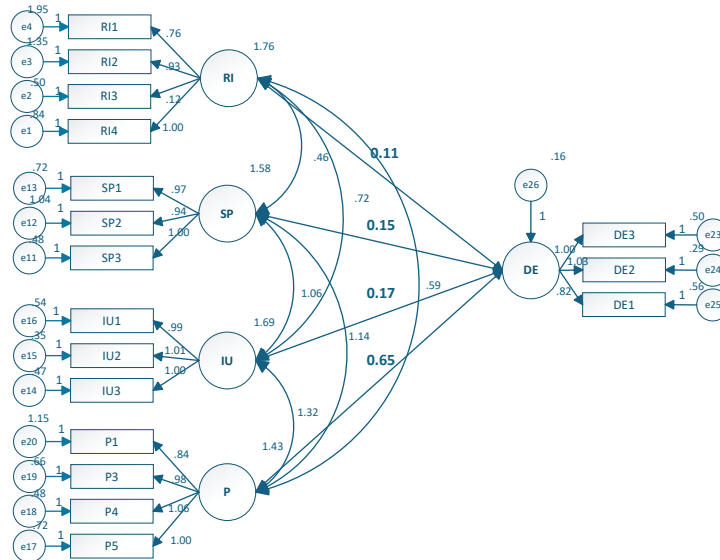


Fig. 4: SEM results of the adjusted model before standardizing coefficients

Table 10: Test results of the model’s hypotheses

Hypothesis	Content	Result
H1	RI affects the young consumers’ decision to choose an e-commerce platform when shopping in the DE	Accepted
H2	UF affects the young consumers’ decision to choose an e-commerce platform when shopping in the DE	Rejected
H3	SP affects the young consumers’ decision to choose an e-commerce platform when shopping in the DE	Accepted
H4	IU affects the young consumers’ decision to choose an e-commerce platform when shopping in the DE	Accepted
H5	P affects the young consumers’ decision to choose an e-commerce platform when shopping in the DE	Accepted
H6	UR affects the young consumers’ decision to choose an e-commerce platform when shopping in the DE	Rejected

Table 11: Standardized regression coefficients

			Estimate
DE	<---	RI	.120
DE	<---	SP	.151
DE	<---	IU	.176
DE	<---	P	.619

The study identifies several key recommendations for e-commerce platforms and online business owners to enhance their appeal to young consumers in the Red River Delta region. Price is the most influential factor in consumers' decision-making, suggesting that businesses should focus on competitive pricing strategies. This can be achieved by sourcing affordable goods, utilizing promotional programs, exploring in-house production, and strengthening supplier collaborations. Additionally, creating a user-friendly interface and seamless user experience for websites and mobile apps, along with simplifying payment methods, can attract and retain young consumers. Furthermore, sales policies play a critical role in consumer satisfaction and loyalty. E-commerce platforms should offer supportive measures such as efficient delivery, discounts, warranties, and clear return options. To increase risk awareness among young consumers, businesses should provide accurate product information, establish clear return and warranty policies, use secure payment channels, and prioritize customer service and data security. Adhering to Vietnamese legal regulations is also essential for building trust and credibility in the market.

6. Conclusion

The Red River Delta region is an important and dynamic economic area in Vietnam (Kidane and

Sharma, 2016). With a young population and relatively comprehensive information technology infrastructure, the region has had many opportunities for the development of e-commerce in recent years (Patrada and Andajani, 2020). This study investigated the factors that affect young consumers’ decision to choose an e-commerce platform when shopping in the Red River Delta region. The findings revealed that four out of six hypothesized factors significantly affect this decision:

- Risk awareness: Young consumers prioritize platforms that ensure secure transactions and protect personal information.
- Sales policies: Flexible return, exchange, and shipping policies attract customers and affect their platform selection.
- Interface and user experience: User-friendly interfaces and positive user experiences encourage continued platform usage and affect platform choice.
- Price: Price remains a crucial factor, with competitive pricing significantly affecting platform selection.

The study also found that Usefulness and User reviews did not have a statistically significant effect on the young consumers’ decision to choose an e-commerce platform when shopping in the Red River Delta region.

These findings offer valuable insights for e-commerce platforms operating and online business owners in this region. By focusing on security, flexible policies, user-friendly interfaces, and

competitive pricing, platforms can attract and retain young consumers. This research contributes to the growing body of knowledge on e-commerce consumer behavior in Vietnam and provides valuable guidance for e-commerce platforms seeking to succeed in the Red River Delta region. The limitations of the study include the exclusive focus on the young consumer group residing in the Red River Delta region, where information technology infrastructure is relatively comprehensive. As a future research direction, the author intends to broaden the age range of research subjects and extend the research scope to include the midland and mountainous regions of Vietnam, aiming for a more comprehensive and accurate perspective.

Compliance with ethical standards

Ethical considerations

All participants provided informed consent, and their responses were anonymized to ensure confidentiality.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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