

## Consumer Intention to Use Food Delivery Apps in Urban Cities: A Case Study of Hanoi, Vietnam

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### Abstract

Despite the rapid increase in online food purchasing practices, particularly through food delivery apps, within developing nations like Vietnam, there remains a dearth of research concerning consumer behavior in this domain. This study aimed to address this gap by investigating the factors influencing consumer intention to use food delivery apps (FDAs) in urban areas of Vietnam. Utilizing a consumer survey in Hanoi, a comprehensive analysis employing multiple linear regression and factor analysis was conducted. The findings indicated that individuals with previous experience using FDAs are more inclined to utilize these platforms for food purchases. Younger demographics exhibited a greater propensity for utilizing food apps for their food-related needs. Importantly, consumers with heightened awareness and trust in FDAs demonstrated a stronger intention to engage with these apps. Additionally, the study underscored the significance of user-friendly, visually appealing, and tailored food app designs in facilitating food purchases through these platforms. Furthermore, it highlighted the influence of food quality and marketing attributes on consumers' intentions to use FDAs. Based on these insights, recommendations were made for online food retailers to enhance market penetration via FDAs. These included designing visually appealing food apps, enhancing food quality, devising effective marketing strategies, providing comprehensive information about FDAs, and fostering consumer trust.

### Keywords

Food delivery apps (FDAs), online shopping, consumer trust, food apps, Vietnam

### Introduction

The development of modern food distribution and changes in the lifestyles and eating habits of consumers have increased the demand for online food delivery services (OFDs) (Sjahroeddin, 2018). Consumers are now able to easily purchase food through websites

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or apps. Food delivery apps (FDAs), which let people buy food from mobile apps, continue to be attractive to more and more food retailers as FDAs allow retailers to better meet the changes in consumer lifestyles, such as their busier work schedules (Hwang & Kim, 2019; Ray *et al.*, 2019).

FDAs can be considered as a form of online-to-offline (O2O) interaction, which integrates consumer usage of their smartphones, mobile internet, and navigational services to select, purchase, and satisfy their food demands (Tandon *et al.*, 2021).

A consumer's intention or behavior regarding the use of food delivery apps can be influenced by factors such as convenience, trends, or availability (Ray *et al.*, 2019; Chiu *et al.*, 2024). These apps, which typically require an internet connection, offer a convenient way to purchase food, making it easier for users to access meals from various establishments. The availability of such apps has made food delivery more accessible and efficient for those familiar with using mobile phones (Tandon *et al.*, 2021). As long as users are aware of the apps and able to navigate them, they can benefit from the services provided, aligning their choices with the ease and modernity these apps offer. Other researchers have examined the importance of technology readiness, the propensity to embrace and use new technology, on consumers' behavior to adopt FDAs (Parasuraman, 2000; Silva *et al.*, 2022). Additionally, the convenience of service offers has emerged as an important driver of FDA usage (Chowdhury, 2023).

Recently, OFDs and FDAs have been fostered by the impact of the Covid-19 pandemic, which influenced the ways consumers find and purchase food. To avoid the spread of diseases, people felt it was safer and more convenient to order food online (through websites or mobile apps) and then receive food at home. This meant that both consumers and food sellers reduced direct contact and obeyed social distancing regulations from governments (Zanetta *et al.*, 2021). In addition, FDAs can provide better service to consumers based on the users'

history and can respond rapidly to consumer needs (Hwang & Kim, 2019; Ray *et al.*, 2019). Globally, it is estimated that the market share of the OFD sector will reach 1.8 trillion U.S. dollars by 2028 from around 1 trillion U.S. dollars in 2023. The revenue growth rate of OFD is estimated to be 9% during the 2024-2029 period (Statista, 2024a).

Internet coverage and the usage of smartphones/electronic devices connected to the internet have been rapidly increasing in Vietnam in recent years. Internet coverage is currently estimated to be around 87.5% across the country (Statista, 2024b). Meanwhile, the proportion of adults using smartphones was estimated to have reached 85% by the end of 2022 (Duy Vu, 2022). These figures were even higher in big cities like Hanoi and Ho Chi Minh. The development of smartphone usage and internet coverage has boosted e-commerce activities and online transactions in general, and food online purchasing in particular.

Vietnam, an emerging country with rapid changes in consumption lifestyle, had online food delivery revenue of 1.926 billion U.S. dollars in 2023 and is projected to reach 3.697 U.S. dollars in 2028 (Statista, 2024c). Moreover, the market size of OFD in the country could reach 2.7 billion U.S. dollars by 2025 (Nguyen, 2021). Despite great market development of OFD and FDAs, an increasing number of companies entering the sector have created huge competition and challenges for such players (Nguyen *et al.*, 2021). This requires FDA owners to better understand consumer needs and trends through improved FDA service quality.

Despite some studies examining consumer behavior to buy products online (i.e., via websites or e-commerce), to the best of our knowledge, very few studies have sought to identify and understand the factors associated with consumer intention to use FDAs in Vietnam. Also, this study integrated several factors (socio-demographic, experience, trust, product attributes, and food delivery app characteristics), which have not been well-documented in the literature, to explain consumer behavior to use FDAs.

## Methodology

### Literature review and proposed model

Previous literature in FDAs and online food delivery (OFD) have focused on diverse geographical contexts in Asia such as Indonesia, China, Malaysia, and South Korea (Yeo *et al.*, 2017; He *et al.*, 2019; Roh & Park, 2018; Ray *et al.*, 2019; Suhartanto *et al.*, 2019). Various demographic characteristics have been found to affect consumer behavior to use FDAs. For instance, young urban consumers are more likely to purchase food through FDAs (Kaur *et al.*, 2021). Similarly, food delivery apps (FDAs) are particularly pertinent for specific urban consumers who find them a convenient solution to their fast-paced lifestyles (Kaur *et al.*, 2021). This is exemplified by the inclination of young consumers, who are more likely to embrace FDAs due to their frequent engagement with technological platforms like mobile phones and apps (Statista, 2024a). Hence, this study examined the effects of socio-demographic variables on the intention to use FDAs, including gender, age, education, and income.

Scholars have proposed that various features of FDAs contribute to their popularity (Ray *et al.*, 2019; Wang *et al.*, 2019). For instance, FDAs offer promotional deals, personalized search results based on past orders, and the ability to provide feedback on services received (Hwang & Kim, 2019; Ray *et al.*, 2019). In other words, marketing strategies such as promotions and options to send feedback have influenced consumer intention to use FDAs. Other scholars have confirmed the importance of online reviews and online ratings in motivating consumer intention to re-use mobile food ordering apps (Alalwan, 2020). Another important factor associated with consumer intention to use FDAs or OFD to buy food is the experience. Yeo *et al.* (2017) reported the consumer experience of using OFD affects the intention to use this service.

The effects of the product attributes on consumer evaluation and their decision to use FDAs have been explored by previous studies (Suhartanto *et al.*, 2019; Gunden *et al.* 2020). For instance, intrinsic and extrinsic product attributes such as convenience, design, price, and a variety of available foods are associated with consumer intention to use FDAs (Kapoor

& Vij, 2018; Cho *et al.*, 2019). These product attributes, thus, were added to our model for examining the effect of such factors on consumer intention to purchase food via FDAs.

Additionally, consumer trust in FDAs plays a vital role in people's decision to buy food through online systems, which has been verified by existing literature (Alagoz & Hekimoglu, 2012). For instance, Cho *et al.* (2019) found that trustworthiness was the most important factor affecting consumer use of FDAs. Finally, mobile app design features were found to significantly affect consumer uses of online food delivery apps (Kapoor & Vij, 2018; Prabhu & Soodan, 2020).

In summary, we integrated the abovementioned factors to predict consumer behavior to use FDAs in this study.

### Data collection and sample size

This study was implemented in Hanoi city, where rapid economic development has fostered a remarkable expansion of modern retailers and online purchasing. In the year 2022, Hanoi saw 11% of its total retail sales of consumer goods and services conducted via business-to-consumer (B2C) e-commerce channels. It has been projected that cashless transactions in e-commerce will soon comprise 50% of all completed transactions. Also, approximately 75% of commercial websites have been set up to include online ordering capabilities, and 45% of small and medium-sized enterprises have been projected to provide e-commerce services through social media platforms and e-commerce portals. Furthermore, around 35% of enterprises will be encouraged to engage in e-commerce transactions through mobile applications (Thanh & Le, 2023). Thus, exploring consumer behavior to use FDAs in these areas is crucial.

In this study, we applied an online survey to reach participants based on snowball sampling methods. We focused on people ordering food via FDAs for the consumers' consumption at home. The online survey link was distributed to respondents in the urban areas of Hanoi city through social networks (mostly Facebook and friend networks) during March 2022. In the urban areas of Hanoi city, consumers feel it is convenient to purchase food online (i.e., via

FDAs) from modern food retail systems (supermarkets, convenience store, and safe food shops) (Tran & Sirieix, 2020). All the respondents had the capability to use smart phones or other electronic devices to complete the online survey as well as perform online purchasing through FDAs. A sample of 101 respondents with sufficient information was used for the analysis from 125 records gathered, of which 24 questionnaires were omitted due to incomplete responses. This sample size was acceptable for the multiple regression analysis (with 10 independent variables) applied in this study with a thumb rule of 5 to 10 observations per each independent variable (Hair *et al.*, 2009).

The main characteristics of the respondents are presented in **Table 1**. Overall, most of the respondents were younger with an average age of 18-39 years old, and had higher education levels (holding university/college degrees) compared to the whole population of Hanoi. This was understandable as our survey focused on urban areas and consumers who used smart phones or other electronic devices to purchase food via FDAs. Women accounted for 53.5% of the respondents. Nearly two-thirds of the respondents reported having a single status, which is quite similar to Hanoi's population. Around 44% of the respondents had a monthly income ranging from 5-10 million VND, and only 9% had a high income of over 20 million VND dong per month.

### Measurements

In addition to the socio-demographic variables, we applied 5-point Likert scales to measure trust, consumer perception of food app characteristics, and product attributes/marketing strategies that influence consumer behavior to use FDAs. For consumer trust, the statement "I have trust in FDAs" was designed with five answer levels (1 - totally distrust, 5 - totally trust), which was adapted from Cho *et al.* (2019). Consumer evaluations of food apps and product attributes were adapted from previous works (Cho *et al.*, 2019; Gunden *et al.*, 2020) and revised to suit the context of Vietnam. In this study, we used single statements to measure consumer evaluations of food apps and product attributes. In particular, such statements included: using FDAs is easy; it is convenient to

purchase food by FDAs; the design of food apps is attractive; the design of food apps is friendly; food apps are designed for younger generations; the food apps are well-designed; the shipping services of FDAs are fast; the delivery staff is professional; there is a variety of food displayed in the apps; the foods appearing in the FDAs have reasonable prices; food quality via FDAs is good; and FDAs have good support services. Other statements were designed to measure promotional deals, advertising, store appearance, and food brands as suggested by previous scholars (Hwang & Kim, 2019; Ray *et al.*, 2019). All such statements were measured via 5-point Likert scales (1 - totally disagree, 5 - totally agree).

The consumer behavior (intention to use FDAs) was measured via a 5-point Likert scale (1 - totally disagree to use, 5 - totally agree to use). The details of these statements are presented in the results section.

### Data analyses

First, exploratory factor analysis (EFA) was used to identify the underlying factors regarding consumer perception of food app characteristics and product attributes/marketing strategies from several observed statements, which were later used for the regression analysis. To ensure internal validity and consistency when using EFA, some important criteria needed to be satisfied. Specifically, the factor loadings of all the statements need to be above 0.5, which indicate that each statement strongly correlates with its underlying factor, making the factor structure meaningful. The total variance of all factors needs to be higher than 50%, confirming that the factors account for a substantial portion of the data's variability, which enhances interpretability. Also, the Kaiser–Myer–Olkin (KMO) value to measure sampling adequacy must be over 0.5 suggesting a suitable level for factor analyses. The Bartlett's test of sphericity must have a significance below 0.05 (Hair *et al.*, 2009), which verifies that the correlations among variables are adequate for factor analysis. Finally, Cronbach's alpha coefficient needs to be above 0.7 (Cronbach, 1951; Nunnally, 1967), which indicates acceptable internal consistency, implying that the statements within each factor measure a cohesive construct, supporting the reliability of the instrument used.

**Table 1.** Characteristics of respondents

	Number of respondents (N)	Percent (%)	Hanoi's population
<b>Gender</b>			
Male	47	46.5	49.6
Female	54	53.5	50.4
<b>Age</b>			
18-24	44	43.6	19.8
25-39	47	46.5	34.7
40-54	10	9.9	22.4
55 or older	0	0	24.0
<b>Marital status</b>			
Single	63	62.4	63.6
Married	38	37.6	36.4
<b>Education level</b>			
High-school or lower	32	31.7	78.4
University/college degree	64	63.4	21.6
Postgraduate degree	5	4.9	NA
<b>Personal income (mil. VND/month)</b>			
< 5	26	25.7	NA
5-10	44	43.5	NA
> 10-20	22	21.8	NA
> 20-30	4	4.0	NA
> 30	5	5.0	NA

Note: 1 USD = 23000 VND at the time of the survey. NA (not available)

**Table 2.** Consumer awareness, trust, and past use of food delivery apps (FDAs)

	Number of respondents (N)	Percent (%)
<b>Awareness of FDAs</b>		
Yes	73	72.3
No	28	27.7
<b>Trust in FDAs</b>		
Completely trust	19	18.8
Trust	42	41.6
Neutral	22	21.8
Distrust	14	13.8
Completely distrust	4	4.0
<b>Experience of using FDAs</b>		
Yes	55	54.5
No	46	45.5
<b>Frequency of using FDAs</b>		
No use	46	45.5
Few (1-2 times per month)	11	10.9
Sometimes (3-5 times per month)	12	12.0
Frequent (6-8 times per month)	26	25.7
Usual (more than 8 times per month)	6	5.9

Second, to identify the factors affecting consumer intention to use FDAs, a multiple linear regression was applied. Basically, a

multiple linear regression has the form as follows (Hair *et al.*, 2009):

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_nX_n + \varepsilon$$

where  $Y$  (consumer intention to use FDAs) is the dependent variable,  $X_i$  ( $i = 1, 2, \dots, n$ ) indicates the independent variables,  $\beta_0$  is the constant,  $\beta_i$  ( $i = 1, 2, \dots, n$ ) shows the coefficients, and  $\epsilon$  is the error term.

In this study, the dependent variable was the intention to use FDA. The independent variables included the socio-demographic characteristics of the respondents, food app characteristics, and product attributes perceived by the respondents. The details of these dependent and independent variables are presented in the results section.

## Results

### Consumer awareness, trust and past use of food delivery apps

Consumer awareness, trust, and experience of using FDAs are reported in **Table 2**. Accordingly, over 70% of the respondents knew about FDAs in Hanoi city. Around 60% placed their trust in FDAs, while 18% did not trust food apps. It was shown that more than half of the consumers had experience using food delivery apps, with over 30% using these apps frequently.

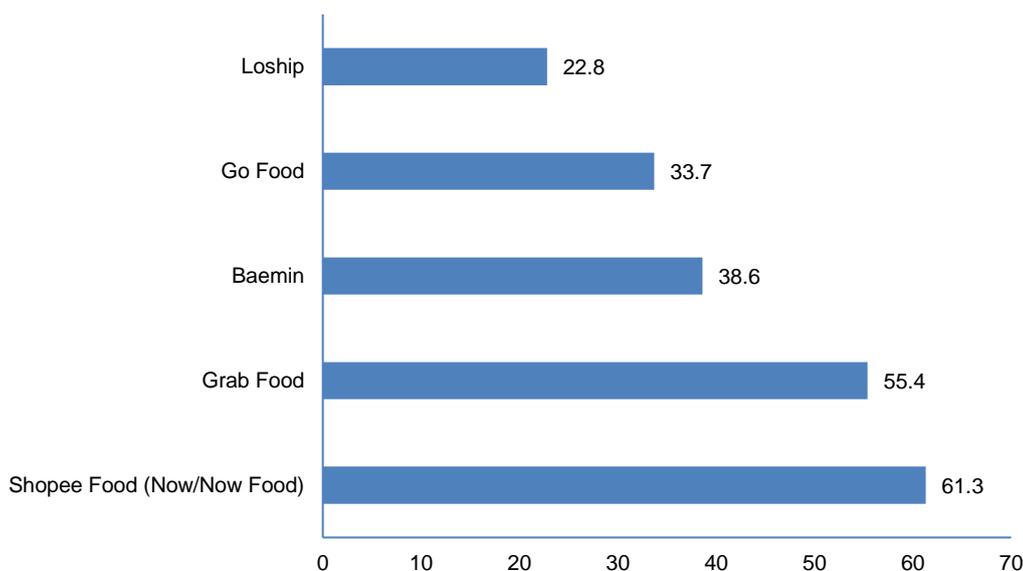
Some FDA apps were widely perceived by respondents as shown in **Figure 1**. The most popular and widely used food delivery app was

Shopee Food (or Now/Now Food), which was reported by over 60% of consumers. The next well-known apps belonged to Grab Food and Baemin, with over 55% and nearly 39% of the respondents revealing they had heard about such app brands, respectively.

### Exploratory factor analysis (EFA) of food products, marketing, and food app attributes

In this study, we developed 16 statements to validate consumer evaluations of food products, marketing, and food app attributes that could influence consumer behavior to use FDAs. To reduce the number of variables in the later regression analysis, EFA was applied. The results of EFA are presented in **Table 3**. Two factors were formed based on the Varimax with Kaiser normalization rotation. It can be concluded that EFA was successful as these two factors yielded 78.7% in explaining the variances from the 16 statements, with a KMO of 0.895, and the significance of Bartlett's Test of sphericity at 1%.

We then observed each statement and its meaning to form factors that could be representative of the observed statements. As a result, Factor 1 was named as app characteristics, while Factor 2 indicated product attributes and marketing.



Source: Our survey (2022).

**Figure 1.** Names of well-known FDAs as reported by Vietnamese consumers

**Table 3.** The result of EFA

	Factors	
	1 (app characteristics)	2 (product attributes and marketing)
The delivery staff is professional	0.847	
The design of the food apps is attractive	0.840	
The shipping service is fast	0.779	
There is a variety of food displayed in the apps	0.764	
The design of the food apps is friendly	0.764	
The food apps are well-designed	0.756	
Buying food via FDAs is convenient and time-saving	0.730	
Food apps are designed for younger generations	0.723	
Food appearing in the FDAs has a reasonable price		0.886
FDAs have good support services		0.863
Food quality via FDAs is good		0.859
Promotions for food via FDAs are available		0.820
The brands of displayed food in the FDAs are reliable		0.787
Friend recommendations of FDAs are important to me		0.778
Advertising on FDAs is popular		0.719
The images of food stores appearing in food apps are nice		0.675

*Note.* Extraction method: maximum likelihood. Rotation method: Varimax with Kaiser normalization. All factor loadings below 0.4 were removed. KMO = 0.895, Significance of Bartlett's test of sphericity = 0.000. Total variance explained (TVE) yielded 78.7%.

**Determinants of consumer intention to use FDA**

The ten independent variables used for the multiple regression are described in **Table 4**. These variables included socio-demographic characteristics, past use, trust, food app characteristics, and product attributes.

The results of the regression model are presented in **Table 5**. We tested all the assumptions of the multiple linear regression including independence by the Durbin-Watson statistic, linear relationship by scatterplots, multicollinearity by the variance inflation factor (VIF), homoscedasticity by the Breusch-Pagan test, and normality by the skewness and kurtosis tests. All these assumptions were found to be satisfied (Durbin-Watson statistic ( $d = 0.259$ ), Breusch-Pagan test ( $F = 0.41, P = 0.523$ ), skewness and kurtosis with probability  $> 0.05$ , and VIF values below 5.0) (**Table 5**).

Past use was found to have a positive impact on the intention to use FDAs ( $\beta = 0.943, P < 0.01$ ). This means that people who had

experience using any FDA app will be more willing to use this type of app in the future. Similarly, intention to use FDAs was positively associated with better awareness of and higher trust in food apps with the estimated parameters of 0.210 and 0.207, respectively, at the 5% significance level. Food app characteristics, which are designed to be more friendly and attractive, also positively affected food purchasing intention via apps ( $\beta = 0.28, P < 0.05$ ). In addition, product attributes and the marketing strategies of food distributors had positive associations with consumer intention to use FDAs.

Among the socio-demographic variables, only age negatively influenced the intention to purchase with the estimated coefficient of -0.316 at the 5% significance level. This indicated that young people are more likely to use FDAs in purchasing food in their daily lives. Meanwhile, the remaining variables in the socio-demographic characteristics, namely gender, marital status, education level, and income, had no effects on consumer intention to use FDAs at the 10% significance level.

**Table 4.** Descriptive statistics of the independent variables used in the regression model

Variables	Data types and coding	Mean	SD
<b>Dependent variable</b>			
Intention to purchase food via FDAs	Interval (5 point Likert scale)	3.97	0.81
<b>Independent variables</b>			
Gender	Nominal 0: Male 1: Female	0.53	0.50
Age	Ordinal 1: 18-24 2: 25-39 3: 40-54 4: 55 or older	1.67	0.65
Marital status	Nominal 0: Single 1: Married	0.38	0.48
Education level	Ordinal 1: High school or lower 2: University/college degree 3: Postgraduate degree	1.73	0.54
Income	Ordinal (unit: mil. VND) 1: < 5 2: 5-10 2: > 10-20 3: > 20-30 4: > 30	2.19	1.02
Awareness	Nominal 0: No 1: Yes	0.72	0.34
Trust	Interval (5 point Likert scale) 1: Completely distrust 2: Distrust 3: Neutral 4: Trust 5: Completely trust	3.57	1.07
Past use	Nominal 1: No 2: Yes	0.55	0.18
Food apps characteristics	Interval (5 point Likert scale)	4.12	0.98
Product attributes and marketing	Interval (5 point Likert scale)	3.99	1.12

Note: SD (standard deviation)

The values of VIF, which ranged from 1.1 to 4.2, revealed that no significant multi-collinearity was found in the analysis. The R-square of the model was 0.432, indicating that the existing independent variables predicted 43.2% of the variance in consumer intention to purchase food via FDAs Discussion.

This study contributes significant value to the existing literature on consumer behavior toward FDAs, especially in Vietnam where very few studies have been conducted in this research area. This study examined consumer behavior to use FDAs based on socio-demographic factors, psychological variables, food app

characteristics, and food product attributes. This work extends the knowledge of previous work focusing on psychological factors in the technology acceptance model (TAM), the unified theory of acceptance and use of technology (UTAUT or UTAUT2), or the theory of planned behavior (TPB) (Okumus *et al.*, 2018; Amin *et al.*, 2020; Kasilingam, 2020; Zhao & Bacao, 2020; Zanetta *et al.*, 2021).

Overall, consumer awareness, trust, past use, food app characteristics, and product attributes/marketing strategies played essential roles in consumer intention to use FDAs. Using new technology such as FDAs was also attached with risks that can prevent consumers from adopting it. Thus, trust plays a vital role in persuading consumers to try new apps like FDAs. Our findings showed that consumers with a higher trust of FDAs were more likely to buy food via FDAs. These findings are supported by several previous studies (Cho *et al.*, 2019; Singh & Sinha, 2020; Zhao & Bacao, 2020; Wen *et al.*, 2021).

Awareness of FDAs had positive effects on consumer behavior to use these food delivery apps. Experience or past use of FDAs also motivated consumers to purchase food again in the future, which was confirmed by our results. This finding was also found by Yeo *et al.*

(2017) and Ray *et al.* (2019). Similarly, Zhao & Bacao (2020) indicated that experience from a consumer’s previous usage of FDAs increased their intention to continue using FDAs later. However, our results indicated that only around 55% of consumers had experience using FDAs despite over 72% knowing about food delivery apps, demonstrating a gap between knowledge/awareness of FDAs and actual use of FDAs. This implies that getting consumers to purchase food via FDAs requires not only raising their awareness but also meeting several favorable conditions such as the availability of food delivery services, food quality, and promotion strategies (Hwang & Kim, 2019; Ray *et al.*, 2019).

Additionally, FDA characteristics such as ease of use and friendly and attractive app design were important in attracting more shoppers or maintaining existing customers in making food purchases via such apps. Our findings coincide with the previous studies of Ray *et al.* (2019) and Wen *et al.* (2021).

In this study, the effects of many of the socio-demographic variables, namely gender, marital status, education, and income, on the intention to buy food via FDAs were insignificant at a 10% level. This contrasts with another work from China, where such socio-demographic

**Table 5.** Results of the regression model

Variables	Coefficients	SE	P-value	VIF
Constant	1.810***	0.396	0.000	
Gender	-0.042	0.142	0.769	1.12
Age	-0.316**	0.127	0.014	1.48
Marital status	0.116	0.180	0.522	1.74
Education level	-0.054	0.142	0.706	1.31
Income	0.057	0.079	0.477	1.49
Awareness	0.210**	0.072	0.016	2.14
Trust	0.207**	0.083	0.014	2.60
Past use	0.943***	0.278	0.001	3.04
Food apps characteristics	0.280**	0.135	0.041	4.25
Product attributes and marketing	0.177**	0.074	0.019	3.18
No. of observations	101			
R-squared	0.432			
Adjusted R-squared	0.385			

Note: \*\* and \*\*\* indicate significance at the 5% and 1% levels, respectively. SE (standard error), VIF (variance inflation factor).

factors influenced online shopping activities (Gong *et al.*, 2013). A possible explanation is that the study of Gong *et al.* (2013) was conducted around 10 years ago, when fewer consumers may have been familiar with online shopping.

Thus, there existed variations in the socio-demographic characteristics among consumers. Meanwhile, this study was conducted more recently, and it is now easier for consumers to access the internet and new technologies. Gender did not affect consumer intention to use FDAs in our study, which is supported by Lian & Yen (2014). This means there were no differences between women and men in purchasing food through FDAs. However, other researchers found such differences in the use of FDAs between male and female shoppers (Wen *et al.*, 2021). The effect of age on intention to use FDAs was negative in this study, suggesting that younger people are more likely to use such apps than older individuals. This is understandable when youth tend to access new technologies more easily and are more inclined to try new things, which is supported by Lian & Yen (2014).

Despite the significant findings mentioned above, this study had some limitations. The sample size of this study was quite small, suggesting a larger sample size in further research is needed to obtain robust validations. The food types purchased by consumers via FDAs were not explored in this study, which suggests further research should be conducted to address this. This study was carried out in the urban areas of Hanoi city, where consumers owning electronic devices (i.e., smartphones) connected to the internet are prevalent and FDAs are available. Thus, it is suggested to conduct further research in rural areas where consumers also use smartphones and access the internet in order to utilize online food purchasing services. Also, additional factors such as eating habits, convenience in accessing FDAs, geographical differences, and other psychological factors should be explored to discover the barriers preventing consumers from using FDAs.

## Conclusions and Managerial Implications

Our findings indicated that consumers with prior exposure to FDAs demonstrated a heightened inclination to utilize these platforms for food purchases. Notably, younger individuals exhibited a greater propensity for food app usage. Moreover, individuals with a heightened awareness and trust in FDAs exhibited stronger intentions to engage with them. Additionally, user-friendly, visually appealing, and tailored food app interfaces significantly contributed to facilitating food purchases via these platforms. Furthermore, factors such as food quality and marketing strategies were identified as being influential in shaping consumers' intentions to utilize FDAs.

Several managerial recommendations can be made based on these findings, especially to food retailers and producers who want to boost business performance via online services like FDAs. It is important to provide sufficient information and knowledge about the benefits of FDAs, which facilitate consumers to be more familiar with and guide consumers to purchase more food via FDAs. Aligned with raising awareness, it is crucial to improve consumer trust in FDAs. This can be done by building a reliable brand with appropriate marketing strategies via effective advertising and word-of-mouth (WOM), as recommended by Ngo *et al.* (2021). Purchasing goods and services online necessitates trustworthy information regarding product attributes, quality, and transaction security. This underscores the importance for food marketers to enhance the reliability of their products, delivery services, and payment methods. Also, a positive relationship between experience or previous usage of FDAs and FDA intention suggests that marketing professionals should encourage actual usage through promotions or trial use campaigns to help consumers recognize the benefits of FDA services. Importantly, designing food apps to ensure ease of use and that have attractive and friendly characteristics should be prioritized the most to encourage consumers to use FDAs. Finally, ensuring high food quality with good service and competitive prices are still vital for

attracting new shoppers and maintaining consumer loyalty.

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