Factors Influencing the Probability of Viral Online Purchase for Agricultural Products

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Abstract

The aim of this paper is to critically investigate factors determine probability of viral online purchase for agricultural products. The study was conducted in the form of survey, with data being gathered via questionnaires from 271 respondents who aged between 22-60 years old and analyzed by ordered probit model. The results show that subjective norms, perceived behavioural control, satisfaction and trust in the system of buying agricultural products online significantly influences the probability of viral online purchase for agricultural products. These results suggest that farmers and agribusiness operators should pay close attention to after-sales services, such as checking the quality of products and solving customer issues immediately. It would increase the possibility of word-of-mouth.

Keywords: 1) the Probability of Viral Online 2) Agricultural Products 3) Online

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Introduction

Nowadays, the Internet has become a part of Thai people's daily lives, with 69.5% of Thai people accessing the Internet in 2020, with an average of 8 hours and 44 minutes per day of internet use. It made Thailand the third most used Internet in the world (We are Social and Hootsuite, 2021, pp. 28-35). As a result, businesses can take advantage of the Internet by introducing new platforms such as e-Payment, e-Commerce, and Social Commerce to customers, making them more convenient. According to We Are Social and Hootsuite (2020, p.65), more than 82% of Thais had purchased products or services through online platforms in 2019. It can be seen that nowadays, online platforms are essential and influence the purchase of all kinds of products, not just agricultural products. The number of internet users purchasing products and services through online channels in 2018 has increased 107.37% from 2016 (National Statistical Office Thailand, 2018).

Since agricultural products have some limitations that make selling via online platforms less popular, such as being perishable and heavy, transportation costs are more expensive compared to other types of products sold online. Therefore, consumers tend to prefer to buy agricultural products from physical stores, where they can use their senses to consider before purchasing products more than buying through an online platform. In March 2020, there was a COVID-19 outbreak and a measure to shut down the country (Lock Down) was enacted to prevent the outbreak. As a result, the number of online purchases skyrocketed, and online sales of agricultural products in March 2020 increased 26.48% from February 2020, with 57% of farmers showing an increase in average monthly sales of their products. Most of them were ordered through the Line application (79%), followed by Facebook (78%), the cooperative product market website (19%), Lazada (15%), and Shopee (10%). The highest selling products were rice, textiles, and fruits, respectively (Office of Agricultural Economics, 2020). Although selling agricultural products online will help farmers increase profits, farmers must also adjust to online channels and quickly learn about changes in consumer behaviour amid increasing competition to meet the need of consumers, increase their satisfaction and increase word of mouth in the future.

Therefore, this research focuses on analysing factors influencing the probability of online viral purchases for agricultural products. The results from this research will be helpful for farmers to sell agricultural products by improving the products and developing the systems online to be efficient and responsive to the needs of consumers and to distribute farm products directly from farmers through online channels with popularity and sustainability.

Literature Review

Concept of consumer behaviour

Consumer behaviour is behaviour expressed by consumers, such as buying, using, consuming, where consumers are expected to be able to meet their needs under limited resources such as money, time, and power to

consume products and services. Many factors can affect buying behaviour, such as marketing mix and social factors (family, reference group, social and cultural class) (Schiffman and Wisenblit, 2015, pp. 47-48).

Additionally, demographic factors can also influence buying behaviour. Omar, et al. (2016, p. 68) point out that sex, age, and education affect consumer intention to purchase organic products as same as Wahyudi, et al. (2019, pp. 12-13), who found that age and education level have negatively affected the frequency of Indonesian consumer purchases of Indonesian consumers. When they have increased their age to a certain point, the impact will become significantly positive because the elderly may be persuaded to buy indigenous rice due to social customs and traditions. In terms of education level, consumers at a lower high school or bachelor's degree were less likely to purchase local food. There may be sufficient information on alternatives that may be better than local food products. While gender and income positively affect the frequency of consumers' purchases, males buy more local rice than females. Although women in Indonesia will be family shoppers, it is less famous for local rice than males. Regarding income, which is directly related to purchasing power, consumers' income influences their purchasing ability as it determines the purchase of goods and services. These results are similar to Noinart, Sriboonruang, and Rangsipaht (2017, p. 14). The researchers conducted a study on Factors related to purchasing decisions towards pesticide-free agricultural products of consumers and found that the primary factors of individuals, such as age, education level, income, and occupation, were related to the decision to buy organic products at the statistical significance level of 0.05 and 0.01

Theory of Planned Behaviour (TPB)

Theory of Planned Behaviour was founded in 1991 (Ajzen, 1991, pp. 179-207), the theory of behavioural science and social psychology. It uses to describe the processes of human behaviour which is influenced by behaviour intention. The intention can be influenced by 3 factors:

1.) Attitude (A) is assessing the belief of the outcome of the behaviour from both positive and negative behaviours or benefits and disadvantages. If the person believes that the expressive behaviour has a positive effect, it will affect the intention and the expression of that behaviour. On the other hand, if they believe that the behaviour expressed negative effects, it will not cause the intention and not the expression of behaviour at the end. Factors of attitude towards behaviour consists of beliefs about behavioural belief (bi) and evaluation of the outcome (ei) as shown in the equation.

$$A = \sum_{i=1}^{i=p} b_i \times e_i$$

2.) Subjective Norms (SN) are a social factor caused by pressure from a group of people that are important for decision-making in behaviour. The influence factors of the subjective norms consisted of the normative belief (nb) and motivation to comply with referent (mc), as shown in the equation.

$$SN = \sum_{j=1}^{j=q} nb_j \times mc_j$$

3.) Perceive Behavioural Control (PBC) is the self-efficacy and ability to control behaviour. If the person believes that they have ability to control themselves to express their behaviour, it will affect the intention and will express that behaviour in the end. As shown in the equation, the perceived behavioural control consisted of control belief (c) and perceived power (p).

$$PBC = \sum_{k=1}^{k=r} c_k \times p_k$$

Hence, the intention of the behavioural expression is expressed as a linear regression equation as follows: (Conner and Norman, 2015, pp. 142-150)

$$BI = \beta_1 A + \beta_2 SN + \beta_3 PBC$$

The theory of planned behaviour has been used to describe behaviour in many areas. According to Gu and Wu (2019, pp. 226-245), TPB was used to explain customers' online purchase intention, and Ketabi, Ranjbaria, and Ansari (2014. pp. 379-381) used TPB to analyze the influential factors on online purchase intention. The two researchers have found the same results: perceived behavioural control, attitude, and subjective norms can influence customers' intention to buy online. However, other factors can influence customers to buy products online, such as their past experiences and the trust gained from themselves or people around them, demonstrating an attitude and perception of behaviour control. Therefore, it cannot be concluded that TPB can explain intention appropriately (Gu and Wu, 2019, p. 243), in line with Jaisue's recommendation (2019, p. 98), suggesting that there may be other variables affecting purchase intention, such as social media, quality factors, and other factors. Furthermore, Rameez and Kulathunga (2019, pp. 23-34) applied the TPB to describe customers' online purchase intention. With the addition of familiarity, trust, and perceived risk variables, it was found that only the three main TPB variables were attitudes that had a significant influence on consumer intentions. While the added variable, only the familiarity, and trust have a significant effect on consumers' purchase intentions. This is consistent with the recommendations made by Gu and Wu (2019, p. 243) above. Unlike research by Sriprianjun and Chomvilailuk, perceived privacy risks significantly influence online food purchase intentions.

In terms of agricultural products, Alavion, et al. (2016, pp. 7-9) applied TPB to explain agricultural e-marketing adoption in the public and private sectors. The TPB was used to describe 94% of the government's intention to act and 71% for the private sector. All three factors were subjective norms, perceived behavioural control, and attitude can affect the acceptance of agricultural electronic marketing (Agricultural E-Marketing), which corresponds to the study of purchasing intention of Thai consumers for green products (Maichum, Paritchatnon, and Peng, 2016, pp. 1-20). While Paul, Modi, and Patel (2016, pp. 123-131) applied TPB and the theory of reasoned action (TRA) to predict green product consumption. The sample was calculated from the ratio between sample and the number of parameters in the 20:1 model, which means there are 20 questions, so at least 480 questionnaires must be collected. The study

results indicated that attitudes and perceptions of behavioural control affect the intention to consume green products. In contrast, the influence of subjective norms does not affect the intention to consume green products.

Net Promoter Score

Net Promoter Score (NPS) is a concept developed by Reichheld (2006, p. 28) as a popular measure to measure customer satisfaction and customer loyalty in terms of customer ownership because they can introduce their peers or acquaintances to purchase products or services of the organization. As if the customer was a salesperson, which results in the organization's success. The NPS assessment was based on a single question, "Would you recommend our company/products/services to your peers?". This research could be applied by using the question "Would you recommend your peers to buy agricultural products through online channels?" The scale was measured on 11 levels, comprising a score of 0-10, with 0 = not at all likely and 10 = extremely likely. After that, the results can be divided into three groups as follows:

1.) The group of promoters has scores between 9-10, which is a group with high satisfaction and loyalty to the organization. Furthermore, they will recommend the products and services of the organization to other people.

2.) The group of passives has scores between 7-8, which is not a very loyalty group. They are ready to change their minds if they find a better competitor's product or service.

3.) The group of detractors has a score between 0-6, which this group of consumers has no satisfaction and loyalty to the product and the organization. However, they still consume the products and services of the organization due to necessity. This group of consumers will not refer or recommend products and services to their acquaintances. Moreover, they are ready to destroy the organization's reputation (Rompho, 2012, pp. 4-7).

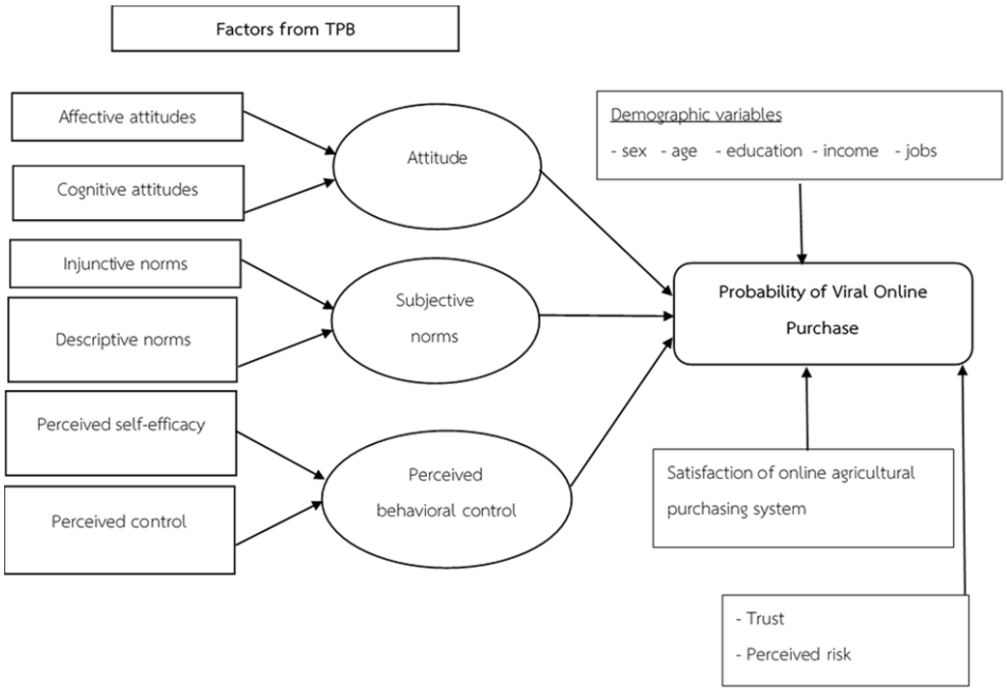
The value of NPS can be obtained from the formula NPS = % Promoters – % Detractors

NPS is measured or assessed in several areas, such as transportation and medical. In terms of online shopping, Kuma and Metre (2019, pp. 675-682) assessed the net promoter score of the variables that affect the customer's online shopping experience for e-Commerce businesses, in terms of businesses that sell products or services to customers (B2C) of secondary cities level 2 India. The results show that the top 3 variables with the highest NPS values were payment security, 24-hour availability and better prices and offers, respectively. While variables with negative NPS values are information of the product, One-Stop Shopping, data privacy, after-sales service, and discounts.

NPS can be measured with a single question: "Would you recommend our company/products/services to your peers or acquaintances?". Nevertheless, the literature review found that most of the research questioned satisfaction, which does not reflect customer loyalty and word of mouth.

Although extensive research has been carried out on applying TPB to explain the

intention to buy products online, no single study exists which apply TPB and NPS to describe factors influencing the probability of viral online purchase for agricultural products together with other factors derived from the literature review, such as trust, perceived risks, and demographic variables as shown in Picture No. 1.



Picture No. 1 Conceptual framework

Methods

The population and Sample

The population of this study was working-age consumers aged between 22-60 years old who live in Bangkok and have purchased agricultural products such as fruits, grains, rice, processed seafood, and processed agricultural products. Because of the processed products can be stored for a long time and are most purchased online, mainly social media channels, which are a channel where many agricultural products are sold. Unlike selling in online marketplaces, there are restrictions on selling fresh food. Due to the exact number of the target population being unknown, the researcher chose to employ the 20:1 ratio between the sample to the number of parameters or variables, which is a relatively suitable ratio (Hair, et al., 2014, p. 172). There were 11 variables in this study, so the number of samples should be at least equal to 220. Thus, the researcher collected 300 samples by random sampling using nonprobability sampling with convenience sampling. There are no criteria for selecting the sample units and being able to select a sample group that can provide information but must be in the target population (National Statistical Office of Thailand, 2016). This study collected data via Google Forms due to the COVID-19 outbreak with questions to confirm whether the sample has the purchase of agricultural products

through online channels during January 2020-December 2020 is during the past year.

Data collection

In this study, data were collected from two types of data:

1.) Primary Data, collected from questionnaires distributed in the January-February 2021 survey,

2.) Secondary Data was collected from government and private agencies such as articles, thesis, and academic journals. The questionnaire used in the survey was certified for Research Ethics No. COE63/251 from Kasetsart University Research and Development Institute. The questions and related variables were taken from the literature review and were applied in the questionnaire. The questionnaire was divided into 3 parts, as follow:

1.) The perception questionnaire, attitudes towards purchasing agricultural products online, and satisfaction with the online agricultural purchasing system. This part was assessed by using a 7 points-scale consisting of 6 issues: bad-good, not worth-worth, disagree-agree, impossible-possible, insecure-confident, and unsatisfied-satisfied, which are divided into 2 sub-sections as follows:

1.1) Questions for the theory of planned behaviour variables.

Questions of belief are assessed by this question "You believe that buying agricultural products through online channels is ....." with a 7 points-scale with 2 issues: bad-good and unworthy-worthy.

In terms of attitude, it can assess by using these questions "Purchasing agricultural products online will directly subsidize farmers" and "Purchasing agricultural products online carries a risk of product damage" with 7 points-scale (1=disagree to 7=agree). In terms of subjective norms, can assess by 2 questions: "Do you think your friend who likes to buy agricultural products online will agree if you buy agricultural products online?" and "if your favorite people buy agricultural products through online channels, you will also buy agricultural products online" with 7 points-scales (1=impossible to 7=possible). In terms of the variables of perceived behavioural control. Two questions were assessed on a 7 points-scale: "Are you confident that you can buy agricultural products whenever you want?" (1=not confident, 7=confident) and "You have the knowledge and can be enough to buy agricultural products online" (1=disagree to 7=agree)

1.2) Questions for additional variables

Trust can assess based on 3 questions with a 7 points-scale: "Buying agricultural products online is reliable." (1= disagree to 7=agree), "I trust in applications and websites to buy agricultural products online." (1=disagree to 7=agree), and "Online payments are safe." (1=disagree to 7=agree).

For the perception of risk, there was 2 question assessment" with a 7 points-scale: "When a transaction fails, I am concerned that it may not be compensated" (1=disagree to 7=agree) and "the system for purchasing agricultural products online may have made a mistake in processing payments" (1=disagree to 7=Agree). In terms of satisfaction

with the latest online agricultural purchase process, it can assess by asking the level of satisfaction on the rating scale with 7 points-scale (1=unsatisfied to 7=very satisfied).

2.) The questionnaire on the intention to recommend others to buy agricultural products online. It can assess on 11 points-scale with the questions "Would you recommend others to buy agricultural products online?" (0 = not at all likely to 10 = extremely likely), and recommendations for agricultural product sellers to improve and develop in the future.

3.) The questions about demographics such as sex, age, status, average monthly income, education, and jobs.

Data analysis

After the researcher had collected 300 samples, the data were cleaned (Data cleansing) for analysis efficiency. With criteria for eliminating questionnaires, in the case of the respondents who are not working people in Bangkok, aged between 22-60 years, there were incomplete survey responses. After elimination, the remaining 271 questionnaires were obtained, and the data were statistically analyzed as follows:

1.) Descriptive analysis is the analysis of data by using tables or diagrams to describe various data and using simple statistics such as mean and percentage. The total mean is used to compare the differences between the NPS groups.

2.) Inferential analysis by using a program in statistics. From the analysis of the data distribution, found that the data were normally distributed. Therefore, the ordered probit model was chosen to study the relationship between independent and dependent variables. The dependent variable was defined as the NPS, and the independent variable was defined as the variable derived from the theory of planned behaviour and literature review. It can be written in the form of linear as follows:

$$y_i^* = \beta_0 + \beta_1 \text{Sex} + \beta_2 \text{Age} + \beta_3 \text{Edu} + \beta_4 \text{Inc} + \beta_5 \text{Job} + \beta_6 \text{Sys} + \beta_7 \text{Att} + \beta_8 \text{SN} + \beta_9 \text{PBC} + \beta_{10} \text{Trust} + \beta_{11} \text{PR}$$

The independent variable, dependent variable, and expected relationship to NPS are shown in Table No. 1.

Table No. 1 Dependent variable data and expected relationship to NPS

Variables	Description	Dummy	levels of measurement	expected relationship to NPS
y_i^*	Probability of Viral Online Purchase for Agricultural Products	0 = Group of Detractors by consumers i assessed NPS score is between 0-6. 1 = Group of Passives by consumers i assessed NPS score is between 7-8 2 = Group of Promoters by consumers i assessed NPS score is between 9-10	Ordinal Scale	

Variables	Description	Dummy	levels of measurement	expected relationship to NPS
Sex	Sex	0 = Male 1 = Female	Nominal Scale	+
Age	Age	-	Ratio Scale	+
Edu	Level of education	0 = below bachelor's degree 1 = Bachelor's degree or equivalent 2 = above Bachelor's degree	Nominal Scale	+
Inc	The average income per month	-	Ratio Scale	+
Job	Jobs	0 = government Officials / state enterprise employees / state employees. 1 = personal business 2 = company employees 3 = housekeeper 4 =freelance	Nominal Scale	+
Sys	Satisfaction evaluation regarding online agricultural purchase system	-	Ratio Scale	+
Att	Self-evaluation of attitudes towards the intention of viral online purchase for agricultural products	-	Ratio Scale	+
SN	Self-evaluation of subjective norms towards the intention of viral online purchase for agricultural products	-	Ratio Scale	+
PBC	Self-evaluation of efficacy in perceived behavioural control towards the intention of viral online purchase for agricultural products	-	Ratio Scale	+

Variables	Description	Dummy	levels of measurement	expected relationship to NPS
Trust	Self-evaluation of trust towards the intention of viral online purchase for agricultural products	-	Ratio Scale	+
PR	Self-evaluation on Perceived risk towards the intention of viral online purchase for agricultural products	-	Ratio Scale	+

Designated y_i^* to be the latent variable of the intention of viral online purchase for agricultural products. The interval decision rule and the relationship between the dependent variable (y_i^*) and the latent variable (y_i) are shown below.

$$y_i = 0 \text{ if } y_i^* \leq \mu_0$$
$$y_i = 1 \text{ if } \mu_0 \leq y_i^* \leq \mu_1$$
$$y_i = 2 \text{ if } y_i^* > \mu_1$$

While u_j (j = 0, 1, 2) is the threshold value, the point of separation of the variable's value, where the threshold value is an unknown variable. The probability that the sample will choose the level of the viral online intention of the consumer i when j equals 0, 1, 2 is shown as follows.

$$\text{Prob}\,[\, y_i = 0 \mid x_i] = \Phi\,(-x_i\beta)$$
$$\text{Prob}\,[\, y_i = 1 \mid x_i] = \Phi\,(\mu_1 - x_i\beta) - \Phi\,(-x_i\beta)$$
$$\text{Prob}\,[\, y_i = 2 \mid x_i] = \Phi\,(\mu_2 - x_i\beta) - \Phi\,(\mu_1 - x_i\beta)$$

Results

The results from 271 respondents found that 176 were female and 95 were males. Regarding the respondents' age, 61.6% were below 35 years old, and 38.4% were above 35 years old. 42.8% of respondents have income between 25,001 and 50,000 baht. Approximately 61.3% of the respondents held a bachelor's degree or equivalent. Most of the respondents (42.4%) work as employees of private companies. The result from NPS analysis found that most of the samples were 39.9% passive, followed by 31.4% of the detractors and 28.8% of the promoters, respectively, with an NPS score of -2.6 or -2.6 percent. Most respondents in the promoter group were females under 35 years old, have income between 25,001 and 50,000 baht, mostly graduated with a bachelor's degree or equivalent, and are employees of a private company (Table No. 2).

Table No. 2 Data analysis of demographic characteristics

Demographic characteristics	Detractors frequency (%)	Passives frequency (%)	Promoters frequency (%)	Total
Sex				
Male	31 (11.5)	37 (13.6)	27 (10.0)	95 (35.1)
Female	54 (19.9)	71 (26.2)	51 (18.8)	176 (64.9)
Total	**85 (31.4)**	**108 (39.9)**	**78 (28.8)**	**271 (100)**
Age				
Below 35 years	54 (19.9)	64 (23.6)	49 (18.1)	167 (61.6)
Above 35 Years	31 (11.4)	44 (16.2)	29 (10.7)	104 (38.4)
Total	**85 (31.4)**	**108(39.9)**	**78 (28.8)**	**271 (100)**
Income				
Below 18,000 baht	29 (10.7)	26 (9.6)	17 (6.3)	72 (26.6)
18,001-25,000 baht	10 (3.7)	24 (8.9)	13 (4.8)	47 (17.3)
25,001-50,000 baht	38 (14)	45 (16.6)	33 (12.2)	116 (42.8)
50,001-85,000 baht	6 (2.2)	9 (3.3)	8 (3.0)	23 (8.5)
Above 85,001 baht	2 (0.7)	4 (1.5)	7 (2.6)	13 (4.8)
Total	**85 (31.4)**	**108 (40)**	**78 (28.8)**	**271 (100)**
Education				
Below Bachelor's degree	13 (4.8)	11 (4.1)	8 (3.0)	32 (11.8)
Bachelor's degree or equivalent	48 (17.7)	68 (25.1)	50 (18.5)	166 (61.3)
Above Bachelor's degree	24 (8.9)	29 (10.7)	20 (7.4)	73 (26.9)
Total	**85 (31.4)**	**108 (39.9)**	**78 (28.8)**	**78 (28.8)**
Jobs				
Government officials / state enterprise employees/state employees.	30 (11.1)	37 (13.7)	23 (8.5)	90 (33.2)
Personal business / company employees	10 (3.7) 31 (11.4)	11 (4.1) 48 (17.7)	11 (4.1) 36 (13.3)	32 (11.8) 115 (42.4)

Demographic characteristics	Detractors frequency (%)	Passives frequency (%)	Promoters frequency (%)	Total
Housekeeper	2 (0.7)	1 (0.4)	1 (0.4)	4 (1.5)
Freelance	12 (4.4)	11 (4.1)	7 (2.6)	30 (11.1)
Total	**85 (31.4)**	**108 (39.9)**	**78 (28.8)**	**271 (100)**

The results of the analysis on satisfaction from the latest online agricultural purchase process

The results revealed that the sample group was satisfied with every step of buying agricultural products online. The top 3 steps with the most satisfaction is specifying the product's price ($\bar{X}$ = 5.81, SD = 1.05), informing the parcel tracking number ($\bar{X}$ = 5.80, SD=1.05) and product received exactly as advertised ($\bar{X}$ = 5.73, SD = 0.97), respectively. When there are problems, sellers can resolve problems quickly ($\bar{X}$ = 5.38, SD = 1.30), follow up after-sales quality ($\bar{X}$ = 5.27, SD = 1.28), and provide after-sales services such as providing additional information ($\bar{X}$ = 5.22, SD = 1.36) had the least satisfaction, respectively. According to NPS analysis, the promoter group had the highest mean of satisfaction compared to the passives and the detractors. The test of mean difference between the detractors, passives, and promoter groups found that the average satisfaction with the latest online agricultural purchase process for each group was statistically different at 0.01 level (Table No. 3).

Table No. 3 Average satisfaction among Detractors Passives and Promoters

Details of buying agricultural products online	Total $\bar{X}$ (S.D.)	Detractors $\bar{X}$ (S.D.)	Passives $\bar{X}$ (S.D.)	Promoters $\bar{X}$ (S.D.)	F-test
Details is very clearly	5.64 (0.97)	5.12 (0.92)	5.63 (0.87)	6.23 (0.81)	33.475***
Interact with customers quickly	5.56 (1.03)	5.12 (1.09)	5.51 (0.87)	6.10 (0.93)	21.630***
Product quality	5.67 (0.96)	5.21 (0.97)	5.74 (0.80)	6.08 (0.96)	19.201***
The product description matches the product received.	5.73 (0.97)	5.27 (1.08)	5.76 (0.80)	6.19 (0.81)	21.466***
Specified price	5.81 (1.05)	5.51 (1.02)	5.77 (1.00)	6.19 (1.06)	9.288***
Specified shipping cost	5.69 (1.13)	5.36 (1.06)	5.60 (1.09)	6.15 (1.12)	11.223***
Inform the parcel tracking number	5.80 (1.05)	5.49 (1.02)	5.76 (0.98)	6.19 (1.06)	9.808***
Can choose a transport service	5.55 (1.20)	5.16 (1.21)	5.53 (1.16)	6.0 (1.11)	10.578***

Details of buying agricultural products online	Total $\bar{X}$ (S.D.)	Detractors $\bar{X}$ (S.D.)	Passives $\bar{X}$ (S.D.)	Promoters $\bar{X}$ (S.D.)	F-test
Quality of packaging to prevent damage	5.68 (1.02)	5.32 (1.06)	5.64 (0.99)	6.14 (0.83)	14.800***
Enthusiastic about solving problems	5.48 (1.10)	5.06 (1.16)	5.39 (0.98)	6.06 (0.94)	20.019***
Product quality after-sales tracking.	5.27 (1.28)	4.81 (1.39)	5.21 (1.22)	5.83 (1.03)	14.319***
After-sales service, such as providing additional information	5.22 (1.36)	4.81 (1.38)	5.16 (1.35)	5.74 (1.19)	10.429***
A variety of payment channels	5.63 (1.03)	5.14 (1.05)	5.61 (0.92)	6.18 (0.88)	24.362***
When there is a problem, The seller was able to resolve issues quickly	5.38 (1.30)	4.94 (1.36)	5.31 (1.30)	5.95 (1.03)	13.488***
Total	**5.58 (1.10)**	**5.17 (1.13)**	**5.54 (1.02)**	**6.07 (0.98)**	**-**

Note: *** It is statistically significant at 0.01 level.

The results of the analysis of factors influencing the probability of viral online purchase for agricultural products

The analysis of factors influencing the probability of viral online purchase for agricultural products by ordered probit model found that satisfaction for the online agricultural purchase system and subjective norms were statistically significant at 0.01 level. In contrast, demographic variables such as sex, age, education, income, jobs, attitude, and other variables such as perceived risk were no effect on the probability of viral online purchase for agricultural products (Table No. 4).

Table No. 4 Analysis of factors influencing the likelihood of telling of online agricultural purchases

Variables	Coefficient	S.D.	Z	P>|z|
Sex	0.091	0.151	0.60	0.548
Age	-0.010	0.010	-1.10	0.273
Education	-0.025	0.132	-0.19	0.849
The average income per month	0.127	0.090	1.42	0.156
Jobs	-0.093	0.059	-1.57	0.117
Satisfaction with the online agricultural purchasing system	0.024***	0.007	3.25	0.001

Variables	Coefficient	S.D.	Z	P>|z|
Attitude	-0.006	0.008	-0.75	0.453
Subjective norms	0.019***	0.007	2.67	0.008
Perceived Behavioural Control	0.013*	0.007	1.75	0.081
Trust	0.084**	0.037	2.28	0.023
Perceived risk	0.020	0.025	0.83	0.407
likelihood ratio (LR) chi-square = 131.14				
Prob.> chi-square = 0.0000	Pseudo R2 = 0.2290			

Note: *** statistically significant at the 0.01 level ** statistically significant at the 0.05 level and * statistically significant at the 0.10 level.

Considering the marginal effects, the factors that increase the probability of the promoter group are the level of satisfaction with the system of purchasing agricultural products online, which can increase the pro-bability by about 0.58%. When subjective norms have more influence on consumers, it will increase the probability of 0.45%. Increasing perceived behavioural control can also increase the probability of 0.32% of buying agricultural products online. More trust in online agricultural purchases can increase the probability by 2.05%. Factors that reduce the probability of detractors among consumers are the level of satisfaction with purchasing agricultural products online, which can reduce the probability by about 0.61%. The influence of the subjective norms can reduce the probability by 0.47%. Increasing in perceived behavioural control can reduce the probability of 0.34% and increasing in trust in online agricultural purchases can reduce the probability of detractors by 2.13% (Table No. 5).

Table No. 5 Marginal Impact Analysis of Factors Influencing Possibility of Telling Possibility to Buy Agricultural Products Online

Variables	Group of Detractors		Group of Passives		Group of Promoters	
	Marginal Effects	P>|z|	Marginal Effects	P>|z|	Marginal Effects	P>|z|
Sex	-0.0231	0.548	0.0009	0.664	0.0222	0.547
AGE	0.0026	0.273	-0.0001	0.580	-0.0025	0.270
Education	0.0064	0.849	-0.0024	0.855	-0.0062	0.849
The average income per month	-0.0324	0.157	0.0012	0.563	0.0312	0.152
Jobs	0.0237	0.115	-0.0009	0.533	-0.0228	0.115

Variables	Group of Detractors		Group of Passives		Group of Promoters	
	Marginal Effects	P>|z|	Marginal Effects	P>|z|	Marginal Effects	P>|z|
Satisfaction with the online agricultural purchasing system	-0.0061***	0.001	0.0002	0.507	0.0058***	0.001
Attitude	0.0015	0.454	-0.0001	0.633	-0.0015	0.452
Subjective norms	-0.0047***	0.008	0.0002	0.530	0.0045***	0.006
Perceived Behavioural Control	-0.0034*	0.077	0.0001	0.509	0.0032*	0.080
Trust	-0.0213**	0.021	0.0008	0.518	0.0205**	0.021
Perceived risk	-0.0052	0.404	0.0002	0.573	0.0051	0.407

Note: *** statistically significant at the 0.01 level ** statistically significant at the 0.05 level and * statistically significant at the 0.10 level.

Conclusion and Discussion

The data analysis of 271 respondents of consumers of working age between 22-60 years old in Bangkok who used to buy agricultural products, including fruits, grains, and rice, processed seafood, and processed agricultural products through social media channels (Facebook, Line, Instagram, and Twitter) between January 2020 - December 2020. It can be concluded that most consumers who purchase agricultural products online are female. Most of them are under 35 years old, earn between 25,001 and 50,000 baht, hold a bachelor's degree or equivalent, and work as an employee of a private company. The passives were 39.9% the most, followed by the detractor group at 31.4% and the promoter group at 28.8%, and the NPS is -2.6%.

In terms of demographic factors such as sex, age, education, income, and jobs did not affect the probability viral online purchase for agricultural products. These results contradict the study of Omar, et al. (2016, p. 68), Wahyudi, et al. (2019, pp. 12-13), and Noinart, Sriboonruang, and Rangsipaht (2017, p. 14).

In terms of satisfaction with the process of purchasing agricultural products online, most of the respondents showed a high level of satisfaction at all stages, with the promoter group having the highest average satisfaction compared to the passive group and detractor group. Where passives and detractor groups had the lowest average of satisfaction was after-sales service, after-sales quality tracking, and the speed in solving the seller's problem.

The most influential factor to viral online purchase for agricultural products was trust which is a variable added to the recommendations of Gu and Wu (2019, p. 243) and Jaisue (2019, p. 98). Furthermore, the results are consistent with Rameez and Kulathunga (2019, pp. 23-36) regarding familiarity, trust,

and perceived risk, in which familiarity and trust significantly affect consumers' purchase intentions. Factors under the concept of the theory of planned behaviour that significantly influenced viral online purchase for agricultural products were subjective norms and perceived behavioural control. These results are consistent with research by Gu and Wu (2019, pp. 238-241) Ketabi, Ranjbaria and Ansari (2014, pp. 379-381), Alavion, et al. (2016, pp. 7-9) and Maichum, Paritchatnon. and Peng (2016, pp. 1-20), while attitude do not influence the probability of viral online purchase for agricultural products. This contradicts Rameez and Kulathunga (2019, pp. 31-34), which found that only attitude factors had a significant influence on consumer intentions because subjective norms vary with compulsory or voluntary behaviours. If it were caused by force or compulsory, it would significantly affect intentions. However, if it was done voluntarily, the subjective norms factor would not affect intention (Chai and Pavlou, 2004, p. 420), as in Rameez and Kulathunga (2019, p. 33). Rameez and Kulathunga collected data from students who enrolled in graduate studies at eight leading universities in Sri Lanka. Therefore, the sample group had sufficient exposure to the Internet. Moreover, they have the knowledge and skills needed to make their own decisions rather than being influenced by others. Unlike this research, in which the sample was the consumer group is working age, aged between 22-60 years old, who decide to buy agricultural products online by themselves by purchasing through social media channels that the subjective norms easily influence from seeing posts or comments of friends on the platform.

The perceived behavioural control factor on intention may depend on the individual's efforts to avoid uncertainty. If consumers have a culture that avoids high uncertainty, as a result, it has a significant impact on intention (Chai and Pavlou, 2004, p. 420). The Uncertainty Avoidance Index (UAI) in Thailand is at the moderate to high (64 points) (Hofstede insights, 2001). As a result, perceived behavioural control may affect the viral online purchase for agricultural products. The last factor affecting the viral online purchase for agricultural products was satisfaction with the online agricultural purchase system.

Research Suggestions

1.) To increase the viral online purchase for agricultural products or make customers in the group of promoters more, farmers or business owners should focus on selling agricultural products through online channels to be convenient, easy to use, clearly stated prices.

2.) Online sellers of agricultural products should be a follow-up on the quality of after-sales products. After-sales service and reply to customers quickly to solve problems for customers to make consumers more satisfied and feel that buying agricultural products online is easy which can increase confidence in buying agricultural products online. Service should also improve; talking style should be polite or damage warranty policy to increase credibility. It can make consumers more trust and develop it to the promoter group. As a result, they will recommend the products and

services to other people around them to allow the influence of subjective norms, a critical factor in the influence of online agricultural purchases, have worked to persuade them to grow their customer base efficiently and freely.

Suggestions for Future Research

For future research, the factors influencing the probability of viral online purchase for agricultural products should consider other factors such as their familiarity or experience with online shopping, or buy agricultural products, product quality, and related or background about farmers. In addition, this research considers agricultural products that are only sold online for fruit, grains, rice, processed seafood, and processed agricultural products. If additional agricultural products are considered, the results may vary. Long-term studies should be conducted to monitor changes in attitude and behaviour intentions to provide guidance and clarify consumers' intentions and attitudes, which is beneficial to farmers and agribusiness entrepreneurs who can develop agricultural products and online systems to impress consumers.

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