

Consumer Perceptions of Traditional and Electronic Markets

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Abstract

The objective of this study is to identify factors that are significantly associated with consumer in electronic or traditional market. The study uses consumer cost differences which are product price, product quality, after-sales service, product refund or exchange, variety and assortment of product offerings, time saving on buying product, convenience to buy product, distribution cost, sufficient law to protect consumer, security of payment by credit card to differentiate consumers from traditional and electronic markets. The result indicates that four of ten factors (product price, product quality, product refund or exchange, and time saving on buying product) can classify consumers in the two markets. Internet buyers' characteristics and behaviour are discussed.

1. Introduction

Internet has become an important medium for organizations desiring to market their products and services via electronic market. Although many organizations have claimed that Internet involves in their business success, little research has been conducted to prove the success of electronic market. Online shopping also has some limitations (i.e., the lack of variety of products, disappointing customer service, and wariness about unknown Internet retailers). Consumers may diffuse online shopping differently. Some consumers may still prefer traditional markets (i.e., retail stores) to electronic markets or vice versa. In addition, the Internet's effects on consumer behavior are unpredictable.

The electronic market in Thailand is still in its infancy. Survey on factors affecting the Internet usage by Chumchuan [2] revealed that Thai consumers are aware of sufficient law to protect transaction processed via Internet. In addition, the consumers are not confident in the quality of product/service bought from Internet and in the security of payment system [16]. Even though some Thai consumers are anxiety and unbelief in the electronic market, the others buy product on Internet. Therefore, additional research is needed to understand which factors (such as types of products,

costs relevant to traditional or electronic markets, and services from vendor etc.) are significantly associated with consumer perceptions of traditional and electronic markets. These factors can also be used to create model for predicting group membership (traditional versus electronic markets) from a set of predictors. The main purpose of this research is to investigate factors that influence individuals' decision to shop by either electronic or traditional markets.

2. Black Ground

Every buyer is engaged in continuous decision process which consists of five stages: need recognition, information search, evaluation of alternatives, purchase decision, and postpurchase behavior [7][8][1]. Many of these stages involve costs such as searching for sellers, delivering and monitoring product/service. As different marketing channels have some differently associated costs, a consumer normally compares relative advantage in each potential market. The relative advantage is often expressed in savings in time and effort, and cost reduction [15]. Therefore, a reasonable consumer usually attempts to minimize the relative costs involving the decision process [3]. Given the two types of marketing channels (traditional and electronic markets), the six costs associated with these markets include product price, search costs, risk costs, distribution costs, sales tax, and market costs [13]. However, as sales tax in Thailand is equal in each marketing channels, this study does not include sales tax in consideration.

2.1 Product Price

Product price is the sum of the production costs, coordination costs, and profits added to the product or service [13]. The benefits of electronic markets to both buyers and sellers are low cost and improved efficiencies [1]. The electronic marketing can reduce costs of order processing, inventory handling, delivery, and trade promotion because buyers deal directly with sellers. In addition, communicating electronically often costs less than communicating on paper through the mail.

2.2 Search Costs

Search costs are the time, effort, and money involved in obtaining and comparing the available brands and features of product demanded from various sellers [13]. Generally, a consumer will search on product price, product quality, and product features until he/she reaches the final purchase decision [13][1]. The product quality means the ability of the product to perform its functions, free from defects, and consistency in delivering a targeted level of performance. The electronic marketing provides benefits to buyer in term of convenience which, in turn, reduces buyers' search costs. The buyers do not have to go to various stores to find and examine products. In addition, the buyers can access to an abundance of comparative prices of competitive stores, products, or services that fit their needs from any location.

2.3 Risk Costs

Risk costs mean the costs involved economic, social, performance, personal, and privacy risks [13] [17]. The buyer decision process does not end when the product is bought. After purchasing the product, the consumer will be engage in postpurchase behaviour which is satisfaction or dissatisfaction. Normally, the buyer is disappointed when the delivered product fails to meet specifications. As the Internet buyers cannot touch or examine the products during evaluation stages, and they usually receive purchases via mail delivery, the buyer will require favourable terms such as warranty or replacement of products without difficulty and within a short time [3]. In addition, there are some risks associated with ensuring security of credit card transaction on the electronic market because information transmitted over Internet may be intercepted and misused. Therefore, the perception of security risk can be attributed to separate consumers from electronic to traditional markets.

2.4 Distribution Costs

Distribution costs refer to the costs involving the physical exchange of products or services from seller to the buyer [13][9]. The distribution costs are associated with types of products and services purchased over the Internet. The digital products such as electronic books and software can be delivered digitally and be used by the consumer straightaway. Sending the digital products or services online reduce the distribution costs. However, the distribution costs for tangible products are higher in electronic market than in traditional market because there is the need for the consumer to pay distribution costs to receive the product.

2.5 Market Costs

Market costs are the costs associated with participating in a market [13][3]. These costs include fee paid by buyers to access to the Internet and the costs paid to the firms that operate the electronic market. The

traditional market, however, are assumed these costs differently. The cost for traditional market is in the form of transportation to the shop.

This study applied the work by Strader and Shaw [13] on consumer cost difference for traditional and Internet markets. The costs associated with Thai consumers are examined. Thus, the aim of this paper is to provide the empirical answer to the following research question.

Research question : What are the factors that are significantly classified consumers into electronic or traditional market?

3. Research Methodology

3.1 Sample and Procedure

Five hundred questionnaires were distributed to participants in three main cities in Thailand (Bangkok, Chiang Mai, and Khon Kaen). Reason for limiting the study to the above participants was that participants in the main cities normally understand electronic market than participants in the small cities. In addition, the participants were universities' students and office staffs who have knowledge in e-commerce. The returned and usable results for further statistical analysis were 299 questionnaires. These questionnaires were divided into two groups, Internet buyers and non-Internet buyers. The groups were separated in term of whether participants used to purchase the products from Internet. The usable results were 73 questionnaires for Internet buyers group and 226 questionnaires for non-Internet buyers group. In addition, the questionnaires in two groups were split into analysis and holdout (validation) samples. The analysis sample was used to develop the discriminant function. Meanwhile, the holdout sample was used to test the discriminant function. This study used a 75-25 split to divide the sample into analysis and holdout groups. Moreover, the smallest group size must exceed the number of independent variables to ensure the minimum impact of sample size on the estimation of the discriminant function [4]. Finally, the purchase group contained 55 observations for analysis and 18 observations for validation. Meanwhile, the not purchase group was divided into 168 observations for analysis and 58 observations for validation. Sample sizes were quite different in the Internet buyers and non-Internet buyers groups in analysis and holdout data. However, with ratios of 1:3.05 in analysis group and 1:3.22 in holdout group, the discrepancy in sample sizes does not invalidate use of discriminant analysis [14].

The evaluation of assumptions of linearity, normality, multicollinearity or singularity, and homogeneity of variance-covariance matrices revealed no threat to multivariate analysis. The collected information was then analysed by using discriminant analysis with stepwise method. Ten variables were used as predictors of membership in two groups. The ten variables which identified Internet buyers from non-

Internet buyers were product price, product quality, after-sales service, product refund or exchange, variety and assortment of product offerings, time saving on buying product, convenience to buy product, distribution cost, sufficient law to protect consumer, security of payment by credit card.

3.2 Results

The results suggests that a discriminant function is significant at $\chi^2(5) = 108.120$ with p value < 0.01 . The discriminant function accounts for 81.60 percent of grouped cases (see table 2). The discriminant loadings, as seen in table 1, suggests that the best predictors for distinguishing between Internet buyers and non-Internet buyers were product price, product quality, product refund or exchange, and time saving on buying product.

Of the four variables in the discriminant function, product quality discriminates the most while time saving on buying product discriminated the least. Distribution cost is not included in the model, even though it showed statistical significance. The discriminant loading of this variable is less than an accepted level ($\pm .30$). After distribution cost was deleted from the analysis, the group means (centroids) of the discriminant function is 1.339 for Internet buyers and -0.438 for non-Internet buyers. The results give the following estimated discriminant function.

$$D = -5.156 + 0.439 \text{ Product price} + 0.467 \text{ Product quality} + 0.364 \text{ Product refund or exchange} + 0.374 \text{ Time saving on buying product} \quad (1)$$

Table 1 Summary of interpretive measures for consumer perceptions of traditional and electronic markets

Dependent variables	Unstandardized coefficients	Discriminant loadings		F statistic	
	Value	Value	Rank	Value	Significance
Product price	.449	.582	2	34.618	.000
Product quality	.460	.642	1	54.466	.000
After-sales service	NI	.348	5	NI	
Product refund or exchange	.438	.464	3	30.067	.000
Variety and assortment of product offerings	NI	.290	6	NI	
Time saving on buying product	.371	.460	4	40.311	.000
Convenience to buy product	NI	-.119	10	NI	
Distribution cost	-.284	-.016	9	25.979	.000
Sufficient law to protect consumer	NI	.153	7	NI	
Security of payment by credit card	NI	.078	8	NI	
Constant	-4.644				

NI means this variable is not included in the stepwise solution.

The holdout samples have been used to examine the predictive accuracy of the discriminant function. The cutting score (-0.0002) is used as the criterion against each observation's discriminant Z score to determine group member for the observation. The classification matrices for consumer perceptions of traditional and electronic markets show in table 2. The analysis samples (with 81.60 percent classification accuracy) have higher prediction accuracy than the holdout samples (with 65.75 percent classification accuracy). As the discriminant function would classify a subject in the smaller group where the sample sizes are unequal, the prediction accuracy rate was compared with the two chance measures (proportional chance criterion or C_{pro}

and Press's Q statistic) [4]. The purpose of comparison is to determine whether the prediction accuracy rate is in the acceptable level and the classification accuracy of group membership is not occurred by chance. The results show that the prediction accuracy (81.60 percent) is higher than the proportional chance criterion (42.19 percent) and the maximum chance criterion (61.89 percent). In addition, the values of Press's Q of analysis sample and holdout sample (89.15 and 5.26) exceed the critical value of 3.841 ($\chi^2(1)$, $p = 0.05$). Therefore, the predictions are significantly better than chance.

Table 2 Classification matrices for consumer perceptions of traditional and electronic markets

Actual group	Number of cases	Predicted group membership	
		Internet buyers	Non-Internet buyers
Analysis sample ^a :			
Internet buyers	55	44 80.00%	11 20.00%
Non-Internet buyers	168	30 17.90%	138 82.10%
Number of cases		74	149
Holdout sample ^b :			
Internet buyers	18	13 72.22%	5 27.78%
Non-Internet buyers	58	23 39.66%	35 60.34%
Number of cases		36	40

^a Percent of grouped cases correctly classified is 81.60%.

^b Percent of grouped cases correctly classified is 65.75%.

Table 3 shows the correctly classified and the misclassified cases from the analysis and holdout samples. Data in this table is used to identify specific differences on the independent variables that might identify either new variable to be added or common characteristics that should be considered. The eighteen cases misclassified in the Internet buyers group have significant differences on two of the four variables in the discriminant function. In addition, most variables, which were not included in the discriminant function, demonstrate significant differences. The non-Internet buyers group, however, shows a similar pattern, although with different variables. The statistically significant differences of some variables (product refund or exchange, time saving on buying product and variables not included in discriminant function) suggest that other variables would identify characteristic that identifies group membership.

Moreover, the Internet buyers' demographic characteristics, economic factors, and behaviour

towards the purchasing of products or services through the internet are summarized (see Table 4). In this study, the Internet buyers are younger. There are 36.5 percent of Internet buyers aged 20-26 years old; 28.4 percent of Internet buyers aged 27-33 years old; and 17.6 percent of Internet buyers aged 34-40 years old. The Internet buyers are more male (75.7 percent) than female (24.3 percent). A total of 75.7 percent of Internet buyers are single. In addition, most of Internet buyers are college graduates. They obtain a bachelor degree (51.4 percent) and a master degree (27.0 percent). The mean income of Internet buyers is 20,000 baht (around 476 US\$). Moreover, the Internet buyers spend a little time searching for the information before making purchase decision. The popular goods were publications and computer software. In addition, Thai Internet buyers prefer products with well-known brands. The product price, however, should be 10% cheaper than those available in shops. Usually, the products are paid by credit card.

Table 3 Profiling correctly classified and misclassified observations in consumer perceptions of traditional and electronic markets

Dependent variables	Mean scores			t test	
	Correctly classified	Misclassified	Difference	t value	Significance
Internet buyers:					
	(N = 55)	(N = 18)			
Product price ^a	4.00	2.29	1.71	3.667	.170
Product quality ^a	4.36	2.43	1.94	3.510	.177
After-sales service	4.18	2.86	1.32	5.314	.118
Product refund or exchange ^a	3.36	2.71	0.65	9.360	.068
Variety and assortment of product offerings	3.55	3.29	0.26	26.300	.024
Time saving on buying product ^a	4.18	3.57	0.61	12.702	.050
Convenience to buy product	4.91	5.29	-0.38	27.069	.024
Distribution cost	3.00	2.29	0.71	7.400	.086
Sufficient law to protect consumer	3.27	3.00	0.27	23.000	.028
Security of payment by credit card	4.00	3.57	0.43	17.667	.036
Non-Internet buyers:					
	(N = 168)	(N = 58)			
Product price ^a	2.61	3.73	-1.12	5.679	.111
Product quality ^a	2.58	3.36	-0.78	7.621	.083
After-sales service	2.75	3.23	-0.48	12.524	.051
Product refund or exchange ^a	2.47	2.86	-0.39	13.632	.047
Variety and assortment of product offerings	3.33	3.41	-0.08	89.000	.007
Time saving on buying product ^a	2.56	3.91	-1.35	4.776	.131
Convenience to buy product	4.86	4.23	0.63	14.339	.044
Distribution cost	2.11	2.59	-0.48	9.800	.065
Sufficient law to protect consumer	2.39	2.50	-0.11	44.000	.014
Security of payment by credit card	3.69	3.36	0.33	21.336	.030

^a Variables included in the discriminant function.

Table 4 Information on buying product/service on traditional and electronic markets

Items	Response	Percentage
Purchase product/service via Internet market:		
1. Average number of Internet web sites searching for product/service before making purchase decision	1-3 web sites	41.9
2. Time used to search product/service before making purchase decision	Less than 2 hours	48.6
3. Product/service buying from internet	Book, article or magazine, and software	54.1
3.1 First ranking of high purchase		
3.2 Second ranking of high purchase	Computer and peripheral	17.6
3.3 Third ranking of high purchase	Toy and recreation	14.9
4. Consideration of product brand	Consider	81.1
5. Product price	Should less than buying product from traditional market 10%	33.8
6. Method of payment	Credit card	66.2
7. Method of product delivery	Mail	68.9
8. Satisfying product	Satisfy	91.9
9. Product delivery time	3-7 days	48.6
Purchase product/service via traditional market:		
1. Average number of places searching for product/service before making purchase decision	1-3 places	55.4
2. Time used to search product/service before making purchase decision	Less than 2 hours	41.9
3. Consideration of product brand	Consider	75.7

4. Discussion

The results provide some preliminary answers to the main purpose of this paper. The findings suggest that product price and quality influence consumers. If the savings in transactions costs can be passed on to consumers in the forms of less price without compromising quality, it can be positive influence on consumers to buy products in electronic market. In addition, the result indicates that the Internet buyers in Thailand usually buy famous brands because the buyers are confident of the quality assurance of those products.

Moreover, tangibility of products is also the most important factors for Thai consumers. The survey by Wongpinunwatana and Achakulwisut [18] on the adoption of e-commerce of Small to Medium Enterprises (SME) in Thailand indicates that Thai consumers want to inspect products before making purchase decision. As the Internet buyers will visualize products from Internet, the buyers, therefore, require warranty on product refund or exchange in case of delivery products fails to meet their requirements [11]. The on decision to buy products in both marketing

channels, this factor is not indicate high influence on purchase decision. Income of Internet buyers in Thailand is quite low comparing to buyers from other developed countries. Therefore, these buyers will buy products with low cost. The frequently purchased products from Internet are books, articles or magazines, and computer software. Because the Internet buyers can download the previous purchased products from Internet, they do not consider much on the distribution costs. For computer software, Thai consumers will always look for freeware.

However, the factors of after-sales service, variety and assortment of product offerings, convenience to buy product, sufficient law to protect consumer, security of payment by credit card cannot use to identify Internet buyers from non-Internet buyers in Thailand. Several reasons can be used to explain these results. First, intangible products (i.e. books, articles or magazines, and computer software) are not required after-sales support or the warranty and variety of products. Second, many Internet buyers are college students and office staffs. Therefore, Internet access is essentially free for these consumers with access through school or work. If the consumers access the Internet from home, they have to pay for local telephone and Internet access charges. These charges, however, is quite low in Thailand. In addition, they spend less time on Internet and visit less web site before they make purchase decision. Therefore, the amount of participating costs in Internet market is quite equal to the amount of participating costs in traditional market which is costless. Third, contrary to expectations, Internet buyers do not indicate the awareness of security risk of credit card information transmitted over the Internet. The reason could be due to widely use of credit card in both marketing channels and trust with security of payment.

As the percentage of Internet buyers in this study (24.41%) is lower than the percentage of non-Internet buyers (75.59%). Consistent with this result, Ratpol [10] found that Thai consumers are likely to buy products from traditional market. As Internet is still new for Thai consumers, the sellers who want to use Internet as electronic market may have to consider using Internet as information provider.

5. Conclusion

In summary, the results from this study indicate that Internet and non-Internet buyers can be differentiated by product price, product quality, product refund or exchange, and time saving on buying product. This finding would be reasonable starting points for understanding types of transaction costs underlining consumers in both marketing channels (electronic and traditional markets) in Thailand. In addition, the organizations, which want to market their products via Internet, can use these results to understand their consumer cost differences for traditional and Internet

markets for an effective launch of this new marketing channel. There are a number of limitations in this study. First, participants in three main cities in Thailand may not be suitable representatives for the whole population. The other samples from other main cities such as Phuket city should be attempted. Second, electronic market in Thailand is still at the infant stage. This market is still in a period of learning. Thai people may not familiar with this new Internet technology. Therefore, information collected for analysis may be restricted.

Future research could be conducted by expanding sample to other cities. In addition, the study should include Thai culture factor. The need to understand how country's culture affects the success of business on the Internet must be considered [5][6][12][3]. The impact of culture has been an ongoing concern in electronic commerce research.

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