

Determinants of Buying Decision and Amount of Money Spent By the Households at Coopmart Can Tho, Vietnam

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Abstract

This paper investigates the determinants of buying decision and amount of money spent by the households at Coopmart Can Tho. Data used in the paper including 120 observations were randomly gathered from the households in Can Tho city. Using the Heckman Selection Model, the paper show that the factors related to households head characteristics (occupation of household head, average monthly income) and households characteristics (households size) are significantly affecting on decision to buy goods and services at the Coopmart Can Tho (Probit model) and the factors including the households head characteristics (occupation of household head, average monthly income, shopping experience) and the enterprises characteristics (promotion programmes and gifts) are significantly influencing on the money spent.

Keywords: *Buying decision, Money amount, Heckman Selection model, Super Market.*

I. INTRODUCTION

Throughout the developed world, and across a wide variety of product categories, the changes in consumer's tastes and preference may result the consumption patterns and marketing management practices. Such change, due to the strategic role it plays in all economies, is to be found in the food consumption sector, which, in addition to the above-mentioned changes, has also been affected by food scares and new consumer perceptions of food. Moreover, steadily rising production along with stagnating demand has led to market saturation, creating the need for careful product positioning. Key marketing strategy today refers to quality whose success a result of consumers' increasing concern for their own health and the state of the environment.

Vietnam joined the World Trade Organization (WTO) in 2007 has marked a new development step in the history of Vietnam's retail business. The supermarket, one of the types of modern business, general business the richness, diversity, which everyone can delight the option his preferred items, reasonable prices, quality product. However in the market economy relations become more ventilation, from 01/01/2009 Vietnam officially opened the retail market to foreign companies; from 01/11/2015 will allow the establishment of 100% foreign-owned enterprises, foreign enterprises with advantages in finance, management level, type of cargo abundant variety, how professional service. Due to the rising entrance of foreign businesses, the vietnamese supermarket are facing the risk of losing market share and the level of competition.

However, in each location, the competitive situation is different. Can Tho market as the heart of the Mekong Delta, Coopmart Can Tho are facing with foreign supermarket such as Big C, Metro and the Lotte Mart. Thus, it is significant to carefully evaluate the factors affecting on the buying decisions and amount of money spent by the households in Can Tho city. Such analysis may give some helpful solutions help Coop Mart Can Tho in particular to attract more efficiency customers as well as raising their amount of money used and contributing to the development of other supermarket chains in the Saigon co.op system.

Derived from the practices of the increasingly competitive situation fierce in modern retail business sector, especially in Can Tho, the study on "The factors that influence the buying decision and the amount of money used at Coop Mart Can Tho" is urgently needed. The rest of paper is constructed as follows. Literature is presented in section 2 while the methodology is depicted in section 3. Empirical result is illustrated in section 4. Last section concludes the paper.

II. LITERATURE REVIEWS

The study of the motivational determinants of shopping behaviour attracted the attention of researchers and policy makers at least half a century old not only in the world but also in Viet Nam. Amongst the earlier studies in the world, Stone (1954) identified four orientations or motives for shopping: economic/price; ethical; personalising/service; and apathetic. A link between personal and social motives was found by Tauber (1972) to underlie shopping behaviour. On these premises, various of studies have focused on developing a typology of shoppers, both in general (e.g. Bellenger & Korgaonkar, 1980; Darden & Ashton, 1974; Ezell & Russell, 1985; Westbrook & Black, 1985; Williams, Slama & Rogers, 1985) and in relation to internet shopping in particular (e.g. Brown, Pope & Voges, 2003; Childers, Carr, Fenech & O’Cass, 2001; Rohm & Swaminathan, 2004; Sénécal, Garbi & Nantel, 2002). In contrast to previous research, time saving did not appear to motivate consumers to shop and how much they spend, possibly because of the time taken to receive the goods. However, convenience was noted in study of Morganosky & Cude (2000) that a particularly relevant motive when there were situational constraints such as ill health or the presence of small children in the household. This argued that situational factors may also be important in the study of online shopping motivations. Indeed, in-home shopping was often found to be motivated by specific needs or circumstances, such as avoiding an extra trip to pick up a needed item (Gillett, 1976). Yet, these situational variables have gone largely unheeded in consumer behaviour research still applies today (Belk, 1975).

In addition, buying decision has been discussed by the Vietnamese Authors. Huynh (2013) studied “Analysing the factors affecting on buying decision for milk-powder of the consumer in Can Tho City”. By using the logit regression and primary data gathered from 400 consumers in Ninh Kieu district, Can Tho city of Vietnam, the study illustrated the factors influencing on the buying decision for milk-powder of the consumers that are the household’s head age, the household head, gender, income, occupation, marital status and

number of children under 6 years of ages. Moreover, Trang (2012) investigated the “Analysing the factors affecting on buying decision on life insurance by the households in Can Tho City”. Objectives of the study are those defining the factors affecting on buying decision and money amount spent for life insurance of customers living in Can Tho city. Data used in the study collected from direct interview of 237 observations and Probit and Tobit models were used. The findings indicated that the factors affecting on buying decision significantly for life insurance are the age of household’s head, number of children under 6 years of ages, major labor in the households, income, occupation, educational level, land investment, relatives.

Furthermore, Dung and Thanh (2011) “Comparison the buying choice of consumers for the super market and traditional market: the case for consumption food in Can Tho City, Viet Nam. The study used the descriptive statistics and discriminant analysis. Findings illustrated that the buying decision choices at super market have been affected by the product delivery, fixed price, cost of travel for away from home; The customers buying decision at traditional market are influenced by products made on the spot, negotiated price and buying with later payment. However, the traditional markets are still blemishes on hygiene, the unknown goods quality, price flexibility, unmeasured weight and count. Thus the study also proposes a number of solutions to improve the performance of the two types of supermarkets and traditional markets.

III. METHODOLOGY

Based on the theoretical basis and the practical research article, this paper uses the selection model of the Heckman (Heckman Selection Model) to assess the factors that influence the decision to purchase (Probit form) and determine the amount of money used in supermarkets for the subject researches (Tobit model).

Biases due to sample selection arise because it is often not possible to identify a perfectly random sample of the population of interest. Particularly when observations are selected in a process that is not perfectly independent of the outcome of interest, selection effects may lead to biased coefficients in regressions of the different outcomes (Heckman et al., 1998). This may result in inconsistent estimates. In order to avoid these problems, one of the most commonly used approaches in econometrical analyses is the Heckman selection model that is commonly used in previous studies (Przeworski and Vreeland, 2000; Vreeland, 2002; Schafgens and Zinde-Walsh, 2002; Schaffner, 2002). The two-step method includes the estimation of a probit model for selection, followed by the addition of correction factor which is the inverse Mills Ratio obtained from the probit model, into the second OLS model of interest (Gujarati and Porter, 2009).

We suspect sample selection may affect the estimates of the coefficients of money amount. One possible source of bias is that better-off, better educated and more experienced households, amongst other factors, will take out large loans than other farm households. A two-step Heckman selection model was used to analyze the factors

influencing on buying decision, and the extent to which selection biases may affect the money amount spent. The model estimations were done in Stata.

A household's decision to buy at Coop Mart Can Tho is assumed to be influenced by a number of household characteristics, as shown in the following equation (Greene, 2000):

$$Z_i^* = a_i L_i + u_i \tag{1}$$

If Z_i^* is a dummy that a household to take buying decision, equation (1) measures the probability that a household i has to take buying decision at Coop Mart Can Tho, L_i is a vector of exogenous household variables that affect Z_i^* . The variable Z_i^* is not observed, but we observe if the household has to take buying decision at Coop Mart Can Tho or not, whereby $Z_i=1$ if $Z_i^*>0$ and $Z_i=0$ if $Z_i^*\leq 0$.

Next, household characteristics are also assumed to influence the money amount spent the households take up. Under the condition that $Z_i = 1$, Y_i represents the log of the money amount spent expectedly received by each household, with the assumption that:

$$Y_i = b_i X_i + v_i \tag{2}$$

where X_i is the vector of variables determining the money amount spent. In equations (1) and (2), u_i and v_i have bi-variate normal distributions with zero means, standard deviation δu and δv , and they are correlated with correlation coefficient ρ . It is assumed that Z_i and L_i are observed for a random sample of individual households, but Y_i is observed only when $Z_i=1$, that is, when the rural household i has to take buying decision at Coop Mart Can Tho. Modified from the equation by Heckman (1979), the expected money amount

$$\begin{aligned} E(Y_i | Z_i = 1) &= E(Y_i | Z_i^* > 0) = E(Y_i | u_i > -a_i L_i) \\ &= b_i X_i + E(v_i | u_i > -a_i L_i) = b_i X_i + \beta \sigma_v \mu_i(\alpha_u) \end{aligned}$$

spent may be written as follows:

$$\tag{3}$$

Where:

$$\mu_i(\alpha_u) = \frac{\varphi(\alpha_u)}{1 - \Phi(\alpha_u)} = \frac{\varphi(-\alpha_u)}{\Phi(\alpha_u)} = \frac{\varphi(a_i L_i / \alpha_u)}{\Phi(a_i L_i / \alpha_u)} \tag{4}$$

And φ and Φ are the normal density function and normal distribution function, respectively. The function $\mu_i(\alpha_u)$ is called the inverse Mill's ratio.

A least squares regression of Y_i on X_i , without the term $\mu_i(\alpha_u)$, would yield inconsistent estimators of b_i . If the expected value of the error was known, it could be included in the regression as an extra explanatory variable, removing that part of the error correlated with the explanatory variables and avoiding inconsistency. Yet the error term cannot be estimated, and the inverse Mills ratio needs to be calculated and added to the estimation of equation (2).

The first step of the Heckman model is a probit model (equation 1). The inverse Mill's ratio is calculated from the linear prediction of this model. In the second step model, Y is regressed on the explanatory variables X and the Inverse Mill's ratio for all cases where the selection equation equals one, i.e. household has buying decision at Coop Mart Can Tho. A highly significant Inverse Mill's Ratio indicates that selection bias is present. This model is solved in one procedure in Stata. First step is the Probit model that define the factors affecting on the buying decision of good/services at the Coop mart Can Tho by the households.

$$\text{Buyingdecision} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Education} + \beta_4 \text{Occupation} + \beta_5 \text{Income} + \beta_6 \text{membersize} + \beta_7 \text{Time} + \varepsilon_i$$

ere: Buyingdecision is dependent variable which is measured by dummy variables with valued by 1 if the households decide to buy the good/services at Coop market Can Tho; 0 otherwise.

β_i illustrate for the coefficient parameters for the independent variables affecting on the buying decision of the households.

Second step is the Tobit as follows:

$$\text{Moneyamount} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Education} + \beta_4 \text{Occupation} + \beta_5 \text{Income} + \beta_6 \text{Shopping / month} + \beta_7 \text{Gift} + \beta_8 \text{Experience} + \varepsilon_i$$

Where the moneyamount is dependent variable reflecting the amount of money spent by the households at the Coop Mart Can Tho (million dong).

β_i depict the coefficient parameters for the independent variables influencing on the amount of money spent by the households at Coop Mart Can Tho.

IV. EMPIRICAL RESULTS

4.1 Samples characteristics

Table 1: Observation characteristics overview

No	Characteristics	Observation	Percentage
1	Age (years)		
	Below 30	67	55,83
	From 30 to 50	40	33,33
	Above 50	13	10,84
2	Gender		
	Male	36	30
	Female	84	70
3	Education (years)		
	From 1 to 12	59	49,17

	Above 13	61	50,83
4	Occupation		
	Staffs and Officials	36	30
	Trading	22	18,33
	Students and Pupils	26	21,67
	Worker	16	13,33
	Housewife	9	7,50
	Others	11	9,17
5	Nationality		
	Vietnamese	109	90,83
	Chinese	8	6,67
	Khmer	3	2,50
6	Marital Status		
	Married	57	47,50
	Single	63	52,50

Source: Surveyed by the author in 2015

Table 1 illustrates that of 120 observations, female respondent accounts for 70% while those of male are about 30%. 50.83% of respondents have the educational level higher than high schools while 32.5% of them have reached to the high school educational level and the rest have studied lower educational levels. The age is likely affecting on the buying behavior of the households. The households aged below 30 accounts for 55.83% while those aged between 30 and 50 occupied 33.33% of observations. 10.84% of respondents are from group above 50 years of age. In addition, the occupation of the households can generate the income differently which affect on the buying behavior of the households. In the data collected, the respondents from group of staff and officials account for 30% while those from trading group are about 18.33%. Surprisingly, the students and pupils occupied more that 21% of respondents. The rest belong to the workers, housewife and other occupations.

Furthermore, it is widely accepted that the buying behavior of the households can be affected by their nationality. Mekong Delta is usually representative for the multi-nationality. The Vietnamese nationality accounts for 90.83% of respondents. The Chinese and Khmer nationalities are 6.67% and 2.5%, respectively. Last but not least the marital status of the households may influence on their consumption habit. In 120 observations, the married respondents accounts for 47.5% while those from single group are about 52.5%.

4.2 Factors affecting on the buying decision of the households at Coop Mart Can Tho

Probit model is a form of non-linear probability models. The regression coefficient of the model does not directly explain the relationship between the independent variables and dependent variables that can only use the sign and the levels of the coefficients. So, to better understand the effects of independent variables, calculation the marginal effects corresponding to each of the regression coefficients is naturally needed.

Table 2: Results from the Probit model

Variables	Coefficients	Dy/dx	Statistics Z
Constants(C)	0,538	-	0,67
Age (Age ²)	-0,000	-0,000	-0,63
Gender	0,509	0,041	1,15
Educational level	0,423	0,040	1,09
Occupation	1,028	0,102	2,23**
Monthly Income	0,373	0,035	2,21**
Household members	-0,203	-0,019	-2,47**
Times from Home to Coop Mart	-0,011	-0,001	-1,24
Pseudo R ² : 0,3044			
LR <i>Chi</i> ² : 31,92			
Observations: 120			
R squared: 83,33%			

Notes: ** significant at 5%.

Estimate results in table 3 shows out of 7 variables in the model are statistically significant at levels below 5%. With the assumption that the other factors constant, the influence of each factor to the customer's buying decision is interpreted as follows:

The coefficient of occupation is positively related to the buying decision at significant level 5%. Marginal impact coefficients of this variable is 0.102 meaning that at significance level of 5% , as other factors do not change then the customer groups and civil servants, Office workers, business (trade) will purchase at Coop Mart Can Tho 10.2% higher compared to the other groups. These findings confirmed for the studies of Huynh (2013) and Kieu (2013). This can be explained the customers, employees, business have higher needs than the other clients.

The average monthly income of the households has positive correlation with customer's purchasing decision at the 5% level of statistical significance, consistent with the original expectations. Like the study by Huynh (2013), when the other factors constant, the

increased income of 1 million/month makes the possibility of purchase of the customer in the supermarket Coop Mart Can Tho increased 3.5%. Personal income is very important to meet their diverse needs.

The number of members in the family is negatively correlated to the customer's buying decision at the 5% level of statistical significance. In contrast with the initial expectations, the results estimate shows that if the number of members in the family of customers increased 1 person then the probability of purchase of the customer will fall 1.9%. If the families have many people, they have to worry about a lot of things to spend in daily life, thus they should typically have to consider things they need, and things should be bought or not.

4.3 Factors affecting the money amount spent by the households at Coop Mart Can Tho

Results of Tobit model shows, testing values for Spearman is smaller than 0.6, it is stated that the multicollinearity phenomenon between the independent variables in the model can ignore. In addition, the probability of model shows that the research model used has a very high significance levels (1.0%).

Table 3 : Results from the Tobit model

Variables	Coefficients	Dy/dx	Statistic s t
Constants (C)	0,018	-	0,19
Age ²	0,000	0,000	0,49
Gender	-0,063	-0,051	-0,94
Educational level	0,043	0,035	0,62
Occupation	0,112	0,092	1,73***
Monthly income	0,041	0,034	2,81*
Monthly shopping frequency	-0,013	-0,011	-1,75***
Gift from promotional programme	0,126	0,104	1,86***
Shopping experience	0,022	0,019	1,86***
Pseudo R ² : 0,4929			
LR Chi ² : 38,83			
Observations: 101			

Notes: *, *** significant at 1%, 10%

According to the results of analysis showed that the amount of money spent at Coop Mart Can Tho are significantly influenced by five factors with levels of meaning from 1% to 10%. These factors are the client's occupation, monthly income, number of times going to Coop Mart, received gifts from the promotion, shopping experiences. The effects of given factors are likely interpreted as follows:

Occupational variables brings asterisk 10% significance level Ocean, $dy/dx = 0.092$, i.e. when there is 1 customer is career civil servants, Office workers, business (trade) then the money used in Tho can tho co.op Mart supermarket increased 0.092 million. Those with careers as civil servants, Office workers, business (trade) then the relative income sources enough to meet their diverse needs.

Average of monthly income are positively statistically affecting on the amount of money spent by the customers at 1% significant level. Marginal impact dy/dx of income is 0.034, when the monthly average income of customers increased to 1 million, the amount used in supermarkets increased 0.034 million. Those with high and stable income will have more favorable conditions than the others in spending to buy goods in a supermarket. If customers have higher income levels the amount used at their supermarket will increase.

The number of times shopping per month is statistically negative effect on the money amount spent by the customers at at 10% significance level. In particular, when times go the supermarket's customers increased by 1 times per month, the amount used at supermarkets will reduce 0.011 million. This result is consistent with the initial expectations, more frequency do customers less money amount spent by them.

Promotion variables are significantly positive correlation with the amount of money used at Coop Mart Can Tho at the 10% significance level. This result is consistent with the initial expectation, when the customer has received a gift from promotions, the amount used in supermarkets increased 0.104 million. Most of the customers are interested by this factor, the more promotions the customer have, much more money amount can be used at the supermarket.

Shopping experience, in line with expectations, is significantly positive effect on the money amount spent by the household at Coop Mart Can Tho at 10% significance level. The marginal effect is 0.019 meaning that when the number of years go shopping increased to 1 year then the money amount spent at the supermarket increased 0.019 million. This can be explained that customers have time to buy at the supermarket for long times found that they have more experience in the selection.

Other variables are not statistically affecting on the money amount spent by the customers at the Coop Mart Can Tho.

V. CONSLUSIONS AND IMPLICATIONS

5.1. Conclusions

This article explores the factors affecting the purchasing decision and the amount of money used in Coop Mart Can Tho, suggesting solutions that enhance the ability to attract

customers to buy in Coop Mart Can Tho. Using qualitative and quantitative factors based on the theoretical basis and using the Probit model, the results indicate that there are 3 factors: occupation, monthly income, number of family members that can affect the decision to purchase at Coop Mart Can Tho. In addition, the Tobit model shows 5 factors: occupation, monthly income, the number of times shopping per month, received gifts from the promotion, shopping experience can affect the amount of money spent at Coop Mart Can Tho. Regarding to given findings, possible implications that can be applied to improve the access to as well as the money amount spent at Coop Mart Can Tho are naturally considered.

5.2. Implications

From the active model supermarket chain of Coop Saigon, the domestic entrepreneur in the industry should conduct research to build up his own chain, and rapidly expand the retail markets in Vietnam. It is expected to improve the retail business in order to attract more capital investment to develop modern retail system.

Customers' occupation has affected on the buying decision as well as the cost of each purchase due to the characteristics of each industry. So, supermarkets need strategies to provide products that match each customer group creates favorable conditions for clients' selection, meet the needs of the customers.

The different income level is actually presented for each customer. The higher-income customers tend to buy high-quality products, safe for their health, so supermarkets should offer products that suit the needs of the customer. In contrast to low-income clients their tendency is to buy the necessary items, the comparable price, so the supermarket to find information of each client to meet their essential needs for these products, thereby giving reasonable strategy, attracting large numbers of customers buy at Coop Mart Can Tho.

Results of analysis showed that the received a gift from the supermarket can affect the amount of money used in supermarkets which confirms the importance of the construction of the promotions. So, Coop Mart Can Tho should regular plan the promotions with the attractive gifts and promotions for the customers. Besides, the findings indicated that most of promotional and good/services information can be searched by customers themselves that may lead to inefficiency in the operation of the supermarket. Therefore, the supermarket should be proactive in bringing information resources to customers, need to put information about the supermarket into the mass media the broadcasting organization, needs periodic maintenance to the customer, proactively calling asking for customers, said of the promotion.

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