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## Factors Affecting Consumer Purchasing Behavior: A Green Marketing Perspective in Vietnam

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### Abstract

The study seeks to identify the factors affecting the green marketing element of students' food purchasing decision at Co-opMart supermarket chain in Ho Chi Minh City through the application of a mix of qualitative and quantitative research methods that include probability sampling and convenient sampling of 400 students from Ho Chi Minh City University of Technology (HUTECH). The data are analyzed with SPSS software using Cronbach's Alpha, Exploratory Factor Analysis, Multiple Linear Regression and PATH model to test the model through the intermediate variable 'student's perception' and the hypotheses, identifying the green marketing effects on HUTECH students' food purchasing decisions at Ho Chi Minh City Co-opMart supermarket chain. The results of the study identify four factors of the green marketing mix (4Cs), namely, green commodity, green cost, green convenience, and green communication. All these factors have an influence on the student's food purchasing decision at Co-opMart supermarket. Cost is the strongest factor eliciting student's interest in purchasing green products, followed by convenience, then communication. Commodity has the least impact on green purchasing decision. This study proposes some feasible solutions for Co-opMart managers to attract more students using green food in the complex situation of contaminated food, which is extremely harmful to consumers' health.

**Keywords:** Green Marketing, Purchase Decision, Consumer Perception, Co-opMart, Vietnam

**JEL Classification Code:** I23, I25, M31

### 1. Introduction

In the context of increasingly difficult economic conditions, the world economy in general and Vietnam in particular are facing many challenges in many fields, including retail industry. Currently, the consumption of the retail industry is gradually decreasing due to the fierce competition of businesses and the change in consumption habits of customers. Therefore, the Co-opMart supermarket as well as other retailers is facing many difficulties and challenges in attracting new customers and retaining existing ones. Focusing on the marketing channel, especially Green

marketing, is one of the new and effective methods to reach customers by increasing customer perception of the business and thereby influencing their buying decision. Green marketing will be effective in changing consumer habits as well as perceptions of customers in maintaining personal health and the general environment of humanity.

The research will study the usefulness of green marketing as a key factor in changing customer perception and behavior, also known as purchasing decisions. The research objectives are not only to identify green marketing factors that affect students' food purchase decisions at Ho Chi Minh City Co-opMart supermarket chain, but also to build a research model that influences students' decisions. In the model, some new aspects will be explored and discussed such as: (1) developing four green marketing factors in a new way as Marketing 4Cs from the perception of students. The study focused on the dependent variable that is students' food purchase decisions through the green marketing campaign of Ho Chi Minh City Co-opMart supermarket chain; (2) building an intermediate variable factor, student's perception; this variable is based on emphasizing the factors of green marketing, thereby creating a complete research

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model; (3) the higher the students' perceptions of the green marketing, the higher the student's food purchase decision at Ho Chi Minh City Co-opMart supermarket chain is; and (4) using PATH model to test the experimental model through the intermediate variable 'student's perception.'

## 2. Literature Review

### 2.1. Green Marketing

Charter, Peattie, Ottman, and Polonsky (2002) defined green marketing as a responsible and inclusive governance process that detects, predicts, satisfies and meets the expectations of its stakeholders without causing negative effects on the natural environment and human health. Yazdanifard and Mercy (2011), green marketing is marketing of environmentally-friendly products, organizing activities such as product improvement, production process adjustment, packaging, advertising strategy as well as increasing awareness of green marketing across industries. For Vandhana, Karpagavalli, and Ravi (2013), the conservation of environmental resources for the present and future generations is the main purpose of green marketing. Today, the concept of green marketing entails certain fundamental elements. Marketing products, which are environmentally safe; developing and marketing products to minimize environmental hazards; produce, promote, and package products in a manner befitting so as to protect the environment. These are some characteristics of green marketing as the term is understood in the present business world context (Ottman, 1998; quoted by Arseculeratne & Yazdanifard (2014)). In general, green marketing is the chain of marketing activities for products and services based on environmental factors or perceptions. This study mainly researches the 4Cs activities in green marketing.

Green consumption is increasingly of interest in Vietnam as well as many countries around the world. Promoting green consumption and raising consumer awareness about green consumption have become increasingly urgent. Currently in Vietnam, consumers are interested in the environment, so they will tend to increase the use of green products in general and green foods in particular. However, consumers' awareness of green products is still limited, because they do not understand and recognize the environmental label on green products. Therefore, it is necessary to promote more education and communication in order to help people get better at environmental awareness and green consumption. Businesses need to have more convenient marketing channels to increase the number of consumers buying green products.

#### *Marketing mix (4Cs) in Green marketing*

According to FuiYend and Yazdanifard (2015), a product that is produced by a process that is friendly and does not

cause harm to the environment is called a green product. The product price includes the cost of environmentally-friendly packaging, the cost of handling recycled products, the cost of applying modern technology to limit waste; it is called the green price. Green distribution is the construction of product transport channels to minimize environmental damage. Green marketing must be used to promote products through direct marketing, promotions and public relations. The marketing mix is a fundamentally different way created by a company to deliver products or services to the market (Kontic & Biljeskovic, 2010). Initially, the marketing mix consisted of four components: product, price, place, and promotion (4Ps). In green marketing, each component of the marketing mix must include a 'green' aspect from the production to the delivery of the product to the market (Arseculeratne & Yazdanifard, 2014). The 4Ps of the traditional marketing mix are transformed into 4Cs in green marketing, with the aim of bringing sustainability criteria into the marketing strategy. For Kumar, Rahman, Kazmi, and Praveen (2012), the 4Cs include customer solutions, customer cost, convenience, and communication.

#### *Customer solutions*

Charter, Peattie, Ottman, and Polonsky (2002) say consumer behavioral adjustment should be done in a concerted manner among stakeholders, and that companies need to foster sustainable collaboration and innovation. For Kaminski (2016), customer solutions emphasize providing services rather than tangible products to meet customer needs. Car rental, for example, is increasingly popular instead of paying for a completely new car. For Licina, Radtke, and Johansson (2018), it is a product or service that is described as a solution for the customer when it can fulfill legitimate human needs and not harm human health or the environment. In order to research marketing mix (4Cs) in green marketing, customer solution is redefined as green commodity.

#### *Customer cost*

Price is the main factor when it comes to green marketing. In many cases, the cost is related to the environment and responsibility is not yet reflected in the price of the product purchased by the customer. This situation is gradually changing under the pressure of the law and stakeholders. Companies need to be more responsible for their emissions into the environment, and the Government can raise the relative prices of conventional products to encourage green product purchases (Charter, Peattie, Ottman, & Polonsky, 2002). The customer cost represents the product price, which is not only calculated based on the economic benefits to the business, but also takes into account the cost of social and environmental responsibility. The customer pays, not only for the value of the product, but also for the process after it has been used (Kaminski, 2016). The corporate

challenge is to convert environmental improvement into pricing products that customers are willing to buy. When implementing pricing strategies, companies need to ensure that their products and services are better than less sustainable alternatives in terms of performance, quality and functionality (Licina, Radtke, & Johansson, 2018). In order to research marketing mix (4Cs) in green marketing, customer cost is redefined as green cost.

### ***Convenience***

According to Charter, Peattie, Ottman, and Polonsky (2002), when making decisions regarding green distribution, companies can ask themselves about the location of the company office and how the facilities are arranged for the most convenience to suppliers, wholesalers and retailers. When planning transportation, companies need to take into account the most efficient route to minimize energy use and air pollution. According to Borland and Lingreen (2012), the company may consider developing recycling infrastructure and using reusable systems. Convenience emphasizes the customer value created by a sustainable distribution system, from design, production, use and reuse that take place in a closed process and produce no waste or toxic release in the environment. A company's distribution system, from wholesale to retailing its products and services, can have a direct or indirect impact on the environment. In order to research marketing mix (4Cs) in green marketing, convenience is redefined as green convenience.

### ***Communication***

According to Charter, Peattie, Ottman, and Polonsky (2002), when conducting campaigns a variety of marketing methods can be implemented. Company's strategies and claims must be based on reasonable research and information. It is important that information is communicated consistently to customers and other stakeholders, and the company should be careful with any complaints or offensive communications. All information given by the company must be consistent and coordinated. Kaminski (2016) argues communication refers to the purpose of marketing to form a positive attitude from consumers, as well as demonstrating the important role of the media in creating customer confidence in the social and environmental benefits of effective sustainable marketing. In order to research marketing mix (4Cs) in green marketing, communication is redefined as green communication.

## **2.2. Green Food**

For Liu, Pieniak, and Verbeke (2013), green food refers to the control and restriction of use of synthetic fertilizers, pesticides, growth regulators, animal and poultry feed additives, and genetic engineering. According to Fuz Yend and Yazdanifard (2015), in the principle of green marketing, each component in the marketing mix will have a green

perspective, from the establishment to the introduction of the product on the market. When a product is produced in the process that is ecologically acceptable and environmentally-friendly, the product can be called a green product. In summary, green food is a group of foods produced through farming practices using only natural ingredients, ranging from fresh foods, fish, meat, eggs, vegetables to dairy products and meat, processed foods such as sodas, biscuits, cereals, etc.

## **2.3. Perceived Value**

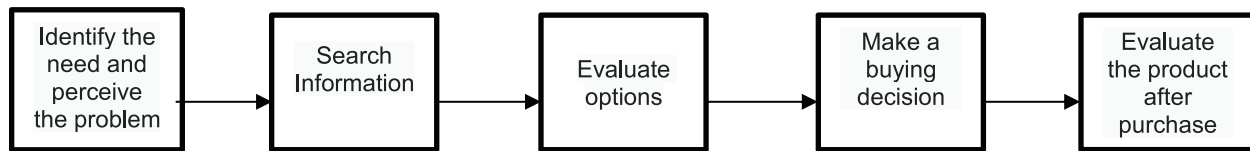
Brown (2011) shows that after the recession, preferences in consumption have been changing. The report shows a high correlation between a company's sustained performance and the fulfillment of consumer expectations. The company's sustainability effort was seen as a success when consumers perceived the value in the buying decision process. Company is a lighthouse for innovation and creating value that can lead society towards sustainable consumption. The sustainable vision in business strategy is that companies must combine four elements: innovation, collaboration, communication, and commitment. These strategies will make consumers believe in the benefits of sustainable consumption (Obermiller, Burke, & Atwood, 2008; Beguerisse, 2013).

Consumers' buying decisions depend on the perceived value of the product or service. Product improvement certainly involves a significant amount of unrecoverable expenses, but it is worth it, because a product development will result in turnaround in sales. Revers logistics allows consumers to return the used packaging for recycling, which would significantly help to preserve the environment. Creating a green product is always costlier because it consists of various expenses such as educating people, establishing modern technology, absorbing external expenses, and converting waste into recycled products. Therefore, safety precautions must be taken during the goods delivery (Arsecularatne & Yazdanifard, 2014). Consumers believe in the reality of sustainable businesses and their buying decisions depend on the perceived value of the products or services.

## **2.4. Purchase Decision**

According to Blackwell, Miniard, and Engel (2001), the purchase decision process is carried out through the following five stages:

Consumers often seek information related to a particular consumer who has had past buying experience before looking information outside. In other words, the past buying experience is seen as an internal source of information (friends, relatives, neighbors, annual reports, publications, social media) on which consumers rely before making a decision. In addition, some consumer decisions are most



**Figure 1:** Purchase Decision Process

likely formed by aggregating past buying experiences as well as non-commercial marketing and information resources programs (Schiffman & Kanuk, 2007). In the latter study by Hogg and Penz (2008), such emotional states like enjoyment, pleasure and arousal lead to the willingness to purchase. A customer will determine to purchase a product or service if he/she believes that the emerging outcome is beneficial (Wu, Lee, Fu, & Wang, 2014). In other words, if consumers have a good shopping experience during service encounters, they are more likely to come back for future purchases compared to those who have a negative shopping experience (Le, Nguyen, & Pham, 2019).

Howard and Sheth (1969) showed that there are five factors that influence customer buying decisions: quality, price, recognition, services, and society. However, according to this model, these five factors do not directly affect the buying decision, but indirectly through a black box. This black box includes intermediate steps depending on the type of product or service (Le, 2020). Following McEachern and McClean (2002); Mostafa (2006); Choi and Johnson (2019) green products are defined as products that are environmentally-friendly, non-polluting, and capable of recycling or preserving. Green products can be products made from paper, glass (recyclable or reusable packaging), energy-saving devices, and detergents that must be biodegradable and no pollution (Mostafa, 2006). Green consumption behavior is consumer activities that do not pollute, deplete natural resources and these products are recyclable (Nguyen et al., 2020). In general, customer satisfaction is the base of customer awareness about a product or service that forms subjective judgments or comments. This is a kind of psychological feeling after the needs of customers are satisfied. Therefore, customer satisfaction is formed on the basis of accumulated experience when shopping and using products or services. During the post-purchase phase, customers will have a comparison between reality and expectation so as to evaluate their satisfaction or dissatisfaction (Le, 2019).

Currently in Vietnam, big cities such as Hanoi, Ho Chi Minh, Danang, Cantho and others are home to many universities with many students from different disciplines and their daily lifestyle is also different. In addition to their daily study at university, part-time jobs, and extra classes, their daily meals are a current issue that is of interest to society. Mass media and information about the effects of unsafe food on the health of users are always sent to students so that they

can be aware of the harmful effects of unsafe food. Since then, students protect themselves by wisely choosing safe food suppliers, of which Co-opMart is one of them. When students have the perception of buying green food in the Co-opMart, they are very happy to come to Co-opmart and want to become loyal customers as well as contribute to protecting the environment when consuming green food.

## 2.5. Introduction to Co-opMart

Co-opMart is a chain of retail supermarkets in Vietnam and is directly under the Ho Chi Minh City Union of Trade Cooperatives (Saigon Co-op). The first supermarket opened in 1996 in District 1, Ho Chi Minh City. After nearly 25 years of development, currently Co-opMart has more than 82 supermarkets nationwide; it is the main activity of Saigon Co-op and has received many awards at home and abroad such as Excellence Customer Service FAPRA (2013), Independence Medal II (2014), Top 200 leading retailers in Asia-Pacific (2015), etc. With the motto ‘connecting, sharing and devotion to service,’ Co-opMart always tries to take care of customers through understanding efforts to improve its services and bring satisfaction and practical benefits to customers and the community. Co-opMart gradually affirmed its position as the leading supermarket brand in Vietnam and in Asia. Ho Chi Minh City Union of Trade Cooperatives regularly coordinates with Saigon Giai Phong to launch Green Consumption Campaign. Saigon Co-op will coordinate with environmental experts to organize training courses on green living skills, safety and health for current and prospective consumers such as women, students and pupils ([www.Co-opMart.com.vn](http://www.Co-opMart.com.vn)).

## 2.6. Hypothesis Development

In this study, the research model is based on previous research frameworks (Howard & Sheth, 1969; Kontic & Biljeskovic, 2010; Kumar et al., 2012; Arseculeratne & Yazdanifard, 2014; FuiYend & Yazdanifardm, 2015) and the purchase decision process of Blackwell et al. (2001). Developing four green marketing factors are studied in a new way in Marketing 4Cs from the perception of students. So, this study examined 4Cs of green marketing to investigate whether each of the 4Cs would be directly affecting not only the student’s food purchase decision at Ho Chi Minh City Co-opMart supermarket chain, but also the businesses’ need



to have more convenient marketing channels to increase the number of consumers buying green products. The investigation is based on the following hypotheses:

**H1:** *Green commodity has a positive effect on student's perception.*

**H2:** *Green cost has a positive effect on student's perception.*

**H3:** *Green convenience has a positive effect on student's perception.*

**H4:** *Green communication has a positive effect on student's perception.*

**H5:** *Student's perception has a positive effect on student's food purchase decision.*

The research model is based on the PATH model in which the higher the students' perceptions of the green marketing, the higher the student's food purchase decisions at Ho Chi Minh City Co-opMart supermarket chain. The PATH model is a multiple linear regression model with independent variables that are qualitative or quantitative variables; intermediate and independent variables are quantitative variables. Regression analysis with the PATH model is to analyze the effect of independent variable on the dependent variable through the intermediate variable. Using PATH model will test the experimental model through the intermediate variable 'student's perception.'

### 3. Research Methodology

#### 3.1. Qualitative Research

Firstly, qualitative research method was conducted through the focus group discussion. Draft scales are used in the school discussion with five leaders, 10 lecturers and 15 undergraduate students from the Business and Administration faculty. Collecting the ideas of group discussions is crucial to do a test interview in order to adjust the scale. Based on researched documents from experts and survey studies on student's food purchase decisions, the basic factors affecting student's food purchase decisions at Ho Chi Minh City Co-opMart supermarket chain city are then finalized. This study adjusts and adds observation variables used to measure concepts in the research model. The result of qualitative research is that the scales have been corrected accordingly and the official survey form is used for quantitative research. The questionnaire was designed with a 5-point Likert scale to assess student's food purchase decision at Ho Chi Minh City Co-opMart supermarket chain. The official questionnaire consisted of 25 observation variables corresponding to six scales of the research model: (1) green commodity, (2) green cost, (3) green convenience, (4) green communication, (5) student's perception and,

(6) student's food purchase decision at Ho Chi Minh City Co-opMart supermarket chain.

The concept of green commodity is denoted by GCOMMO and measured by four observed variables; the concept of green cost is denoted by GCOST and measured by six observed variables; the concept of green convenience is denoted by GCON and measured by four observed variables; the concept of green communication is denoted by GCOMMU and measured by five observed variables; the concept of student's perception is denoted by SPER and measured by three observed variables; and the concept of student's food purchase decision at Ho Chi Minh City Co-opMart supermarket chain is denoted by SDEC and measured by three observed variables (see Table 1).

#### 3.2. Quantitative Research

Convenient sampling was also employed with the sample size of 500 students from the Business Administration faculty, HUTECH. A total of 500 questionnaires were distribute, 470 were collected, of which 444 were valid. Sampling was carried out according to two phases. Sample unit level 1 is the school year, choosing the third- and fourth-year students. Sample unit level 2 is the classroom and 10 classes were randomly surveyed, divided equally into five classes each.

The research process began with the elaboration of research objectives and the proposition of theoretical framework. The draft scale was then finalized by a focus group interview ( $n = 30$ ). The formal scale was finally arrived at and the quantitative research method was employed to quantify the factors affecting the student's food purchase decisions at Ho Chi Minh City Co-opMart supermarket chain. Primary data was processed by SPSS 20.0 software to measure the impact of factors affecting the student's food purchase decisions at Ho Chi Minh City Co-opMart supermarket chain, which used Cronbach's Alpha, Exploratory Factor Analysis, Multiple linear regression and PATH analysis.

### 4. Results

#### 4.1. Scale Reliability

In Table 2, Cronbach's alpha coefficients, which range from 0.739 to 0.820, demonstrate high reliability measurement scales. GCOST6 variable was eliminated after two analyzes to increase the Cronbach's Alpha coefficient from 0.749 up to 0.795.

#### 4.2. Exploratory Factor Analysis (EFA)

18 observed variables of four factors – green commodity, green cost, green convenience, and green communication – are analyzed by the Principal components analysis and Varimax rotation.

**Table 1:** Measurements

GCOMMO1	Green food sold in Co-opMart supermarket is manufactured according to environmental friendly standards.
GCOMMO2	Food at Co-opMart supermarket chain is stored in PE biodegradable bags.
GCOMMO3	Food at Co-opMart supermarket chain is packaged with banana leaves instead of nylon bags.
GCOMMO4	Co-opMart gives students a friendly bag when buying food.
GCOST1	Green food have a higher selling price than regular food.
GCOST2	Students are willing to spend more money on green food.
GCOST3	Co-opMart has an attractive pricing policy to attract students to use green food.
GCOST4	Students will buy an environmentally friendly bag to replace the nylon bag.
GCOST5	Students will receive a discount when bringing an eco-friendly bag to store their items.
GCOST6	Co-opMart has price comparison between regular food and green food.
GCON1	Co-opMart supermarket chain is widely distributed throughout Ho Chi Minh City.
GCON2	Students can easily buy green food at Co-opMart supermarket chain in Ho Chi Minh City.
GCON3	Co-opMart offers a free home delivery service for students who are loyal customers.
GCON4	Co-opMart is committed to fast home delivery.
GCOMMU1	Students are interested in green food advertising programs at Co-opMart.
GCOMMU2	Co-opMart adds points to students who are loyal customers when buying green food.
GCOMMU3	Co-opMart has green food program banners.
GCOMMU4	Students are interested in advertising green food programs on the billboards at Co-opMart.
GCOMMU5	Co-opMart offers lucky draw programs for students to buy green food.
SPER1	Buying green food at Co-opMart, students contribute to environmental protection.
SPER2	Students feel secure when buying green food at Co-opMart.
SPER3	Students enjoy buying green food at Co-opMart.
SDEC1	Students will continue to buy green food at Co-opMart.
SDEC2	Students will continue to buy green food at Co-opMart to protect the environment.
SDEC3	Co-opMart is the first supermarket that students think of when they have a need to buy green food.

**Table 2:** Cronbach's Alpha of Student's Food Purchase Decision Factor Scale

Factor	Observed Variables	Cronbach's Alpha
Green commodity	GCOMMO1, GCOMMO 2, GCOMMO3, GCOMMO4	0.739
Green cost	GCOST1, GCOS2, GCOS3, GCOS4, GCOS5	0.795
Green convenience	GCON1, GCON2, GCON3, GCON4	0.741
Green communication	GCOMMU1, GCOMMU2, GCOMMU3, GCOMMU4, GCOMMU5	0.761
Student's perception	SPER1, SPER2, SPER3	0.713
Student's food purchase decision	SDEC1, SDEC2, SDEC3	0.820

**Table 3:** Result of last Exploratory Factor Analysis

Rotated Component Matrix <sup>a</sup>				
	Component			
	1	2	3	4
GCOST5	0.762			
GCOST4	0.758	0.248		
GCOST2	0.689		0.239	
GCOST3	0.675		0.248	
GCOST1	0.600		0.259	
GCOMMU4		0.775		
GCOMMU2	0.235	0.685		
GCOMMU5		0.668	0.287	
GCOMMU3		0.638		
GCOMMU1		0.632		
GCOMMO1			0.746	
GCOMMO4			0.736	
GCOMMO2			0.699	0.287
GCOMMO3	0.212		0.673	
GCON3				0.781
GCON4				0.729
GCON2				0.695
GCON1		0.281		0.626

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

From the results of EFA in Table 3, the adjusted formal theoretical research model includes four factors influencing student's food purchase decision. Specifically, this model has five component variables, including four independent variables (green commodity, green cost, green convenience, and green communication) and a dependent variable (student's perception).

### 4.3. Regression Analysis

$$\begin{aligned} \text{Student's perception} = & a_0 + a_1 * \text{Green commodity} \\ & + a_2 * \text{Green cost} \\ & + a_3 * \text{Green convenience} \\ & + a_4 * \text{Green communication} \end{aligned}$$

$R$  value is  $0.814 > 0.5$ . So, this model is appropriate to use for evaluating the relationship between dependent and independent variables. In addition, the  $R^2$  is 0,663. This means the Multiple linear regression model is constructed in accordance with the 66.3% data. In other words, 66.3%

of student's perception is explained by the Multiple linear regression model. The rest is due to errors and other factors. The Durbin Watson test result = 1.992. It is in the range  $[1 < D < 3]$ . So, there is no correlation of the residuals.

In Table 4, the  $t$ -stat value of independent variables (green commodity, green cost, green convenience, and green communication) are higher than the value of  $> t_{\alpha/2}(1, n)$ . Four  $t$ -stats which range from 4.444 to 8.188 are higher than  $t_{0.025}(4.439) = 1.965$  and four Sig. values are lower than 0.05. In addition, the VIF coefficients of independent variables are lower than 2, indicating no multi-collinearity occurs.

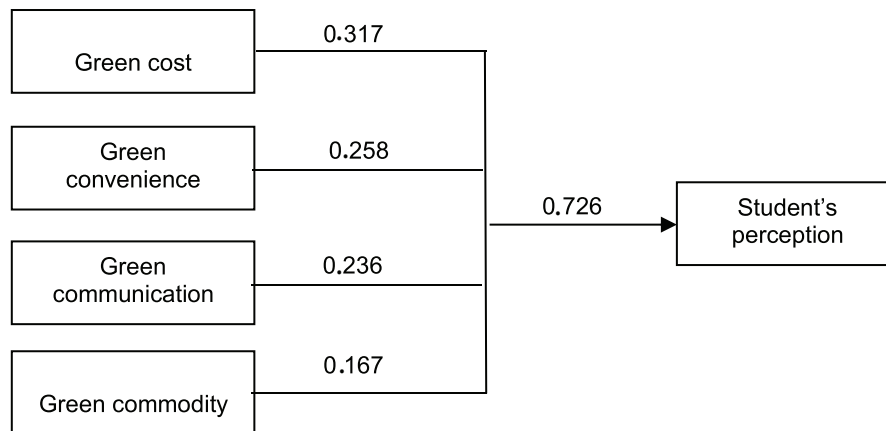
Based on Table 4, from the result of Standardized coefficients, the Multiple linear regression equation of the factors affecting the student's perception is as follows:

$$\begin{aligned} \text{Student's perception} = & 0.317 * \text{Green cost} \\ & + 0.236 * \text{Green communication} \\ & + 0.167 * \text{Green commodity} \\ & + 0.258 * \text{Green convenience} \end{aligned}$$

**Table 4:** Statistical Parameters of Regression Model

Model	Standardized Coefficients	<i>t</i>	Sig.	Collinearity Statistics
	Beta			VIF
(Constant)		6.232	0.000	
GCOST	0.317	8.188	0.000	1.388
GCOMMU	0.236	6.166	0.000	1.365
GCOMMO	0.167	4.444	0.000	1.311
GCON	0.258	6.802	0.000	1.335

Note: VIF: Variance Inflation Factor.  
Dependent variable: SPER.

**Figure 2:** Formal Adjusted Model of Student's Perception

Thus, the green commodity, green cost, green convenience, and green communication factors all have a positive influence on the student's perception. It means that the higher the green commodity, green cost, green convenience, and green communication, the higher the student's perception.

Among these four factors, the most influential factor is green cost, because its Standardized coefficient is highest ( $\beta = 0.317$ ). The followers are green convenience, green communication, and green commodity. Thus, hypotheses H1, H2, H3, H4 for the formal theoretical model of student's perception are accepted. Through the test results, the formal adjusted model of student's perception is shown as follows:

#### 4.4. PATH Analysis

PATH model is used to analyze the influence of green cost, green communication, green convenience, and green commodity factors (independent variables) on the student's food purchase decision factor (dependent variable) through

**Table 5:** Statistical Parameters of PATH Model

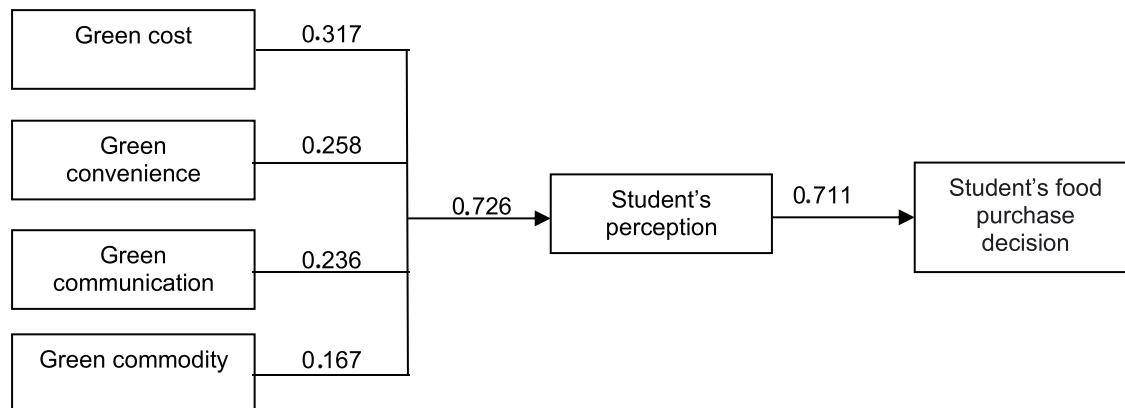
Model	Standardized coefficients	<i>t</i>	Sig.
	Beta		
(Constant)		3.139	0.002
SPER	0.711	21.284	0.000

Independent variable: Student's perception (SPER).  
Dependent variable: Student's food purchase decision (SDEC).

student's perception factor (intermediate variable). Analytical technique is also linear regression in which student's perception factor is independent variable and student's food purchase decision is dependent variable.

In Table 5,  $R$  value is  $0.711 > 0.5$ . So, this model appropriates to use for evaluating the relationship between dependent and independent variables. The  $t$ -stat value of independent variables (student's perception) = 21.284





**Figure 3:** PATH Model of Student's Food Purchase Decision

is higher than the value of  $t_{0.025}(1.443) = 1.965$  and Sig. values = 0.000 is lower than 0.05. So, the hypothesis H5 is accepted.

Based on Table 5, from the result of Standardized coefficient, the Simple linear regression equation of the factor student's food purchase decision is as follows:

$$\text{Student's food purchase decision} = 0.711 * \text{Student's perception}$$

Student's perception factor has a strong positive influence on the student's food purchase decision. It means that the higher the student's perception, the higher the student's food purchase decision.

$R_M^2$  fit coefficient of the PATH model:

$$R_M^2 = 1 - (1 - 0.527) * (1 - 0.506) = 0.7658 = 76.58\%$$

$R_M^2$  fit coefficient of PATH model is rarely high.

Base on Tables 4 and 5, the results of the formal PATH model is as follows:

## 5. Discussion

In the model proposed by the research team, four factors green commodity, green cost, green convenience, and green communication are studied in a new way is marketing 4Cs from the student's perception. All these factors have a position influence on student's food purchase decision at Co-opMart supermarket chain. The results showed that green cost factor has six observation variables (GCOST1, GCOST2, GCOST3, GCOST4, GCOST5, GCOST6) with GCOST6 variable eliminated after two analyzes to increase the Cronbach's Alpha coefficient (Table 2). In this research, green cost factor is still the top concern of students when they decide to buy green food at Co-opMart. This shows

that students have the price comparison between regular food and green food and willing to accept green food at high prices. They will choose where has an attractive pricing policy to attract students to use green food and tools to protect environment. This factor has the strongest influence (standardized  $\beta = 0.317$  and Sig.value less than 0.05) on student's perception, so the hypothesis H2 is accepted. This demonstrates that green cost factor is still the top concern of Co-opMart in attracting students to buy green food.

Green convenience factor is composed of four observation variables (GCON1, GCON2, GCON3, GCON4) and remained unchanged through Cronbach's Alpha analysis and EFA (Table 2, 3). The result shows that it has the second largest influence on student's perception (standardized  $\beta = 0.258$  and Sig.value less than 0.05), the hypothesis H3 is accepted. In order to improve student advantages when shopping green food, the leader of Co-opMart supermarket chain should develop a distribution network throughout Ho Chi Minh City. The supermarket stores must facilitate the student's purchase of green food and offer a free home delivery service as well.

Green communication factor is composed of five variables (GCOMMU1, GCOMMU2, GCOMMU3, GCOMMU4, GCOMMU5) and remained unchanged through Cronbach's Alpha analysis and EFA (Tables 2, 3). This factor has the third most powerful effect (standardized  $\beta = 0.236$  and Sig.value less than 0.05) on student's perception. The hypothesis H4 is accepted. This not only shows that students are interested in images and logos communicated on Co-opMart's media about green food as well as becoming loyal customers of Co-opMart, but also proves to bring the factor of green communication into enhancing student's food purchase decision is suitable.

Green commodity factor is composed of four observation variables (GCOMMO1, GCOMMO2, GCOMMO3, GCOMMO4) and remained unchanged through Cronbach's Alpha analysis and EFA (Tables 2, 3). The result shows that

this factor has the less influence on student's perception (standardized  $\beta = 0.167$  and Sig.value less than 0.05). The hypothesis H1 is accepted. Nowadays, Co-opMart supermarket chain wants to attract customers in general and student in particular to buy green food, then the green food sold in Co-opMart supermarket must be manufactured according to environmentally-friendly standards and stored in environmentally-friendly bags such as PE biodegradable bags, banana leaves instead of nylon bags, etc.

The student's perception is a intermediate factor in the PATH model to study student's food purchase decision at Co-opMart supermarket chain. The results show that the student's perception factor composed of three observed variables (SPER1, SPER 2, SPER 3) and remained unchanged by Cronbach's Alpha analysis (Table 2). This shows that students feel secure and enjoy when buying green food at Co-opMart. But above all, students contribute to environmental protection.

After being analyzed by Cronbach's Alpha, the student's food purchase decision factor retains three observed variables (SDEC1, SDEC2, SDEC3) (Table 2). This shows that Co-opMart is the first supermarket that students think of when they have a need to buy green food. And when students buy green food, they contribute to environmental protection of the country.

After two-stage regression analysis:

**Stage 1:** Green commodity, green cost, green convenience, and green communication factors (independent variables) have a proportional influence on the student's perception factor (dependent variable). The most influential factor is green cost, followed by green convenience, green communication, and green commodity. With  $R = 0.726$  and  $R^2 = 0.527$ , this is the appropriate model to use to evaluate the relationship between dependent and independent variables.

**Stage 2:** The student's perception factor (independent variable) has a fairly strong influence on student's food purchase decision factor (dependent variable) with  $R = 0.711$  and  $R^2 = 0.506$  (Table 5). The model explained 50.6% of the same effect direction on Student's perception with Student's food purchase decision.  $R_M^2$  fit coefficient of the PATH model is 0.7658 (76.58%). These results are rarely high figures, which show the interest of students in buying green food. These figures prove Co-opMart's worthy achievements from 1996 up to now.

The results show that students and society still have high confidence on buying green food at Co-opMart. This proves that using PATH to test the student's food purchase decision in an enhancement model is appropriate. So, choosing a supermarket to buy green food, Co-opMart is still the student's top choice. The more interested the society, the better the value of Co-opMart brand.

## 6. Implications and Conclusion

Most of the student's life during university hours and part-time work is tied to university and local residence. Private universities should build dormitories and canteens to provide students with a comfortable environment and an inviting setup for learning (Le, 2019). A university that meets not only elements of school facilities such as buildings, playgrounds, libraries, educational facilities, and natural surroundings around the school, but also dormitory for students near the supermarket, is a very competitive element to attract large numbers of students. Last, but not least, the universities should build dormitories and canteens to stabilize students' lives and mood for learning (Le, 2020). To enhance student's perception, Co-opMart must not only make all commitments to students as soon as they start buying and after using green food, but also raise consumer awareness of green food and promote this product to be increasingly popular in Ho Chi Minh City. Co-opMart needs to increase consumer awareness and concern for the environment to increase their decision to use green food. From here on, suggested implications include:

### 6.1. Regarding Green Cost

This is the strongest factor showing that students are interested in Ho Chi Minh City Co-opMart supermarket chains. Co-opMart needs to develop programs and policies to encourage customers to use environmentally-friendly products. For example, offer eco-friendly bags to customers when they purchase green food when spending over VND400,000 or give discounts or free parking to customers who bring eco-friendly bags. This solution encourages customers to use eco-friendly bags for regular food storage, or offers discounts for customers who carry these bags. Sales managers at Co-opMart must inform customers that green products such as vegetables, fruits, and vegetables are more expensive than in local and traditional markets. Because green food is not only produced and processed by high technology or GAP standards, but also well preserved. So, the product has clean, hygienic and safe food quality.

Co-opMart should organize well the supply of products from producers to consumers through supermarket intermediary so that low-income people and students buy green food here more and more because this is clean and safe green food for themselves and their families. If the Co-opMart supermarket system has a reasonable price compared to the traditional market, students and low-income people will be willing to buy green foods to satisfy their daily needs. Green foods sold at Co-opMart need to reduce the intermediates so that the products can avoid price pressure and discount. The most important issue is the publicity and transparency of information about prices and markets.

## 6.2. Regarding Green Convenience

Convenience is also an issue that customers are concerned with when purchasing green commodity in Co-opMart supermarket chains in Ho Chi Minh City, therefore, Co-opMart has to develop well its supermarket chain to help customers. Being more accessible products with green food, Co-opMart needs to expand its online ordering service. Co-opMart leaders should learn from the experience of the owner of a private university in Ho Chi Minh City, and private universities should cooperate with well-known supermarkets such as Aeon, Mini Stop, GS25, convenience stores, and others to open branches on campus to provide students with high-quality breakfast, lunch and dinner at reasonable prices. So, Co-opMart is the first choice to attract students to buy green food.

Poncin and Mimoun (2014) stated that the store atmosphere is used as a marketing tool, allowing retail managers to design and control environmental elements to reach customer behavior and create a positive shopping experience for the customers (Le, Nguyen & Pham, 2019). Thus, green products sold at supermarkets must be displayed in such a way that customers can easily identify them as well as facilitate shopping and each supermarket should have its own green product display area.

## 6.3. Regarding Green Communication

Co-opMart should be launching programs on environmental protection, health protection by using green food and environmentally-friendly products. Besides, organizing activities on green consumption day, non-nylon bag activities, and accompanying promotions and gifts to encourage consumers to use green food as well as increase their acceptance health protection for everyone. Co-opMart needs to build a program to accumulate points or use bonus stamps when students buy green food and collect enough points or stickers to buy discounted products according to the program's regulations. In addition, Co-opMart has increased the use of advertising for green products in schools, markets, and supermarkets to affirm consumers that using green products is environmentally friendly. It is imperative that the manufacturers use the environmental label, detailing the environmental information of the product and the enterprise on the product label or on the mass media. The most important issue now is for Co-opMart has to coordinate with universities to organize seminars on green food for students to help them understand and make use of green food more.

## 6.4. Regarding Green Commodity

Co-opMart should encourage businesses to use eco-labels, helping consumers to easily distinguish environmentally-

friendly products from standard products. Food bags in the Co-opMart supermarket chain should be gradually replaced with PE biodegradable bags, paper bags, or some foods so instead of using plastic bags or plastic containers only using at time. Green food must be diverse from vegetables, roots, fruits, and grains to meats and fish grown according to standards set by the state or relevant international organizations.

When using green products, students are wise in evaluating products and assessing whether enterprises apply environmental protection policies and activities or not. With the era of technology 4.0, students often use smartphones and computers to make purchases or use these tools to comment on the quality of goods through social networks. With the transmission speed of the community network, this is also an opportunity for manufacturers as well as sellers to provide good products to customers.

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