Determinants of Green Consumption of Generation Y in Chiang Mai, Thailand

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Abstract

This study aims to explore green consumption behavior, assess generation Y consumers' willingness to pay (WTP) price premium, and identify the factors that influence WTP price premium for green products. The word "green" means good for the environment. The authority in Chiang Mai, the second largest city in Thailand, is espousing strategies to transform it into a green city. Given that different generations hold diverse attitudes (including those related to the environment), the particular attitude of generation Y should be considered in the near future. Hence, this research surveys 1,200 Chiang Mai respondents. Results show that most generation Y consumers are concerned with green consumption, but such concern is at the medium level. Moreover, 78% of generation Y respondents are willing to pay price premium for green products (indicating that they can afford more of such products), but their level of acceptability still varies considerably. An ordered logit model shows that education level, income, gender, familiarity with green products, confidence in green product certifications, perception of green product quality, and degree of

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environmental concern significantly affect WTP price premium for green commodities.

Keywords: Green Consumer / Green Consumption / Generation Y / Willingness to pay

บทคัดย่อ

การศึกษาชิ้นนี้มีวัตถุประสงค์ในการค้นหาพฤติกรรมการบริโภคสินค้าสีเขียว ระดับความเต็มใจจะจ่าย Price premium และปัจจัยกำหนดความเต็มใจจะจ่ายสำหรับสินค้าสีเขียวของผู้บริโภคเจนเนอเรชั่นวาย (Generation Y) หรือเจนวาย ในจังหวัดเชียงใหม่ ซึ่งเป็นจังหวัดที่ใหญ่เป็นลำดับสองของประเทศไทย อีกทั้งยังวางนโยบายเป็นเมืองสีเขียวในอนาคตอีกด้วย เนื่องจากผู้บริโภคในแต่ละรุ่น (Generation) ต่างมีพฤติกรรมการบริโภคที่แตกต่างกัน และในอนาคตผู้บริโภคในกลุ่มเจนวายจะเป็นกลุ่มที่มีอิทธิพลในการกำหนดทิศทางการผลิตและการบริโภคของสังคม การศึกษาครั้งนี้เก็บแบบสอบถามจากผู้บริโภคเจนวายจำนวน 1,200 คน ผลการศึกษาแสดงให้เห็นว่า ผู้บริโภคเจนวายมีการบริโภคสินค้าสีเขียว แต่มีความถี่ในการบริโภคในระดับต่ำ นอกจากนั้นการศึกษายังพบว่า 78% ของกลุ่มตัวอย่างมีความเต็มใจจะจ่ายสำหรับสินค้าสีเขียว แสดงให้เห็นว่าผู้บริโภคกลุ่มนี้แท้จริงแล้วมีความสามารถในการจ่าย แต่ระดับของการยอมรับในสินค้าประเภทนี้ยังมีไม่สูงมากนัก แบบจำลอง Ordered Logit แสดงให้เห็นว่า ระดับการศึกษา รายได้ เพศ การรู้จักสินค้าสีเขียว ความมั่นใจในตรารับรอง ทัศนคติเกี่ยวกับคุณภาพของสินค้าสีเขียว และความวิตกกังวลถึงปัญหาสิ่งแวดล้อม เป็นปัจจัยที่มีอิทธิพลในการกำหนดความเต็มใจจ่ายสำหรับสินค้าสีเขียว

คำสำคัญ: ผู้บริโภคสีเขียว / การบริโภคสีเขียว / เจนเนอเรชั่นวาย / ความเต็มใจจ่าย

Introduction

Environmental problems including climate change, global warming, air pollution, waste disposal, and deforestation have garnered international attention over the past decades. This situation is true not only for governments or international institutions, but also for all people around the world. The effect is significant especially for the demand for “green products.”

“Green” often refers to products, services, or practices that allow for economic development while promoting conservation for future generations. Suciarto et al. (2015) claimed that green products are less harmful to the environment, in other words, they are environmentally friendly products. From a business perspective, Ottman (1997) referred to green products as commodities that protect or enhance the natural environment by conserving energy and/or resources while reducing or eliminating the use of toxic agents, pollution, and waste.

Consumers of green products are called “green consumers.” Despite the low number of green consumers compared with overall consumers, they have high purchasing power and their ranks continuously and significantly increase. Subsequently, the business segment of the world economy classified as the eco-industry or the green industry has grown dramatically.

A global survey in 2014 reported that 55% of consumers across 60 countries were willing to pay higher prices for goods from environmentally conscious companies. Organic food sales increased from 3.4 billion USD in 1997 to 35 billion USD in 2014, and growth is expected to continue strongly

until 2018 (Sena, 2016). Moreover, the international trade value of green products was approximated at 500 million USD in 2008 (Berry, 2007). A survey by AirDye (2011) revealed that green product demand in 2009 increased by 15% from the previous year, while two-thirds of green product consumption remained constant despite the impact of the economic downturn on consumers. In Thailand, many consumers have increased their demand for green products. A Kasikorn Research Center report in 2013 showed that overall market value of goods for green Thai consumers was approximately 126 trillion Thai Baht (Komchadluek, 2013).

Green products help people protect and sustain the environment. Thus, a clear understanding of green consumption behavior should be explored. Such investigation should examine the underlying motivation for purchasing green products and how successful marketing strategies corresponding to consumer demand can be implemented. Furthermore, different generations of consumers differ by green consumer pattern and motivation, as every generation has its own characteristics (Ordun, 2015). In this study, we focus on generation Y consumers.

Generation Y is the demographic group of individuals born between 1980 and 1994 (Kumar and Lim, 2008). They live in the digital era, have high education (Broadbridge et al., 2007), and have preferences and characteristics that are very different from their predecessors (Talbott, 2012). Generation Y also has more income and higher purchasing power compared with other generations (Morton, 2002; Cui et al., 2003). Apart from income, generation Y also has a high population. In Thailand, the current population pyramid indicates that generation Y will become the main cohort by 2020. Finally,

members of generation Y are expected to lead consumption trends and dominate future society.

Scant empirical studies exist on the consumption behavior of generation Y, and this situation is a factor in the failure of Thailand's domestic green market. Thus, the present study explores green consumption behavior by focusing on a pilot project on generation Y of Chiang Mai. As the largest province in northern Thailand, Chiang Mai is also one of the flagship provinces supported by the Thai government, hence its selection for this study.

This study aims to explore green consumption behavior, assess generation Y consumers' willingness to pay (WTP) price premium, and identify the factors that influence WTP price premium for green products. In this study, the term "green" specifically means "good for the environment."

Methodology

WTP refers to the maximum price at which a consumer will buy a product; thus, WTP also corresponds to the standard economic view of consumer reservation price. In the present study, WTP suggests the extent to which people can voluntarily accept green products. A higher WTP indicates higher environmental concern. Several approaches exist for measuring consumer WTP, and conducting surveys is one of the widely accepted methods.

This study applies ordered logit regression to analyze the determinants of WTP price premium. Independent variables were derived from review of

literature. The standard ordered logit method is applied to estimate the overall effects of independent variables.

Respondents from Amphoe Meaung comprise 36.21% of total respondents; Amphoe Mae Rim, 20.04%; Amphoe San Sai, 17.91%; Amphoe Saraphi, 14.71%; and Amphoe Hang Dong, 11.13%. Table 1 presents a summary of the main characteristics of the respondents.

Table 1 Characteristics of the Sample

Characteristic		Percent	Characteristic		Percent
Sex	Male	34.24%	Age	Average age	28.03 Years old
	Female	63.44%	Marriage	Single	63.08%
	Transsexual	2.32%		Married	33.24%
				Others	3.68%
Occupation	Government officer	18.01%	Education Level	Under diploma	10.84%
	Business owner	23.72%		Diploma	7.78%
	Employee	29.53%		Bachelor's degree	75.57%
	Retried/ House wife	1.06%		Higher than Bachelor's degree	5.81%
	Student	22.75%			
	Others	4.93%			

Table 1 (continued)

Characteristic		Percent	Characteristic		Percent
Household Income	< 15,000 THB	3.19%	Income	< 15,000 THB	36.50%
	15,000 – 35,000 THB	25.56%		15,000 – 25,000 THB	43.66%
	35,001 – 50,000 THB	36.69%		25,001 – 35,000 THB	15.30%
	50,001 – 100,000 THB	25.85%		> 35,000 THB	4.54%
	> 100,000 THB	8.71%			

Source: Survey

Table 1 shows the descriptive and summary statistics of socioeconomic variables. Among the respondents, results show that 655 (63.44%) are female. Average age is 28 years old, whereas bachelor's degree education dominates the respondent group at 75.57%. Moreover, 43.66% of the respondents earn between 15,000 to 25,000 THB monthly, while only 4.54% have a monthly income of more than 35,000 THB.

Result

This segment presents the results of this study in two sections. Section I tackles consumer perception of green products, frequency of green consumption, and environmental concern. Section II highlights the determining factors of WTP price premium for green products.

Section I: Consumers of green products and their environmental concerns

1. Consumer perception of green products

To evaluate generation Y respondents' perception of green products, the following questions were asked: "Are you familiar with green products?" and "Do you have confidence in green product certifications, such as green labeling, Q standard certification, the organic Thailand's Brand, and International Federation of Organic Agriculture Movements (IFOAM) certification?"

This study found that 48.65% of generation Y consumers are unsure about which products are green or not. Moreover, half of the respondents do not have confidence in green product certifications (e.g., green labeling, Q standard certification, the organic Thailand's Brand, and IFOAM certification).

Asked to compare the quality of green and non-green products, most of the respondents (57.75%) think that green products are of higher quality, while 36.40% perceive green products as having the same quality as non-green products. Only 5.91% deem green products as having lower quality compared with their counterparts.

2. Frequency of green consumption

To evaluate green consumption patterns, respondents were asked the following questions: "How often have you bought green products in the last three months? Rate as "Never," "Sometimes," "Very often," or "Regularly."

Table 2 Frequency of green consumption

Category of green products	Never	Sometimes	Very often	Regularly	Mean	SD
1. Food and drinks, e.g., organic food or Doi Kham pesticide residue-free vegetables	139 (13.44%)	628 (60.74%)	204 (19.73%)	63 (6.09%)	1.18	0.74
2. Electronics and appliances, e.g., no. 5 energy-saving light bulb	169 (16.34%)	576 (55.71%)	174 (16.83%)	115 (11.12%)	1.23	0.85
3. Healthcare and cosmetic products, e.g., natural cosmetics: Skin Food, Body Shop, or Oriental Princess	178 (17.21%)	529 (51.16%)	226 (21.86%)	101 (9.77%)	1.24	0.85
4. Office equipment, e.g., recycled paper or Idea Green paper	148 (14.31%)	537 (51.93%)	260 (25.15%)	89 (8.61%)	1.28	0.82
5. Biodiesel fuel, e.g., B5	605 (58.51%)	282 (27.27%)	119 (11.51%)	28 (2.71%)	0.58	0.80
6. Textile and clothing	538 (52.03%)	383 (37.04)	98 (9.48%)	15 (1.45%)	0.60	0.72
Average					1.02	0.79

From Table 2, most generation Y respondents often use high-intensity green products, but at low frequency (average mean of 1.02 and S.D. of 0.79). The three most popular green product categories are office equipment, electronics and appliance, and healthcare and cosmetics. Products rarely used by respondents include biodiesel fuel and textile and clothing.

3. Environmental concern

To explore the environmental concern of generation Y respondents, seven questions were considered. A Likert-like scale with five agreement–disagreement points was employed, where 1 meant “strongly disagree” and 5 meant “strongly agree.”

Table 3 Consumer environmental concern

Statements	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	SD
1. I am concerned with environmental problems in Chiang Mai.	2 (0.20%)	7 (0.70%)	114 (11.00%)	597 (57.80%)	313 (30.30%)	4.17	0.65
2. I feel bad knowing that I used products that damage the environment.	-	14 (1.40%)	209 (20.20%)	658 (63.70%)	152 (14.70%)	3.92	0.63
3. Environmental protection is the responsibility of everyone.	-	8 (0.80%)	119 (11.50%)	554 (53.60%)	353 (43.10%)	4.21	0.67
4. Some pollution is inevitable even if we continue to improve our standard of living.	23 (2.22%)	109 (10.54%)	135 (13.06%)	551 (53.29%)	216 (20.89%)	2.20	0.96
5. Even if a business is forced to spend considerable resources for environmental protection, it can still invest in research and development, and Thailand will remain competitive in the international market.	107 (10.30%)	493 (47.70%)	247 (23.90%)	132 (12.80%)	55 (5.30%)	2.55	1.01
6. I think it is important to protect the earth for the next generation.	2 (0.20%)	9 (0.90%)	276 (26.70%)	462 (44.70%)	284 (27.50%)	3.98	0.77
7. I am very concerned about the extinction of human and non-human species.	2 (0.20%)	9 (0.90%)	339 (32.80%)	412 (39.90%)	271 (26.2%)	3.91	0.80
Average						3.56	0.78

As illustrated in Table 3, generation Y consumers show “moderate” levels of environmental concern, with a mean score of 3.56 out of 5. Statements 3, 1, 6, 2, and 7 have good correspondence with generation Y consumers with average scores of 4.21, 4.17, 3.98, 3.92, and 3.91, respectively.

Section II: Determining factors of WTP price premium for green products

Table 4 Distribution of respondents by their WTP price premium category

WTP category	Frequency (Percentage)
Not willing to pay a price premium	226 (21.86%)
Willing to pay 1%–5% price premium	449 (43.42%)
Willing to pay 5%–10% price premium	205 (19.82%)
Willing to pay >10% price premium	154 (14.90%)

As shown in Table 4, most respondents (78.14%) are willing to pay the price premium for green products. In particular, 43.42% and 19.82% of the respondents would accommodate price premiums of 1%–5% and 5%–10%, respectively. Conversely, 21.86% of respondents are not willing to pay a price premium for green products.

Variables and measurement

Socioeconomic variables

1. The education variable recorded the education level of respondents. Respondents are divided into two categories: “Bachelor’s degree or lower” and “Higher than Bachelor’s degree.” Hence, more educated individuals are expected to pay more for green products.

2. The income variable provides a measure of the ability of respondents to pay according to their "self-reported monthly income." This variable is recorded in four categories: "Income of <25,000 THB monthly," "Income of 25,001–35,000 THB monthly," "Income of 35,001–50,000 THB monthly," and "Income of >50,000 THB monthly." Here, income is hypothesized as having a positive influence on the consumers' willingness to pay a higher price for green products.

3. Respondent status is recorded in three categories: "Single," "Married," and "Widowed/Divorced/Separated."

Perception and attitude variables

To evaluate perception and attitude, respondents were asked pertinent questions.

1. Familiarity: Are you familiar with green products?

The answers are "I know," "Not sure," or "I don't know."

2. Confidence: Do you have confidence in green product certifications, such as green labeling, Q standard certification, the organic Thailand's Brand, and IFOAM certification?

The answers are "Yes," "No," or "Not sure."

3. Quality: How do you compare the quality of green products with regular ones?

The answers are "Higher quality" and "Not higher quality."

4. Concern: Degree of environmental concern is a basic measure in determining consumer WTP price premium. For this variable, the average

level of concern was itemized using seven questions. A Likert-type scale was used, where 5 refers to highest concern.

The definitions of independent variables are presented in Table 5.

Table 5 Definition of independent variables used in the model

Variable definitions		Code	Frequency
Education	Bachelor's degree or lower = 0; Higher than a Bachelor's degree = 1	Edu	60
Monthly income	25,001–35,000 THB = 1, Otherwise = 0;	Income1	158
	35,001–50,000 THB = 1, Otherwise = 0; >50,000 THB = 1, Otherwise = 0	Income 2 Income 3	30 17
Status	Married = 1, Otherwise = 0; Widowed/Divorced/Separated = 1, Otherwise = 0	Status1 Status2	344 38
Familiarity with green products	Know = 1, Otherwise = 0	Familiar	332
Confidence in green product certifications	Trust = 1, Otherwise = 0	Certificate	333
Quality of green products compared with regular ones	Higher quality = 1, Otherwise = 0	Quality	596
Environmental Concern	Mean score of environmental concern (1–5 score)	Concern	Mean = 3.54

The estimation of ordered logit regression is reported in Table 6. The WTP price premium of generation Y consumers is influenced by various

factors. Among them, results showed that education level has a strong positive relationship with WTP at 99% confidence level. Generation Y consumers with higher education are willing to pay more at price premium for green products relative to conventional products. Average marginal effect is approximately 0.05, suggesting that consumers who completed a degree higher than the Bachelor's degree are approximately 5% more inclined toward WTP price premium compared with Bachelor's degree graduates or non-graduates. One reason could be that educated people are more conscious of health and environmental problems, and they also have high levels of social responsibility.

Table 6 Coefficients of ordered logit equation of WTP price premium and their average marginal effect

Variables	Coefficients	Average marginal effect
Level of education	0.3262*** (0.16)	0.0537
Income: 25,001–35,000 THB	0.3618*** (0.17)	0.0595
Income: 35,001–50,000 THB	0.7197*** (0.36)	0.1183
Income: >50,000 THB	1.298*** (0.50)	0.2136

Table 6 (continued)

Variables	Coefficients	Average marginal effect
Status: Married	-0.2442**	-0.0402
	(0.14)	
Status: Widowed/Divorced/Separated	-0.9878***	-0.1625
	(0.32)	
Familiarity with green products	0.6373***	0.1048
	(0.20)	
Confidence in green product certifications	0.6030***	0.0992
	(0.20)	
Quality of green products compared with regular ones	0.3769***	0.0619
	(0.12)	
Environmental concern	0.3826***	0.0629
	(0.13)	
Statistical report:		
log likelihood	-1279.4711	
Pseudo R-square	0.0287	
LR chi2	75.52	
Prob > chi2	0.0000	
Number of observations	1015	

Remarks: *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors in parentheses.

The income variable, as expected, showed positive signs on all income coefficients at the 99% confidence level, signifying that WTP price premium increases along with the income of generation Y consumers. Such finding present a logical conclusion of consumer purchase pattern caused by the rise of purchasing power. Compared with the average marginal effects of

other independent variables, income is the most important determinant of WTP for generation Y in Chiang Mai province.

As for the variable on respondent status, this study found that generation Y consumers who are single are likely to pay an extra price for green products compared with the other respondents (i.e., married or widowed/divorced/separated).

Familiarity with green products show a strong positive relationship to WTP, suggesting that generation Y consumers aware of green products are willing to pay more for them. Average marginal effect is approximately 0.10, which reveals that generation Y consumers familiar with green products are willing to pay 10% more compared with others. Similarly, generation Y consumers who have confidence in green product certifications (e.g., green labeling, Q standards, Thailand's Brand, and IFOAM) are likely to pay higher for green products.

With regard to the quality variable, results showed a positive relation between trust in green product quality and WTP. Generation Y consumers who believe that green products have higher quality than non-green ones are more likely to pay a higher price premium.

In terms of environmental concern, results indicate a significantly positive effect on WTP by environmental concern. This correlation suggests that generation Y consumers with higher levels of concern seem willing to pay more for green products. An increase in environmental concern also

increases WTP by 7%. The environmental concern of consumers is likely to lead to green buying behavior.

In conclusion, results exhibit the strong effects of education level, income level, status, familiarity with green products, cognizance of green product certifications, cognizance of green product quality, and level of environmental concern on WTP for all available specifications. These outcomes indicate that solving environmental problems by increasing environmental consciousness is complicated. Such problems require the participation of both society and government. Individuals should take a mature view of social responsibility by education. Conversely, the government should extend support by promoting confidence in green products.

Conclusion

Green growth is an important issue in Thailand, particularly in Chiang Mai, which is one of its pilot provinces. This paper evaluates the WTP of generation Y consumers of green products in that province. Findings indicate that majority of generation Y consumers are willing to pay a price premium of 1% to 5% for green products, which can be viewed as the cost of investment in human health and world environment.

Moreover, most generation Y consumers are concerned with green consumption, but only at the medium level. Additionally, 78% of generation Y are willing to pay at price premium, implying that generation Y consumers can afford to pay more for green products, although their level of acceptability varied considerably. Ordered logit model showed that

education level, income, gender, familiarity with green products, confidence in green product certifications, perception of green product quality, and degree of environmental concern significantly affect WTP price premium for green commodities.

Results further showed that knowledge of green products and confidence in green product certifications among the generation Y respondents are satisfactory but not adequate. Hence, awareness raising programs for existing and new consumers may be an effective mechanism for promoting green products in future. Moreover, awareness and trust in certification can be increased through efforts such as campaigns and demonstrations.

Finally, for policy implications, considerable effort should be made toward promoting confidence in green product certification, improving consumer perception of green product quality, and increasing the levels of environmental concern. If consumers lack any of the aforementioned, the green product market cannot succeed in Thailand.

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