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Consumer preferences, willingness to pay and ability to pay for fresh organic vegetables in Chiang Mai province

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ABSTRACT

Nowadays the awareness of environmental and health issues related to food consumption has increased in Chiang Mai, Thailand. This results in the augmentation of quality and chemical-free food products. Fresh organic vegetables thus are the one popular choice for Chiang Mai consumers. The research on demand for fresh organic vegetables has become the keynote for improving these products to meet consumer needs. This paper focuses on consumers' purchasing decisions and evaluations of willingness to pay (WTP) and ability to pay (ATP) for fresh organic vegetables by using conjoint analysis and double-bounded contingent valuation method. A case study is conducted on leafy (cabbage and kale), fruit (tomato and cucumber), and root (carrot and onion) vegetables. The results represent that the respondents put the highest relative importance on price and certification seal of fresh organic vegetables and are willing to pay price premiums between 53% and 88%. In addition, the ATP evaluation indicates that the respondents sufficiently afford fresh organic for their consumption. The findings of this paper can help advising on implementing fresh organic vegetables policies in Thailand, particularly in Chiang Mai province.

Keywords: Consumer preferences, willingness to pay, contingent valuation method, ability to pay, fresh organic vegetables

1. Introduction

At present, the awareness of environmental protection and health care are the crucial issues bringing about the increasing in quality and chemical-free food consumption in Thailand. These consumption changes result in the continuous expansion of the organic agricultural product markets. Among the organic food items, fresh vegetables are the important issues of consumers' concern because the conventional vegetable production systems intensively use chemical insecticides and fertilizers leading to contaminant residues in products causing various disadvantages to health (Vanit-Anunchai & Schmidt, 2004). Thus, the organic fresh vegetables become the popular agricultural products.

In Chiang Mai Province, the center of the northern of Thailand, fresh organic vegetables are popular among health-caring consumers and farmers. On the supply side, Sudtasan and Suriya (2012) discovered that organic agriculture benefits well for farmers after passing the transitional period from conventional agriculture to organic agriculture which usually took place around 3 years. Moreover, organic agricultural products are crucial for the creation of value-added in agro-industrial industry which will lead to significant impact on the nationwide economy of Thailand (Kanjanatarakul and Suriya, 2012).

On the demand side, the augmentation of green markets, green shops and green consumer networks are the confirmation of consumer awareness. Even if consumers recognized the value of fresh organic vegetable consumptions, most of them are faced with the higher price of organic vegetables relative to conventional vegetables. The inappropriate high price of the organic product tends to decrease the demand for fresh organic vegetables of the consumers being affordability to pay, and lose the demand for fresh organic vegetables of the consumers who have not purchasing power. Furthermore, the product development ignoring the consumer preferences is the one reason having negative impacts on consumers' attention and affecting the sustainable increase in demand for organic vegetables.

Consequently, this paper focuses on the specification of the fresh organic vegetable attributes on which consumers place importance and the value measurement of fresh organic vegetables for which the consumers are willing to pay (WTP) and ability to pay (ATP) to know the effective demand being truly indicative of the consumer accessibility and the market sustainability. The contributions of this paper benefit for advising on implementing fresh organic vegetables policies in Thailand, particularly in Chiang Mai province. The rests of this paper are structured as follows. Section 2 concerns with the literature review of this study. Section 3 describes the methodology used to estimate consumer preferences, willingness to pay and ability to pay for fresh organic vegetables. Section 4 deals with the sources of information used in the estimation and discusses the experimental design. The results and discussion are presented in section 5 and section 6 summarizes the study's findings.

2. Literature review

In various researches involving in consumer preferences, the widespread tool using for addressing the important attributes of products being attractive to the consumers is conjoint

analysis (CA). CA is developed as an evaluation technique from the mathematical psychology to establish the relative importance of the multidimensional attributes of products (Green & Wind, 1975; Bruchhaus & Hinson, 2005). This method can evaluate the individual or path worth utility values for each attribute that benefit for product development.

In order to analyze consumers' WTP for fresh organic vegetables, the well-known method is contingent valuation method (CVM). CVM used in food safety and food quality support (Fu et al. 1999; Boccaletti & Nardella, 2000; Nayga et al., 2004; Vanit-Anunchai & Schmidt, 2004) consists of single-bounded approach, double-bounded approach, and multiple-bounded approach. The first approach is easy to collect data because it involves in asking one question and one bid, however, unreal information may be obtained. Meanwhile, the last approach provides a chance to get actual premiums for which the consumer are willing to pay, but it takes a lot of time to receive the data with asking more than one question and more than one bid. Accordingly, this paper focuses on closed-ended question with double-bounded approach, also known as double-bounded dichotomous choice approach.

For the evaluation of ATP, most of research focuses on health care services (Russell, 1996; Nair & Dhingra, 1998; Domenighetti et al., 2010) and economic infrastructures (Yu et al., 2001; Guyatt et al., 2002; Al-Ghuraiz & Enshassi, 2005; Fankhauser & Tepic, 2005). The major methodology to assess ATP is expenditure ratio. Thus, this paper applies the expenditure ratio to measure ATP for fresh organic vegetables.

3. Methodology

In this paper, we employ three methodologies to acquire consumer preferences, willingness to pay (WTP), and ability to pay (ATP) for fresh organic vegetables consist of conjoint analysis (CA), contingent value method (CVM) with double-bounded dichotomous choice approach, and expenditure ratio, respectively.

Consumer preferences: conjoint analysis (CA)

Conjoint method was introduced in seminal paper by Luce & Turkey (1964), Krantz (1964), and Tversky (1967) and was initially applied in the working paper by Green & Rao (1969) and in the book by Green & Carmone (1970) (Green & Srinivasan, 1978). At present, CA is the one widespread method in marketing research and useful for investigating consumer preferences via the relative importance estimation of different attributes in goods and services (Van der Pol & Ryan, 1996; Campbell et al., 2004; Jan et al., 2007). In this method, the consumers will assess the total value of given product by combining the individual value provided by the particular level of each product attribute relevant to consumers (Hair et al., 1998). It brings about the outstanding product characteristics that attract the consumers.

CA model can be used for evaluating the parameters of various attributes with the utilities stated by the respondents. The specification of CA model deal with two major steps consist of specifying the product attributes and combining each attribute to the CA model for estimation (Halbrendt et al., 1991). Hence, the CA model can be expressed as:

$$U_i = \phi_0 + \sum_{j=1}^{J} \phi_{1j} A_{1j} + \sum_{k=1}^{K} \phi_{2k} A_{2k} + ... + \sum_{l=1}^{L} \sum_{m=1}^{M} \phi_{lm} A_{lm} + \varepsilon_i \quad (1)$$

where U_i is the utility ranking or rating established by the ith respondent, A_{1j} is the dummy of the 1st attribute with the jth level (presence = 1, otherwise = 0), A_{2k} is the dummy of the 2nd attribute with the kth level (presence = 1, otherwise = 0), A_{lm} is the dummy of the lth attribute with the mth level (presence = 1, otherwise = 0), and ϕ_0, ϕ_{1j}, ϕ_{2k}, ..., ϕ_{lm} are the unknown parameters. These parameters are often referred to the important weights that convert units of attribute (A_{lm}) to the part-worth utilities (Green et al., 1972).

In order to analyze the importance of an attribute, I_l, it firstly define the range of the part-worth, ϕ_l, across the level of that attributes (Sayadi et al., 2005). The formula can be shown as follows:

$$I_l = \left[\max(\phi_l) - \min(\phi_l)\right] \quad ; \text{for each } l \quad (2)$$

Then, the relative importance of each attribute, R_l, is calculated by normalizing its importance relative to other attributes.

$$R_l = \frac{I_l}{\sum_{l=1}^{L} I_l} \quad (3)$$

where l refers to number of product attributes and $\sum_{l=1}^{L} I_l = 1$.

Willingness to pay (WTP): contingent value method (CVM)

CVM is a well-known technique used for appraising WTP, particularly environmental goods and food safety (Vanit-Anunchai & Schmidt, 2004). There are two procedures asking the respondents to state their WTP for product, namely, the opened-ended question and closed-ended question. The first procedure will interrogate the respondents to reveal the maximum amount of WTP for given product. On the other hand, the second procedure will query the respondents to state their WTP by given a specific amount or bid for the product. This consists of three approaches such as single-bounded approach – asking one question and one bid, double-bounded approach – asking two questions and two bids, and multiple-bounded approach – offering more than two bids. This paper focuses on closed-ended question with double-bounded approach, also known as double-bounded dichotomous choice approach.

The double-bounded dichotomous choice approach extends the concept from the single-bounded approach (Hanemann, 1985; Hanemann et al., 1991). The initial question

initiates a first bid, B^F, and the respondent can answer either "yes" or "no". Then, the question of second bid depended on the first answer is asked. If the respondent replies to "yes" to the first bid, the second bid, B^U, will be higher than the first bid, $B^U > B^F$, and it is called "upper-bound". On the other hand, if the respondent answers "no", the second bid, B^L, being lower than the first bid, $B^L < B^F$, is questioned and it is called "lower-bound". There are four possible outcomes from the second bid: yes-yes (D^{YY}), yes-no (D^{YN}), no-yes (D^{NY}), and no-no (D^{NN}). The probabilities of these outcomes are as follow:

$$\Pr(yes-yes) = \mathrm{P}^{YY} = \Pr(B^U \le WTP) \tag{4}$$

$$\Pr(yes-no) = \mathrm{P}^{YN} = \Pr(B^F \le WTP < B^U) \tag{5}$$

$$\Pr(no-yes) = \mathrm{P}^{NY} = \Pr(B^L \le WTP < B^F) \tag{6}$$

$$\Pr(no-no) = \mathrm{P}^{NN} = \Pr(0 \le WTP < B^L) \tag{7}$$

The WTP function formed by multiplying the four different probabilities of each individual and estimated by likelihood function can be expressed as:

$$L = \prod_{i=1}^{N} \left[\left(\mathrm{P}_i^{YY}\right)^{D^{YY}} \cdot \left(\mathrm{P}_i^{YN}\right)^{D^{YN}} \cdot \left(\mathrm{P}_i^{NY}\right)^{D^{NY}} \cdot \left(\mathrm{P}_i^{NN}\right)^{D^{NN}} \right] \tag{8}$$

The equation (8) can be transformed into log-likelihood function as follows:

$$\ln L = \sum_{i=1}^{N} \left[D^{YY} \ln \mathrm{P}_i^{YY} + D^{YN} \ln \mathrm{P}_i^{YN} + D^{NY} \ln \mathrm{P}_i^{NY} + D^{NN} \ln \mathrm{P}_i^{NN} \right] \tag{9}$$

where $D^{YY}, D^{YN}, D^{NY}, D^{NN}$ are binary valued indicator variables and equal to one when the two responses are yes-yes, yes-no, no-yes, and no-no, respectively, and equal to zero otherwise.

Ability to pay (ATP): expenditure ratio

Ability to pay refers to whether a person (or group of people) can reasonably find the means to pay for something. Many economists have an effective concept to examine ATP on demand-based approach, defined as WTP and ATP. Consumers are assumed to be able to afford anything they are willing to pay because they know how to allocate their resources (Russel, 1996). Consequently, ATP assumes that the consumers have enough resources to pay for the basic goods and services and they are affected by multiple factors (Nair & Dhingra, 1998). In various ATP research, the major determinants influenced on the level of consumers' ability to pay are their income and expenditure (Russel, 1996; Nair & Dhingra, 1998; Yu et al., 2001; Guyatt et al., 2002; Al-Ghuraiz & Enshassi, 2005).

The expenditure ratio applied to measure ATP is shown as:

$$ATP_i = \frac{I_i^d \times CS_i}{\overline{WTP}} \quad (10)$$

where ATP_i denotes the ability to pay of individual i[th], I_i^d is income of individual i[th], CS_i is consumption share of individual i[th], and $\overline{WTP}$ refers the mean willingness to pay.

4. Data collection and experimental designs

Sample selection and data collection

The consumer survey is conducted in Chiang Mai Province, Thailand. We focus only on urban area because the most of fresh organic vegetables are sold at a premium which can hardly be afforded by the poor people in the rural areas. Additionally, the lifestyle of rural people regarding home-gardens vegetables consumption is the one crucial reason that may have a negative effect on the actual WTP data. Within this area, we specifically select four different sampling points for consumer interviewing consist of hypermarkets, supermarkets, green shops, and fresh markets. There are 400 respondents selected from purposive sampling procedure and the data are received by face-to-face interviews conducting from July 1, 2011 to August 31, 2011.

Experimental design of CA

For establishing the appropriate attributes and their levels in CA method, we initially use the pre-survey for interviewing fifty respondents being in various ages, genders, and education levels. Four attributes are finally selected as the most important characteristics for the fresh organic vegetables, namely, appearance, packaging, certification, and price. These attribute selected and their levels are shown in Table 1.

TABLE 1. Definitions of Attributes and levels of fresh organic vegetables in the experiment

Attributes	Attribute levels	Definitions
Appearance	App1	Slightly damage
	App2	No damage
Packaging	Pack1	Packed
	Pack2	Unpacked
Certification	Cert1	Certification seal
	Cert2	No certification seal
Price	Price1	100% increase from conventional price
	Price2	75% increase from conventional price
	Price3	50% increase from conventional price

When the attributes and their levels have been selected, they must be combined to hypothetical combinations and utility rank order must be assigned to products. If we were to use a full profile technique using all possible combinations of attributes and levels, a large number of possible choices would be generated, such that there are 2×2×2×3, or 24 product profiles. To cope with this problem, the orthogonal fractional factorial design is used for reducing the number of profiles. Using SPSS Conjoint, we obtain eight hypothetical combinations or cards generated by orthogonal fractional factorial design shown in Table 2.

TABLE 2. Orthogonal fractional factorial design for fresh organic vegetables

Cards	Appearance	Packaging	Certification	Price
1	App2	Pack2	Cert1	Price3
2	App1	Pack2	Cert2	Price2
3	App2	Pack2	Cert2	Price1
4	App2	Pack1	Cert2	Price1
5	App2	Pack1	Cert1	Price2
6	App1	Pack1	Cert2	Price3
7	App1	Pack1	Cert1	Price1
8	App1	Pack2	Cert1	Price1

The analytical CA model thus can be expressed as:

$$U_i = \phi_0 + \sum_{j=1}^{2} \phi_{1j} App_j + \sum_{k=1}^{2} \phi_{2k} Pack_k + \sum_{l=1}^{2} \phi_{3l} Cert_l + \sum_{m=1}^{3} \phi_{4m} price_m + \varepsilon_i \qquad (11)$$

where U_i is the utility rating, 1 to 10 referring the least to the highest utilities, established by the i^{th} respondent. The consumer preferences are evaluated by using SPSS conjoint.

Experimental designs of CVM and ATP analyses

In terms of CVM, we categorize the fresh organic vegetable to three groups such as leafy vegetables (cabbage and kale), fruit vegetables (tomato and cucumber), and root vegetables (carrot and onion). The data evaluated in CVM are generated by double-bounded dichotomous choice survey. We initially start with setting up the current prices of fresh conventional vegetables based on Talaad Thai's prices, the major market for agricultural products of Thailand. After that, we use these prices as the base in order to determine the subsequent first and second bids according to the maximum WTP of the respondents in the pre-survey. It results in three price levels of the first bid, the lower

second bid and the upper second bid consist of 45, 35, 55 baht/kg for cabbage, kale, and tomato; 40, 30, 50 baht/kg for cucumber; and 50, 40, 60 baht/kg for carrot and onion, respectively. Moreover, we finally question the respondents refusing both bids (no-no responses) and accepting both bids (yes-yes responses) to identify the maximum WTP for fresh organic vegetables. These values are designated for the range of WTP.

For ATP analysis, we use the data dealing with income, vegetable consumption share, and respondents' WTP and apply the expenditure ratio as shown in the previous section (equation 10) to estimate the quantities of fresh organic vegetables for which the respondents can purchase.

5. Results and discussion

Consumer preferences for fresh organic vegetables

The conjoint analysis is used to simulate consumer choices and to explore which fresh organic vegetable attributes attract the consumers. The results of consumer preferences for fresh organic vegetables indicate that price was the most preferred attribute, with 38.35% relative importance comparing with the rest of attributes. It shows that a majority of the consumers are willing to pay higher price for their health benefits. Meanwhile, certification seal is ranked second, with 36.74% relative importance, followed by appearance and packaging, with 15.72% and 14.57% relative importance, respectively, as illustrated in Table 3. These findings correspond to the studies of Piyasiri & Ariyawardana (2002), Vanit-Anunchai & Schmidt (2004), Bruchhaus & Hinson (2005), and Abdul Hadi et al. (2010) suggested that price is a crucial attribute to be considered in consumer preferences. In terms of fresh organic vegetable prices, the consumers' utility value of 50% increasing of organic price from conventional price is higher than the utility value of 75% and 100% increasing of organic price from conventional price, respectively. In the context of certification seal, fresh vegetables dealing with no organic certification seals are less prefer than fresh vegetables having organic certification seals, with utility value, 0.6071 and 1.2141, respectively.

TABLE 3. Utility and relative importance of attribute for fresh organic vegetables

Attributes	Attribute levels	Utility	Relative importance (%)
Appearance	App1	0.4509	15.72
	App2	0.9018	
Packaging	Pack1	1.2141	14.57
	Pack2	0.6071	
Certification	Cert1	2.0504	31.36
	Cert2	1.0252	
Price	Price1	1.1294	38.35
	Price2	2.2588	
	Price3	3.3881	

For the appearances of fresh organic vegetables, the utility for slightly damage and no damage are 0.4509 and 0.9018, respectively, which indicated that both are preferred by consumers. These results are similar to the suggestions of Sun & Collins (2002), and Abdul Hadi et al. (2010) stating that appearance is very important in the perspective of the food quality. The consumers often assume that the slightly damaged vegetables may not be good in quality. Another significant finding reveals that unpacked fresh organic vegetables are not higher preferred than fresh organic vegetables having packaging as the utility are 0.6071 and 1.2141, respectively. This result indicates that the packaging of the products will bring about a sense of security to the consumers.

Consumer willingness to pay for fresh organic vegetables

The empirical results in previous section are suggested that price is the most important attribute. Therefore, the analysis of WTP is necessary to indicate the premiums of fresh organic vegetables for which the consumers are willing to purchase.

In the study of consumer WTP for fresh organic vegetables, the summary of responses to the first and the second bids are represented in Table 4. The result indicates that most of respondents accept both bids, yes-yes answers, of all vegetables. This finding means most of respondents are willing to pay high premium of fresh organic vegetables, at least 55 baht per kilogram for cabbage, kale, and tomato, 50 baht per kilogram for cucumber, and 60 baht per kilogram for carrot and onion. In addition, the special experimental design in our study allows the respondents quoting their preferred premiums for upper in the cases of the first and the second bid acceptances (yes-yes answers) and lower bound for the first and the second bid rejections (no-no answers). It leads to an alternative boundary of both minimum lower and maximum upper intervals, 40 to 70 baht per kilogram for cabbage, 35 to 90 baht per kilogram for kale, 30 to 70 baht per kilogram for tomato, 30 to 60 baht per kilogram for cucumber, 40 to 100 baht per kilogram for carrot, and 45 to 80 baht per kilogram for onion.

TABLE 4. Summary of responses to the first and the second bids on fresh organic vegetables

Price (Baht/kg.)	No.	The first bid		Price (Baht/kg.)	The second bid		Percentage
		Response	No.		Response	No.	
Cabbage 45	400	Yes	232	55	Yes	161	40.3
					No	71	17.8
		No	168	35	Yes	112	28.0
					No	56	14.0
Kale 45	400	Yes	232	55	Yes	162	40.5
					No	70	17.5
		No	168	35	Yes	113	28.3
					No	55	13.8

Price (Baht/kg.)	No.	The first bid		Price (Baht/kg.)	The second bid		Percentage
		Response	No.		Response	No.	
Tomato 45	400	Yes	209	55	Yes	150	37.5
					No	59	14.8
		No	191	35	Yes	132	33.0
					No	59	14.8
Cucumber 40	400	Yes	211	50	Yes	149	37.3
					No	62	15.5
		No	189	30	Yes	139	34.8
					No	50	12.5
Carrot 50	400	Yes	216	60	Yes	151	37.8
					No	65	16.3
		No	184	40	Yes	120	30.0
					No	64	16.0
Onion 50	400	Yes	203	60	Yes	146	36.5
					No	57	14.3
		No	197	40	Yes	128	32.0
					No	69	17.3

In terms of mean WTP and median WTP for fresh organic vegetables, the results are generated by using lognormal distribution to the actual WTP data excluding any explanatory variables, called unrestricted lognormal (Vanit-Anunchai & Schmidt, 2004). The mean WTP of respondents for fresh organic cabbage, kale, tomato, cucumber, carrot, and onion are 43.23, 43.29, 46.77, 46.01, 41.79, and 37.41 baht per kilogram, respectively, as shown in Table 5. These prices concern with the substantial premiums on the common prices for conventional vegetables (25, 25, 25, 20, 30, and 30 baht per kilogram, respectively) of 72.93%, 73.16%, 55.91%, 53.38%, 67.15%, and 87.03%, respectively. For median WTP calculating, the result reveals that the respondents willing to pay for fresh organic cabbage, kale, tomato, cucumber, carrot, and onion with a median price of 43.10, 43.15, 46.62, 45.84, 41.61, and 37.25 baht per kilogram, respectively, and the percentages of premiums are 72.38%, 72.61%, 55.40%, 52.79%, 66.46%, and 86.25%, respectively.

TABLE 5. Mean WTP and median WTP for fresh organic vegetables

Vegetables	Mean WTP [a] (baht/kg)	Percent of Premiums [b]	Median WTP [c] (baht/kg)	Percent of Premiums [b]
Cabbage	43.23	72.93	43.10	72.38
Kale	43.29	73.16	43.15	72.61
Tomato	46.77	55.91	46.62	55.40
Cucumber	46.01	53.38	45.84	52.79
Carrot	41.79	67.15	41.61	66.46

Vegetables	Mean WTP [a] (baht/kg)	Percent of Premiums [b]	Median WTP [c] (baht/kg)	Percent of Premiums [b]
Onion	37.41	87.03	37.25	86.25

Note: [a] Mean WTP is equal to $e^{\mu+\sigma^2/2}$.
[b] estimated by comparing WTP and conventional prices.
[c] Median WTP is equal to e^{μ}.

Consumer ability to pay for fresh organic vegetables

The consumer ability to pay for fresh organic vegetables, the quantities of fresh organic vegetables for which the respondents can purchase, are evaluated by applying the expenditure ratio as shown in the equation 10. The result separated in 6 seeds of vegetables, as represented in Table 6, presents that most of the respondents are ability to pay for fresh organic cabbage, kale, tomato, cucumber, carrot, and onion less than or equal to 20 kilograms per month, followed by between 20 and 40 kilograms per month. This finding indicates that the affordability to pay of consumers is not high and it refers to the limitation of purchasing power of the consumers for fresh organic vegetables.

TABLE 6. ATP for fresh organic vegetables

Range of ATPs (kg/month)	Frequency	Percentage
Cabbage		
ATP ≤ 20	270	67.50
20 < ATP ≤ 40	71	17.75
40 < ATP ≤ 60	25	6.25
ATP > 60	34	8.50
Total	400	100.00
Kale		
ATP ≤ 20	255	63.75
20 < ATP ≤ 40	76	19.00
40 < ATP ≤ 60	25	6.25
ATP > 60	44	11.00
Total	400	100.00
Tomato		
ATP ≤ 20	261	65.25
20 < ATP ≤ 40	72	18.00
40 < ATP ≤ 60	26	6.50
ATP > 60	41	10.25
Total	400	100.00

Table 6. ATP for fresh organic vegetables (Continued)

Cucumber		
ATP ≤ 20	259	64.75
20 < ATP ≤ 40	74	18.50
40 < ATP ≤ 60	24	6.00
ATP > 60	43	10.75
Total	400	100.00
Carrot		
ATP ≤ 20	252	63.00
20 < ATP ≤ 40	78	19.50
40 < ATP ≤ 60	26	6.50
ATP > 60	44	11.00
Total	400	100.00
Onion		
ATP ≤ 20	217	54.25
20 < ATP ≤ 40	98	24.50
40 < ATP ≤ 60	32	8.00
ATP > 60	53	13.25
Total	400	100.00

6. Conclusion

The key context involving in the awareness of environmental and health security causes the augmentation of quality and chemical-free food products, particularly fresh organic vegetables. Thus, the research on demand for fresh organic vegetables is prevalent issue. This paper focuses on consumers' purchasing decisions and evaluations of willingness to pay (WTP) and ability to pay (ATP) for fresh organic vegetables by using conjoint analysis, double-bounded contingent valuation method, and expenditure ratio method. The study samples are focused only on urban area in Chiang Mai province and specifically selected from four different sampling points. There are 400 respondents selected from purposive sampling procedure and the data are received by face-to-face interviews conducting from July 1, 2011 to August 31, 2011.

The conjoint analysis is used to simulate consumer choices and to explore which fresh organic vegetable attributes attract the consumers. The results represent that the respondents put the highest relative importance on price and certification seal of fresh organic vegetables. In terms of WTP, a case study is conducted on leafy (cabbage and kale), fruit (tomato and cucumber), and root (carrot and onion) vegetables and evaluated by using double-bounded contingent valuation method. The findings show that the respondents are willing to pay price premiums between 53% and 88%. Moreover, the ATP evaluation using the expenditure ratio indicates that most of the respondents

sufficiently afford fresh organic for their consumption. However, they are ability to pay not over than 20 kilograms per month.

In summary, the farmers cultivating fresh organic vegetables should take into account consumer preferences, willingness to pay, and affordability to pay for creating marketing strategies and expanding the scale of fresh organic vegetable productions.

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