

Conference Paper

Consumption Behavior and Willingness to Pay for Fruit Drinks in Bangkok Metropolitan Area

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Abstract

The purpose of this research was to study consumer behaviors, willingness to pay and the factors affecting willingness to pay for ready-to-drink fruit drinks less than 25% with the certified quality assurance system by using contingent valuation method (CVM) for consumers in Bangkok. The results from double-bounded dichotomous choice found that the consumers were willing to pay for fruit drinks less than 25% with GMP certification at 15.22 baht/bottle and 15.58 baht/bottle for fruit drinks less than 25% with HACCP certification. Factors that affected the consumer's willingness to pay were education, income and attitudes about product that have been certified.

Keywords: Contingent Valuation Method; Double-Bounded Dichotomous Choice; Fruit Juice; Willingness to Pay; Quality Control

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INTRODUCTION

The value of beverage market in Thailand is steadily growing. The estimated value in 2014 is 430 to 440 billion baht. The ready-to-drink (RTD) fruit juice is accounted for 3.3%. More importantly, it expanding at the rapid rate of 8.7% per year. We focus on less than 25% fruit juice (LT 25% fruit juice) which has 45.5% market share of fruit juice sales in Thailand. Its market value keep expanding in the past 5 years as shown in Figure 1. This segment has wide variety of consumers and also producers. The majority of target consumer is middle to low income people who wants quick and healthy beverage products. The seemingly lucrative market draw producers ranged from small, medium to large enterprises. Apparently, it is not easy for new small business company to successfully introduce a new product to the market. Before investing into this business, they should be able to answer some of this questions. "What are important factors e.g. flavor, quality standard, price that new products should have?"

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If consumer wants to have them all, “what degree of factors is optimal for the current market?”

For food industry, good manufacturing practice (GMP) is a basic principle to ensure the process of making product is hygienically well established to avoid possible contamination to products. GMP regulation has been promoted by Thai government and it is often one of common requirements for trading with food manufacturers and retailers around the world. GMP could be considered as a prerequisite standard for more rigorous way for quality control and assurance, Hazards Analysis and Critical Control Points (HACCP). HACCP has been internationally recommended food safety standard and has been included in Thailand national economic and development plan since 1986. HACCP reduce risk of microbial and chemical contaminant by identifying the hazardous point in a system and method to prevent the contaminant. An example of food safety value of HACCP can be found in Amoa-Awua et al. [1]. Although, HACCP are widely recommended by many organizations, some companies that have reasons to not follow [6]. There are only a few studies related how much consumer is willing to pay for the safety standard in Thailand.

The Contingent Valuation Method (CVM) has been widely used to evaluation the value of environment related enforcement [3]. Recently, it also has been applied to find WTP of consumer in food and beverage industry. Lyly et al. [4] find factors that influencing customer WTP for RTD soup and beverage that contains β -glucan. The result shows that health claim significantly affect the decision of consumer but only on small value compared to taste of the samples. Xu and Wu [7] survey the consumer WTP for certified traceability of food in Jiangsu Province, China. The results show that although not satisfying with the food safety during the time of surveying, some portion of consumer still did not want to pay extra cost for traceability certificate. The satisfaction depends on factors such as age, gender, education level and level of income. Diaz et al. [5] use the model proposed by Hanemann, Loomis and Kanninen [2] to estimate the range of WTP for organic tomatoes in Spain. They states that level of knowledges of organic food clearly relates to the WTP of the product. Nevertheless, the knowledge of organic food of consumer was still limited. It subsequently hindered the growth of this premium product market.

In this research, we study what factors that consumers in Thailand pay attention to when they are buying LT 25% fruit juice and how much money they are willing to pay for common quality standards such as GMP and HACCP. The results of this research could be used as a guideline for manufacturer to introduce profitable product

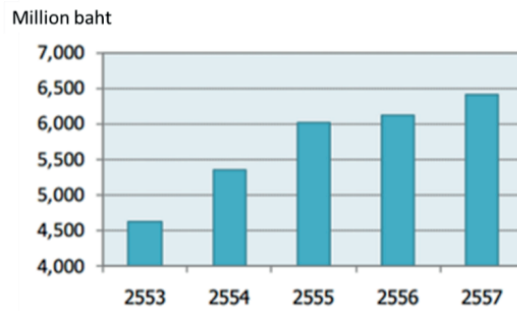


Figure 1: Market value of less than 25% fruit juice in Thailand.

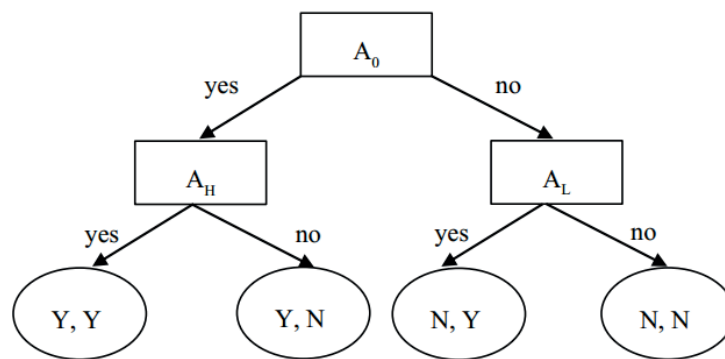


Figure 2: The double-bounded CVM method for WTP.

with suitable quality and price to the market. The remaining of the paper is organized as follows. In the next section, we present an approach for obtaining consumer WTP. Subsequently, we provide numerical examples to show effects of inter-arrival characteristic. The applications of the model with adaptive service rate to control the maximum customer expected waiting time in manufacturing system is illustrated in the final example. The final section summarizes findings of this study.

METHODOLOGY

The survey was developed and then pre-tested with a small proportion of respondents for validity and reliability. The questionnaire consists of two parts. The first part is the general information of respondents such as age, sex, income, marital status, education and the level of understanding of GMP and HACCP standards. The pre-test also provide the estimated distribution of WTP for LT 25% fruit juice. Respondents for pre-test were asked to fill price that they were willing to pay for GMP or HACCP standards. The modes of price distribution were then used as initial price in the second parts of surveys for the rest of respondents. The second part consists of a double-bounded dichotomous

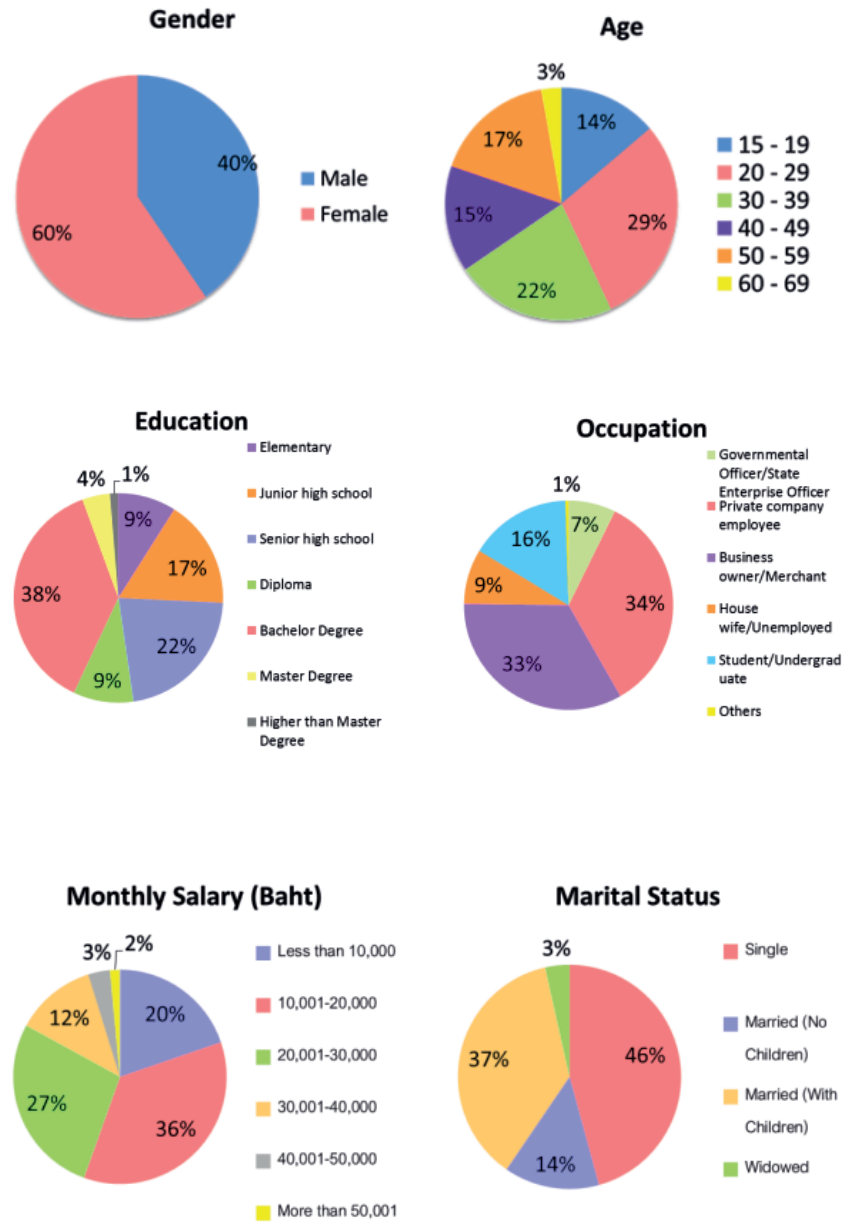


Figure 3: Summary of respondent information.

question that require answer “yes” or “no” to the price of the beverage with either GMP or HACCP standards given the starting point of beverage without any standard. The questions were asked two times, the price for the first question were obtained from the pre-test. Upon completing the first question, respondent must answer the second question based on his response to the first question. If “yes”, the second price will be increased while if “no” the price will be decreased as shown in Figure 2.

The survey was completed by 400 respondents in Bangkok between January to May, 2016.

TABLE 1: The willingness to pay from the first 50 respondent.

WTP	Frequency	
	GMP	HACCP
10	23	9
11	1	-
12	8	14
13	1	8
15	13	13
18	1	1
20	3	5
25	-	2

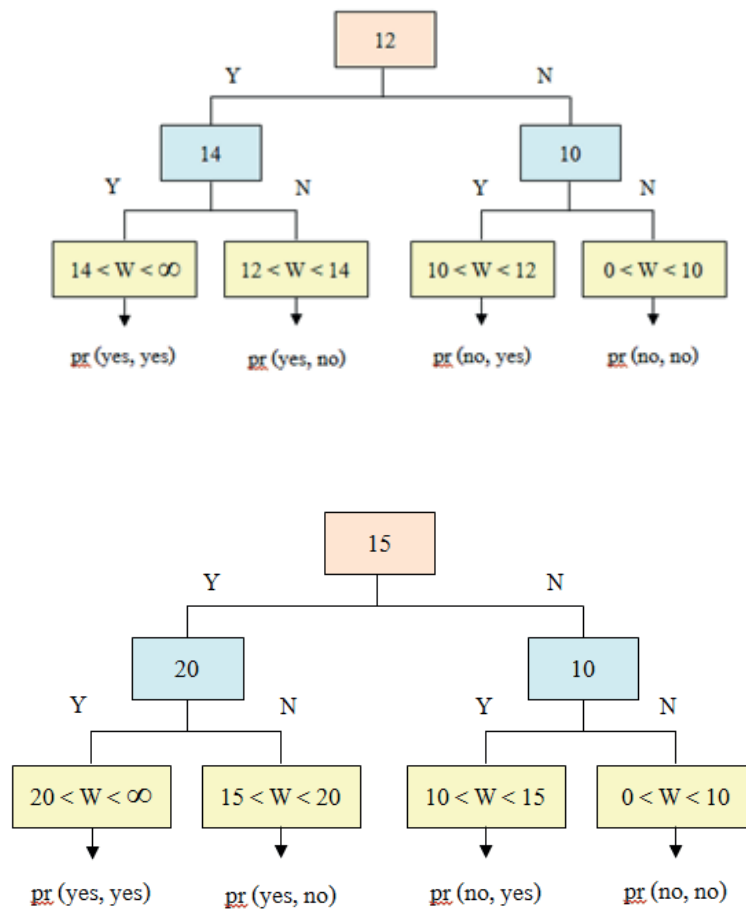


Figure 4: Prices for first and second bid starting with 12 and 15 baht.

TABLE 2: Responses, mean and confident interval from double-bounded CVM for GMP.

Price (baht/bottle)	No. of Surveys	1st Bid		Price (baht/bottle)	2nd Bid		%
		Answer	Quantity		Answer	Quantity	
12	350	Yes	344	14	Yes	168	48.00
					No	176	50.29
		No	6	10	Yes	6	1.71
					No	0	0
15	350	Yes	153	20	Yes	64	18.29
					No	89	25.43
		No	197	10	Yes	197	56.29
					No	0	0

Mean WTP (baht/bottle)	Std. Error	95% Confidence Interval
15.22	0.130	14.97 - 15.48

RESULTS

The general information of 400 respondents is summarized in Figure 3. The majority of respondents were single university-degree female consumer that age between 20 to 39 years old and receiving 10,000 to 30,000 baht salary from private company.

The most important factor for choosing LT 25% fruit juice were flavor, hygienic, convenient and price. The pre-test for product price was done by the first 50 respondents. The Cronbach’s Alpha is 0.886 ensuring the reliability of data. The result of open-end question is shown in Table 1. The most popular prices are 12 and 15 baht, therefore these prices were used as initial bid for the double-bounded questionnaires.

The double bounded question for initial prices of 12 and 15 baht are described as in Figure 4. The lower second bit was limited to 10 baht so that it will not be less than the variable cost of the products. While the second bit increases equal to the difference between initial price and the lower second price.

The responses from double-bounded dichotomous question indicate WTP for products with hygiene standards is between 15 to 16 baht as seen in Table 2 and Table 3. The 95% confident interval of WTP for GMP is in range of 14.97 to 15.48, while WTP for HACCP is slightly higher in range of 15.30 to 15.86.

TABLE 3: Responses, mean and confident interval from double-bounded CVM for HACCP.

Price (baht/bottle)	No. of Surveys	1st Bid		Price (baht/bottle)	2nd Bid		%
		Answer	Quantity		Answer	Quantity	
12	350	Yes	341	14	Yes	178	50.86
					No	163	46.57
		No	9	10	Yes	9	2.57
					No	0	0
15	350	Yes	171	20	Yes	77	22.00
					No	94	26.86
		No	179	10	Yes	179	51.14
					No	0	0

Mean WTP (baht/bottle)	Std. Error	95% Confidence Interval
15.58	0.142	- 15.86

CONCLUSSIONS

In this study, we find the consumer opinion on ready-to-drink beverage with less than 25% fruit juice. The flavor, hygienic, convenient and price are highly influent consumer buying decision. In the same survey, we also find the relationship between price and hygienic standards e.g. GMP and HACCP to the consumer willingness to pay. The result shows that the average WTP for the product with GMP is 15.22 while 15.58 for HACCP. The study could help the manufacturers perceive what factors are important to consumer. They could also consider the cost and benefit of applying GMP or HACCP to their traditional process.

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