Assessing Consumer Behavior and Willingness to Pay for Imported Wafer Snack Products from Indonesia

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ABSTRACT

The purpose of this research is to study the customer behaviors and willingness to pay for imported wafer products in Bangkok and surrounding areas by using conjoint and importance-performance analyses. The result indicates that more than half of the respondents were young female with a monthly income in the range of 10,000 – 15,000 baht and buying intention of 2-3 times per month at convenience stores. Importance-performance analysis graph captures that packaging, price reasonable on quantity, and price reduction for the promotion need to be improved in top priority. Moreover, conjoint analysis reveals that retail store and shelf life are the most significant factors that affect consumer willingness to pay.

Keywords: Consumer behavior, willingness to pay, conjoint analysis.

1. INTRODUCTION

Indonesia and Thailand are participating bilateral trade which has a positive trend of 19.6% over the last five year from 2013 (Indonesia Ministry of Trade, 2013). The trade was dominated by imports worth US$ 10.7 billion. It is much higher than exports which were only valued at US$ 6.06 billion. Hence, Indonesia pushes the export of processed food of 4.21% growth or valued at US$ 183.2 million. Consequently, it is expected to reduce the deficit of the trade with Thailand. Indonesian products that Thai buyers interested are included instant noodles, frozen baby octopus, canned crabmeat, canned baby clams, instant spices, powder agar, leather nuts, wafers, and confectionery products (Indonesia Ministry of Trade, 2014).

In Bangkok Metropolitan Area, food consumption is diversified and has constantly changed. It is caused by the changing of consuming behavior which is turned from the Thai traditional dessert to foreign foods, such as chocolate, bakery, and snacks. Recently, those kinds of foreign foods have higher demand, especially for children and the younger generation (Siripan, 2014). Therefore, the processed food products from Indonesia such as wafer products are potentially sold in Thailand.

To obtain the higher sale in Thailand, wafer snack industry from Indonesia has to understand the way Thai consumers making a buying decision and define the product preferences that determine the willingness to buy the products. In marketing field, conjoint analysis is known as a tool to represent consumer preference and predict consumer behavior (Srinivisan, 1978). Conjoint analysis can be used to identify the relative importance value of each attribute level that affects consumer willingness to pay and estimate the optimal price of a set alternatives combination in a common unit. Thus, the objective of this study as follows

1. To study the consumer behavior towards imported wafer product in Bangkok metropolitan area
2. To study the factors which affecting the willingness to pay for imported wafer product from Indonesia
3. To develop the comprehensive marketing strategy for the imported wafer product from Indonesia.

2. LITERATURE REVIEW

The growth of snack consumption makes consumer preferences of snacking behavior constantly changing and diversifying over the time. This condition pushes the snack stakeholder to increase the snack production to comply the high demand. Consequently, several kinds of snacks are available in the market which allowing consumer to evaluate before making a purchase decision, also called as buying decision. Buying decision has a complex act. There are internal and external factors which might have effects on it. Consumer behavior is one of the internal factors which might attract consumer desire on the particular product. On the other hand, the product insight can be categorized as the external factors.

2.1 Consumer Behavior

A consumer buying decision process intervenes the market strategy and the outcomes. According to Hawkins, D. (2001) a company or industry is successful if the consumers consider that the products solve their needs, become aware of the products, decide that the product is the best available solution, proceed to buy it, and become satisfied. Thus, the study of consumer behavior including how an individual makes decisions to spend their money, time and effort on products and service are needed (Schiffman, 2007).

Consumer behavior is the activity related to how the consumers select, evaluate, choose and make the purchase decision in order to satisfy their needs (Kotler P. 2003). In this study, the 6W 1H theory is used to analyze consumer behavior using questions about what a consumer buys, who participate in the buying process, when a consumer buys, why a consumer buys, where a consumer buys, and how a consumer buy (Engel, 1968). Those questions aim to deeply understand the consumption process as before, during and after buying.

In previous research, Wadeongchai (2010) has studied the consumption behavior of Thai desserts in Bangkok Metropolitan Area. The result revealed that the consumption of Thai desserts was mostly influenced by the distribution, followed by the price and

product. Moreover, it is concluded that lifestyle and attitude of Bangkok consumer have positive influences on Thai dessert consumption behavior. In addition, Chawwalit et al (2013) have conducted a case study of customer behavior of purchasing skin care product online in Bangkok and surrounding areas. This research has done by using descriptive statistic and Chi-square test to identify the relationship of personal factor and marketing mix (4Ps) and 6W 1H.

2.2 Importance-Performance Analysis

Importance-performance analysis method has been proven as an applicable tool to interpret the result of marketing mix data in order to increase the usefulness of strategic decisions (Abalo, 2007). The four quadrants in the importance-performance analysis are characterized as (Martilla & James, 1977, p. 78):

A. Concentrate here. In this quadrant, the attributes have a high importance level and low performance. It demonstrates major weaknesses and requires immediate attention for improvement

B. Keep up with the good work. In this quadrant, the attributes have a high importance and high performance. It indicates that the opportunities of achieving or maintaining competitive advantage are major strengths.

C. Low priority. In this quadrant show the low importance and low performance. It is the minor weaknesses and does not require additional effort.

D. Possible overkill. The attributes in this quadrant have a low importance and high performance. Those attributes indicate that business resources committed to these attributes would be overkilled and should be deployed elsewhere.
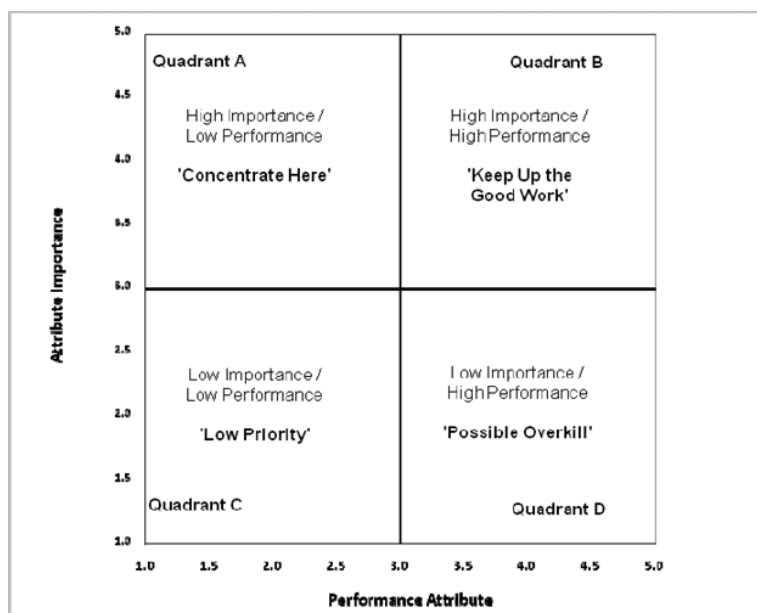
Figure 1 Importance-Performance Matrix (Adapted from Martilla & James, 1977)

Wong et al (2011) have implemented Importance-Performance Analysis (IPA) to measure the e-government benefits from the user's perspective by using a Likert scale. The online survey enables to rate the relative importance value of the benefit, followed by other benefit performance rating. The purpose of the survey is to measure the actual satisfaction level and to highlight the important areas for improvements. The IPA, a two-dimensional grid, is divided into four categories consisting of: (1) Concentrate Here; (2) Keep Up the Good Work, (3) Low Priority, and (4) Possible Overkill, in order to enable each of the benefits to be plotted into the grid. It is a clear and powerful evaluation tool to find out the attributes which are doing well and attributes which need to be improved.

2.3 Conjoint Analysis

According to Pavico (2016), pricing is significantly correlated to competitive advantage in terms of Cost. Therefore, companies need to consider a good pricing model to integrate their products performance towards a consumer willingness-to-pay. Furthermore, in order to estimate a consumer willingness-to-pay (WTP) of imported wafer product from Indonesia, conjoint analysis is performed. Since 1977, the conjoint analysis is indicated as the potential methodology to represent consumer preferences and predict the consumer's behavior. The conjoint analysis identifies various alternatives of each combination to achieve maximum predictive validity for a given problem definition and research budget (Srinivasan, 1978).

Meng-Long et al (2008) studied the characteristics of instant coffees as the basis to analyze consumer preference by using conjoint analysis. The purpose of this study is to explore Taiwan consumer preferences for canned coffee, to determine the optimal combination attributes for consumers, and to provide manufacturers a reference for their marketing strategies. Moreover, three assumptions are made to develop the estimation of their pricing model. The first assumption explains that there is trade- off relation between attributes. The overall value of the testes is added stands as the second assumption. The last assumption describes that there is no interactional outcome upon the overall effect which is taken into consideration. Hence, the overall effect is yielded by adding up the cost effectiveness of each attribute and represented as:

$$U_h = \sum_{j=1}^{j} V_j = V_1 + V_2 + .. + V_j$$

Where Uh represents the overall effect of the h product and V1 + V2 + ….. + VJ represents the attribute effect value of 1, 2, …,J in product h. The result describes that consumers in Taiwan show the significant demographical difference in their preferences over the combination of canned coffee attributes while the price is the major concern for all consumers. Hence, conjoint analysis is also used to manage existing product or services and to develop the comprehensive marketing strategy and pricing guideline. In addition, Sriwachiratorn (2016) conducted a research about consumer behavior and willingness to pay for fruit drinks in Bangkok Metropolitan Area. This research has done by using contingent valuation method (CVM) and

double-bound question. The result from a study is able to develop business strategies plan and pricing guideline for fruit drinks less than 25% with the certified quality assurance system that appropriates the willingness to pay of consumers.

3. MATERIALS AND METHODS

3.1 Data collection

A questionnaire was developed from a focus group interview with 8 Thai consumers. The questionnaire consists of questions on consumer behaviors, marketing mix factor, demographic data and importance performance level for wafer products. The survey method was employed of 256 Thai peoples in Bangkok and surrounding as the sample size. Sample size estimated from the equation:

$$SE(p) = \left(\frac{pq}{N}\right)^{0.5}$$

Where SE (Standard error) of a proportion p, p is the proportion of the population with the characteristic of interest, q = 1 – p, and N is the required sample size. In this case, the target population is 1.000.000 and proportion in true sample p = 0.2 with 95% confidence interval. Since the 95% confidence interval can be approximated by sample mean +/−2×SE of the sample mean, the value of SE entering the equation is twice the required level of accuracy 5%. Population size determines the 'degrees of freedom and 1,000,000 corresponds to dividing by 1.96. (Zdemiroglu, 2002).

3.2 Data Analysis

3.2.1   Descriptive statistics using frequency and percentage formats is performed to analyze consumer behaviors and demographic data of Bangkok consumer.

3.2.2   Importance Performance Analysis (IPA) is used to measure the level of consumer satisfaction based on their importance and performance value in order to develop the marketing strategy.

3.2.3   Conjoint Analysis is utilized to determine importance value of each factor level and to develop the pricing guideline for a set alternative of attributes factor that a consumer is willing to pay. Table 1 shows the attribute level of product.

Table 1 Attribute of wafer product levels

Attributes	Level A	Level B	Level C	Data type
Variety of product (X_1)	Original wafer (1,0)	Roll wafer (0,1)	N/A	Nominal
Packaging design (X_2)	Design A[1] (1,0)	Design B[2] (0,1)	N/A	Nominal

[1] Design A: Individual primary package for each wafer in common unit product.

[2] Design B: Using tray as primary package for all wafer in common unit product.

Retail (X_3)	Groceries (1,0,0)	Convenience store (0,1,0)	Supermarket (0,0,1)	Nominal
Shelf life (X_4)	6 days before expired (1,0,0)	90 days before expired (0,1,0)	365 days before expired (0,0,1)	Ratio

The combination attributes of all tested products are recorded on a card. In this study, the factor attributes consist of product variety (2 level), packaging design (2 level), retail store (3 level), and shelf life (3 level). Therefore, the total combination of those variables is 36 simulation, then we used orthogonal arrays by using SPSS to reduce the combination of simulation into 9 cards of a set combination for an easier test and better reliability to answer the survey. Table 2 shows 9 cards of combination attributes.

Table 2 9 cards for test properties

Card ID	Product variety	Design Packaging	Retail	Shelf life product
1	Original Wafer	Design A	Convenience Store	90 days before expired
2	Original Wafer	Design A	Groceries	7 days before expired
3	Original Wafer	Design B	Convenience Store	7 days before expired
4	Roll Wafer	Design A	Convenience Store	365 days before expired
5	Roll Wafer	Design B	Groceries	90 days before expired
6	Original Wafer	Design B	Supermarket	365 days before expired
7	Roll Wafer	Design A	Supermarket	7 days before expired
8	Original Wafer	Design A	Groceries	365 days before expired
9	Original Wafer	Design A	Supermarket	90 days before expired

4. RESULT AND DISCUSSION

4.1 Demographic data

Demographic data indicate that target consumers for imported wafer product in Bangkok Metropolitan Area are young female aged 16 – 30 years old. More than half of the target consumers are students in a bachelor degree, followed by higher than bachelor degree with an average monthly income of 10,000 – 15,000 Bath.

4.2 Consumer behavior

Consumer behavior is identified as activities related to select, purchase and make the decision (Kotler, 2003). In this study, 6W 1H theory is used to analyze consumer behavior. The result demonstrates that the most popular imported wafer product brands are Beng Beng, followed by Stikko, Redondo and Biggo. The most preferred

flavor of the wafer is chocolate followed by vanilla, green tea and strawberry. In term of buying intention, most of the respondents consume a wafer product 2-3 time/month. More than 70 % of respondents purchase a wafer product at a convenience store (e.g Seven Eleven, Family mart, Lawson etc), 23.3% at the supermarket (e.g BigC, Tops market, Tesco Lotus etc), and the rest respondents buy the product at groceries store. Furthermore, there is no condition limiting their purchasing behavior. However, some opinions indicated that good taste and craving are the main factors determining costumers to purchase the products.

4.3 Important Performance Analysis

Importance performance analysis by using mean and median as a section separator are employed and compared. Both separation methods using mean or median as a separator is not much different. It caused by the distribution data is quite symmetric between mean and median. Thus, it was described as follows:
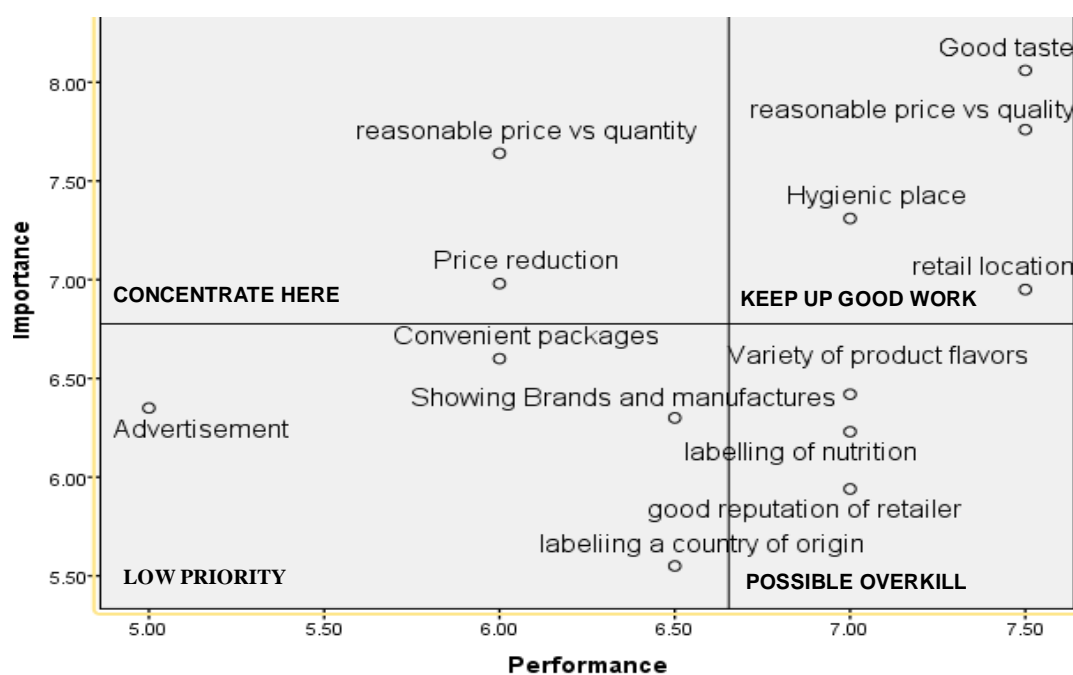
Figure 2 IPA of Imported wafer product consumers using mean separator

According to IPA graphics above, the consumers identify that imported wafer strengths are located in its reliability on good taste, reasonable price for quality, variety of product flavor, easiness location of the retail, and cleanliness of the store. Those attributes must be well maintained by all imported wafers industries. Meanwhile, the attributes of wafer products that failed to meet the consumer expectation are convenient packages, reasonable price for quantity, and price reduction for promotion. Thus, the stakeholders need to improve their performance to gain consumer satisfaction. In addition, the attributes of imported wafer product such as labeling of nutrition, variety of product, and a good reputation of retail classified on possible overkill. However, these are not their major concern. Moreover, showing

brands and manufacturers, advertisement, and labeling a country of origin, are classified as low priority.

4.4 Conjoint Analysis

The results of a conjoint analysis provide the importance value of each factor and the utility estimation of each factor level. Utility estimation is used to predict the product price for a set combination alternative of wafer product in 50 gram net weight. As a result, attribute with the highest utility value are shelf life 365 days before expired, convenience store, and packaging using design A with the utility value of 2.523, 0.721, 0.706, respectively. It means that the higher value of utility has a greater importance of consumer expectation. In addition, if the utility values of each factor level are summed together with the constant value in a unit product, it gives the 'total value' of any combination of product for price estimation. In this study, if the utility value of factors level is higher than others, it indicates a greater preference. Furthermore, conjoint utilities show that the higher utility value has the higher contribution in price estimation. Hence, there is a relationship between product price estimation and utility value. Table 3 demonstrates the results of conjoint analysis utilities.

Table 3 Conjoint analysis utilities

	Factor	Utility
Variety of product	Original wafer	.095
	Roll wafer	-.095
Packaging	Design a	.706
	Design b	-.706
Retail	Groceries	-.981
	Convenience store	.721
	Supermarket	.260
Shelf life	7 days before expired	.048
	90 days before expired	.622
	365 days before expired	2.523
(constant)		22.295

In addition, the sensitivity of estimated price is meaningful, the price must be carefully labeled as the cost of the product. Conjoint analysis model proves that the higher utility estimation has the higher contribution value in price estimation. Thus, the conjoint analytical model can be represented as below.

$$Y = \propto + \sum_{j=1}^{4} \sum_{k=1}^{kj} V_{jk} + X_{jk}$$

Where Y denoted as the overall estimation of predicting price, $\propto$ denoted as constant value, j represents attributes of the product, k represents the attribute level, Vjk represent utility value of attribute level, Xjk represent the chosen attribute level, (using value as 0 or 1). The price predicted output for 9 cards alternatives show in figure 4 as follow:
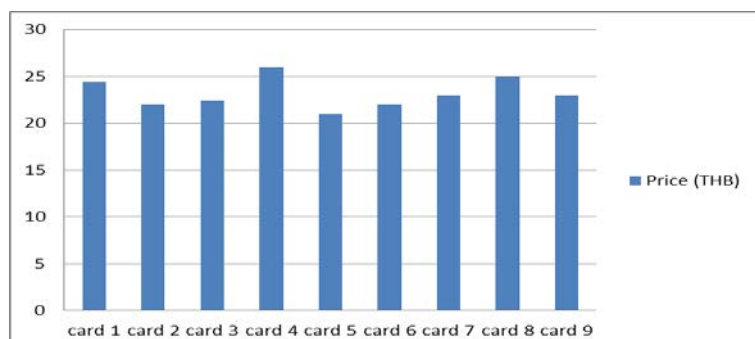
Figure 4 Price predicted for a willingness to pay

Regarding the estimation price for cards above, the highest price that a consumer willing to pay is card 4 followed by card 8 and card 1 with price value 26 baths, 25 baths, 24 baths respectively. Nevertheless, when it compares with the real price of a wafer product with the similar attributes, the price predicted output is higher. Thus, it can conclude that a consumer willing to pay more for the most preference of attributes in unit product. Moreover, conjoint analysis output also provides the importance values of each factor. Table 4 shows that retail store value is about 30.935, it is the most important and the most influential value for an overall factor that affecting a consumer willing to pay. Followed by, shelf life, packaging and product variety with the importance values of 28.276, 22.885 and 17.903, respectively. Hence, it means that a consumer prefers to purchase the wafer product in the convenience store with the longest shelf life.

Table 4 Importance values of imported wafer product

Importance Values	
VARIETY OF PRODUCT	17.903
PACKAGING	22.885
RETAIL	30.935
SHELF LIFE	28.276

Averaged Importance Score

Moreover, in statistical test of the conjoint analysis output reveals that Pearson's R value is .935. It means that there is a high correlation between attributes level within a factor. It also captures that Kendall's tau-c, (0.667) is a good model to predict the estimate preference. Both of values are also applied as the validity test of the utility output in the conjoint analysis (E. O. Oyatoye, 2016). In other hand, p-values of both

of statistical test have significant value less than 0.05 with the significant level of 95%. It determines that there is a consistency among the factor levels. Thus, the null hypothesis of inconsistency among the attribute level is rejected. Moreover, it is proven that the model has high reliability.

Table 5 Correlation between the observed and estimated preference

	Value	Sig.
Pearson's R	.935	.000
Kendall's tau	.667	.006

a. Correlations between observed and estimated preferences

5. CONCLUSION

The targeted consumers for a wafer product are young female students with a monthly income of 10,000 – 15,000 baht. Most of them prefer to buy a wafer product which has a good taste, has a long shelf life at least 1 year before the expired date, uses the convenient package and has a reasonable price on quantity. In addition, most of Thai consumer prefer to buy a product at the convenience store rather than supermarket or groceries. Moreover, conjoint analysis model for price estimation shows that there is a strong relationship between the utility value and product price estimation. If the variable has a higher utility, it means that variable has a higher contribution in product price estimation. Hence, in order to gain more profit margin, industries have to know the factors affecting a consumer willing to pay and improve their product to meet the consumer preferences. Furthermore, the conjoint analysis also reveals that retail store and shelf life are the most important attributes factors determining consumer willing to pay. Moreover, those factors give the higher utility value in product price estimation. Hence, to get the highest price of a consumer willing to pay for a wafer product, the product performances have to be improved as the consumer preferences, and it should be available in convenience store such as Seven Eleven, Family Mart, Lawson, has shelf life at least 1 year before expired, and applies a promotion strategy such as price reduction in special term and condition for gaining more potential consumer.

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