

CHAPTER III

RESEARCH METHOD

3.1 Scope of the study

The study focuses on organizational structure, operation and performance of the Royal Project Marketing Division and wholesale agents involved in vegetable marketing in Chiang Mai and Bangkok. In other words, the study attempts to assess and compare the vegetable marketing practices and performances of the Royal Project and other agents in Chiang Mai and Bangkok. The vegetables in this study are head-lettuce, sweet pepper, Japanese cucumber, Japanese pumpkin, common tomato, snap bean, baby carrot, zucchini, carrot, cos-lettuce, red cabbage, Chinese cabbage, michilli and celery.

3.2 Data collection

Information and data collection mainly covers areas such as; marketing costs and margins, practices, strategies, problems, product distribution channels, pricing and production policies etc. of the Royal Project and the wholesale vegetable marketing agents.

Primary data was collected mainly through survey with the use of semi-structured questionnaires.

Data on observed prices and observed characteristics of vegetables were collected via samples of vegetable bought from 6 selected retail markets in Chiang Mai and 5 in Bangkok. The samples were collected every 2 weeks for 8 months.

The secondary data and information was collected mainly through the reviews of existing documents from the Royal Project and relevant agents involved in vegetable marketing.

3.3 Data analysis

3.3.1 To achieve the first and second objectives; The organizational structure, operation and efficiency assessment of the Project's vegetable marketing practices must be explored and compared to private firms, descriptive analysis will be used for existing marketing practices. The efficiency of the vegetable marketing practices of the Project were measured by looking at the cost and sale value, the ratio of output and input, and margin to Division and farmers.

3.3.2 The vegetable pricing strategies of the Royal Project Foundation are assessed by looking at the prices of the Project and other firms. The prices in the market of 15 high value vegetables of the Project and the other firms are calculated and by using hedonic price analysis.

Hedonic Price Model

The fluctuation of vegetable prices depends on demands and supply, however quality is one of the main affects to the differentiated price of selling in the market. Due to heterogeneity of agricultural products, the qualities and prices are distinguished by their characteristics.

This research was conducted to determine the relationship between selected vegetable characteristics and prices by using "Hedonic Price Model". This approach suggested to take a product characteristics to the study of product heterogeneity is hedonic price model as shown in Ladd (1976).

Sampling of 15 selected vegetables from 11 retail market places in Chiang Mai and Bangkok since February to September 2000, was to collect data on vegetable characteristics. In this study, market places were divided into three types as follow;

1. Local market is the food market with stalls occupied by butchers or greengrocers, vegetables sold in this market are not in the package, without brand name. Almost all customers in this market are local people.

2. Supermarket is self-service retail food store, almost all vegetables are packaged with various brand names, customers who purchase in supermarkets are high-income people.

3. The supermarket in the foreigner business area is similar to the supermarket but it provides more imported vegetables and the price is higher than other market places.

The hedonic price functions were estimated by using program LIMDEPT version 7. Some variables checked, which did not associate to the price and correlated to variables in the model, were omitted. The restrictive test of seasonal and quality was conducted to see the affect of season on quality.

Independent variables are categorized into 3 groups. The first category is characteristics of vegetables, which includes features of packing, products' quality e.g. physical and chemical content of the products. The variables in this category are:

1. NUM = number of leaves to be culled-out
2. FRESH = freshness (0-100)
3. WIDTH = width of vegetable (cm.)
4. WEIGHT = weight of vegetable to indicate size
where applicable (kg./ piece)
5. DAMAGE = percentage of damage from pest and broken
6. COLOR = color of vegetable, read by using color reader

L* is the lightness coefficient of color ranked from black = 0 to white =100

A* is negative when the color is green, positive when the color is red.

B* is negative when the color is blue, positive when the color is yellow.

$$\text{THETA} = ((\text{ATAN } b^*/ a^*)/6.2832)*360$$

if $a > 0$ and $b \geq 0$ Then hue = THETA

if $a < 0$ and $b \geq 0$ Then hue = $180 + \text{THETA}$

if $a > 0$ and $b < 0$ Then hue = $180 + \text{THETA}$

if $a < 0$ and $b < 0$ Then hue = $360 + \text{THETA}$

Hue is on the horizontal axis, negative a* indicates Hue of bluish-green.

$$\text{Chroma} = \sqrt{a^2 + b^2}$$

Chroma is on vertical axis, positive b* indicates yellow

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|-----------|---|---|
| 7. SHAPE | = | dummy variable for shape,
1 if normal, 0 otherwise |
| 8. LENGTH | = | length of vegetable (cm.) |
| 9. HF | = | Percentage of head forming (1-100) |
| 11. PLW | = | weight of culled out leaves * 100/ Total weight |
| 12. FIRM | = | firmness of vegetable (Kg./ cm ²) |
| 13. SWEET | = | sweetness of vegetable (Brix) |
| 14. THICK | = | thickness of meat (cm) |
| 15. Skin | = | rough of skin (1-5) |
| 16. Acid | = | total titratable acidity
(mg. / 100 ml.) |
| 17. NR | = | dummy variable for hygieneity,
1 if non residue vegetable, 0 otherwise |
| 18. RP | = | dummy variable for brand name,
1 if RP product, 0 otherwise |

The second category represents market places. Variables in this group are :

1. FBA = 1 when vegetables were sold in foreigner -business-area, 0 otherwise
2. BKK = 1 when Vegetable sold in Bangkok, 0 otherwise
3. SUPER = 1 when vegetables were sold in Super market, 0 otherwise

The third is time for purchase. Fortnightly data was used to capture the price fluctuation. The variables are:

1. SEASON =1 when it is summer season, 0 if it is rainy season.

Therefore each characteristic of each vegetable is different, dummy variables for them are described in the appendix. And the characteristics checked are varied as shown in table of characteristics checked of vegetables. All of characteristics checked for each vegetable are shown in Appendix I. All data was analyzed by using the program Limdep version 7.

3.3.4 For the last objective SWOT analysis will be employed. Strength, weakness, opportunity, and threat were collected by using questionnaires. Three types of questionnaire were designed to cope with, the official of the Royal Project, customer, and other wholesaler. The officials of the Royal Project who are involve with the vegetable products were interviewed the strength and weakness of the project. For threat and opportunity of temperate vegetable marketing, data was collected from other vegetable wholesalers and customers of the project.