Analysis of Consumer Preference in Purchasing Vegetables across Selected Markets in the Work Area of BKPP Cirebon Indonesia

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Abstract: The objective of this study was to determine the consumers' preference and the factors influencing consumers' decision in purchasing vegetables. Information resulted from this study can be used by vegetable producers to avoid the production problems such as excessive supply and to reduce the risk of low market prices. The study was carried out in the Work Area of the Cirebon Development Coordinating Board (BKPP), covering the Regencies and Cities of Cirebon, Indramayu, Majalengka, and Kuningan. The method used was survey research method with qualitative descriptive analysis techniques. Determination of regional samples used stratified random sampling by determining the representation of the region based on the characteristics of the people. The people living in the mountainous area were set in Kuningan and the people living in the coastal area were set in Cirebon City. Non-probability sampling technique was applied with accidental sampling method (based on the coincidence). The object of the research was consumers who bought vegetables at the Kepuh market in Kuningan and the Jagasatru market in Cirebon. The results showed that environmental factors influenced the purchase of vegetables in Kuningan and Cirebon in the high and medium with factor loading of 0.80 and 0.70, respectively. Psychological factors influenced the purchase of vegetables in Kuningan and Cirebon in the medium category with factor loading of 0.70. While, attribute factors influenced the purchase of vegetables in Kuningan and Cirebon in the medium and high category with factor loading of 0.73 and 0.81, consecutively.

Key-Words: Consumers' behavior, vegetables, factor analysis

1 Introduction

Communities in the Working Area of Cirebon Development Coordinating Board (BKPP), West Java generally have two characteristics, i.e. the people living in the coastal area and the people living in the mountainous area. Coastal communities are those living in Cirebon and Indramayu District, while mountainous communities are those living in Majalengka and Kuningan Regency. Both communities have the common characteristic of West Javanese who highly consume vegetables either fresh or processed.

On the other hand, according to Directorate General of Horticulture [1], people's awareness about nutritious food has an impact on the improvement of vegetable commodity both in quantity and quality. Therefore, it should be developed into agribusiness commodities in order to take advantage of comparative opportunities and advantages [2].

Previous research results showed that vegetable products were already available in various shopping places, such as in traditional markets without packaging and in the modern market with a variety of attractive packaging [3]. The attraction that is presented in the modern market shows that the position of various types of vegetables is at an increasingly good level in the perspective of the consumers [4]. The types of vegetables served are varied from lowland vegetables to highland vegetables. The difference serving of the vegetables leads to different price. The price of vegetables offered in traditional markets is quite affordable, usually targeted for the lower middle segment of society. While in outlets with good packaging, the price is rather high and usually targeted for the market segment with upper middle income level [5].

Heterogeneous characteristics of consumers either from economic, social, or cultural aspects can influence consumer behavior. According to Kotler and Keller [6], consumer behavior is the activities of individuals who are directly involved in getting and using goods and services, including the decision-making process in the preparation and determination of these activities.

The understanding of consumers' preference also means knowing who the customers are and how their characteristics are as well as what they want. Factors considered by consumers in choosing vegetable commodities are determined by the consumers' background [7]. From economic aspect, the price factor becomes a measuring instrument for buying vegetable commodities [8]. From the social side, consumers from higher education level and social status will have a wider variety of vegetables purchases [9]. And in terms of culture, coastal communities are used to eat lowland vegetables and people living in mountainous will consume highland vegetables [10].

Consumers' needs and desire can be learned through the purchase decision process (Simamora, 2004), the choice can be between root vegetables, stem vegetables, leafy vegetables, flower vegetables, immature fruit and mature fruit. Root vegetables include carrots (*Daycus carota*), radishes (*Raphanus sativus*), potatoes (*Solanum tuberosum*), and onions (*Allium cepa* var.) [11]. Stem vegetables include asparagus (*Asparagus officinalis*), bamboo shoots, Kohlrabi (*Brassica oleraceae*). Leafy vegetables include spinach (*Amaranthum viridis*), water spinach (*Ipomoea aquatic*), cabbage (*Brassica oleraceae*), mustard (*Brassica juncea*), lettuce (*Lactuca sativa*), Celery (*Apium graveolens*), green onion (*Ligularia ficheri*). Flower vegetables are cauliflower (*Brassica oleraceae* var. *botrytis*), romanesco broccoli, torch ginger (*Etlingera elatior*). Immature fruits include baby corn (*Zea mays*), cucumber (*Cucumis sativus*), winged beans (*Psophocarpus tetragonolobus*), peas (*Pisum sativum*), bitter melon (*Momordica charantia*), stink bean (*Parkia speciose*), beans (*Phaseolus vulgaris*), eggplant (*Solanum melongena*). Mature fruits are tomatoes (*Lycopercicon esculentum*) and other types of fungi from the *ascomycetes* and *basidiomycetes* family.

Based on the altitudes where vegetables are grown, they can be divided into a) lowland vegetables such as eggplant, long bean, Chinese okra, cucumber and so on and b) highland vegetables such as Chinese cabbage, choy sum, mustard, radish, cabbage and so on. Lowland vegetables have a longer shelf life when compared to highlands that are easily damaged (perishable) due to transportation and storage [7].

Based on the description above, the authors are interested in knowing more about consumers' preference and the factors influencing consumers' behavior in purchasing vegetables at Kepuh market and Jagasatru market.

2 Materials and Method

This research was conducted in Kepuh market in Kuningan and Jagasatru market in Cirebon. Site selection was done purposively with the consideration that the markets are markets in the center of Kuningan and Cirebon City and they are two of the main vegetable markets managed directly by the local government.

Respondents in this research were determined using non-probability sample technique, with convenience sampling method or accidental sampling which is based on coincidence comprising the respondents who had bought vegetables or who were buying vegetables. Respondent is someone who can be used as a sample if they are considered suitable as a data source, by not distinguishing social, economic and cultural status [12].

Primary data were taken from those who were shopping for vegetables or had already shopped for vegetables and were willing to be interviewed for a short time. A number of 30 respondents were determined from each research location so that the total respondents were 60 people. Primary data were obtained through direct interview with consumers using questionnaire. Secondary data were obtained from literature studies (books, journals, results of previous research), study of data and documents from various agencies and institutions related to research.

Descriptive analysis was used to illustrate the consumers' preference based on age, education level, income level, occupation, gender, and to describe the consumers' decision-making processes in vegetable purchases. To know the factors influencing the consumers' in the purchase decision of vegetables, ordinal data were analyzed by using factor analysis.

3 Results and Discussion

3.1. General characteristics of the respondents

The respondents were those who were shopping or had bought vegetables in Kepuh market Kuningan and Jagasatru market Cirebon. Data of the

respondents who could be met and interviewed are as follows:

Table 1. Identity of the respondents based on gender and age in Kepuh market Kuningan and Jagasatru market Cirebon.

No	Respondents' identity	Gender (%)		Age (%)	
		Male	Female	20 - 35	35 - 50
1.	Kepuh market	10	90	85	15
2.	Jagasatru market	20	80	75	25

The table above shows that consumers who bought vegetables in Kepuh market were 90% female and 10% male, while in Jagasatru market, 80% of respondents were female and 20% were male. Male buyers in Kepuh market stated that they bought vegetables because there were other things to do in the market, while those in Jagastru market stated that the reason was because of their pets. Meanwhile, the children buyers gave the same answer telling that they were asked by their mothers to buy vegetables at the market on their way back home from school. Based on the age, 85% of the consumers in Kepuh market are generally between 20 to 35 years old and 15% of them are mothers between 35-50 years old. While in Jagastru market, 75% of the consumers are generally between 20 to 35 years old and 25% of them are between 35-50 years old.

Table 2. Identity of the respondents based on income and expense level in Kepuh market Kuningan and Jagasatru market Cirebon

No	Respondents' identity	Income level of the respondents (%)			
		> IDR 1,000,000	IDR 1,000,000	IDR 2,000,000	> IDR 2,000,000
1.	Pasar Kepuh	20	45	25	10
2.	Pasar Jagasatru	5	25	45	25

Based on data obtained, the economic stratification of people in Cirebon is better than in Kuningan (Table 2). But there are similarities that

the distribution of respondents' income level accumulates in the range of income levels between IDR 1 million - 2 million as many as 70% of respondents. There was 85% of respondents spending IDR 100,000 - 200,000 to buy vegetables per month, 2.5% spending less than IDR 100,000 per month, and 7.5% spending more than IDR. 200,000 per month. The highest monthly expense to buy vegetables was IDR 250,000 and the lowest was IDR 72,000 with the average value of IDR 153,550.

3.2. Decision-making process in vegetable purchases

According to Damayanti [13], respondents' preferences in buying vegetables due to their knowledge about the content of vitamins contained in vegetables are stated to be very dependent on a person's cognitive and accessibility level. Data analysis results are presented as follows:

Table 3. Respondent's preference on purchasing decision of vegetables in Kepuh market Kuningan and Jagasatru market Cirebon

No	Respondents' identity	Nutrition value (%)		Information (%)	
		Nutrition content	Habits	Friends	Social media
1.	Kepuh market	66	34	68	32
2.	Jagasatru market	85	15	48	52

The table above shows that respondents in Kuningan claiming to buy vegetables due to the nutritional content was amounted to 66% and 34% of them stated that they bought the vegetables due to their habits. The knowledge of the respondents in Cirebon about nutrient content in vegetables is higher proved by 85% of the respondents stating to buy vegetables because of the nutrient content and the rest of 15% claimed to buy vegetables because of their habits. 68% of the respondents in Kuningan obtained information about vegetables from friends / relatives / neighbors / relatives and 32% of them obtained information from social media. While in Cirebon City, 48% of respondents obtained information about vegetables from friends / relatives / neighbors / relatives and 52% of them obtained information by searching from social media.

As many as 24 respondents (60%) claimed to choose the Kepuh and Jagasatru market by considering prices, 65% by considering loyalty, 75% by considering the variety of the vegetables

available at the market, and 45% by considering the management of the market. The response of the respondents after purchasing vegetables in Kepuh and Jagasatru market showed that they were satisfied, in terms of various aspects such as price, variety of the vegetables, place, convenience and even market management. This condition was supported by the policies of both cities in building a clean and beautiful traditional market. It attracted the consumers to re-purchase vegetables in traditional markets.

3.3. Analysis of factors affecting the purchase decision

The average value of the two research sites, using the variable of decision-making factors in vegetable purchasing, was grouped into 3 factors that have significant effect on purchasing decisions of vegetables with factor loading values ranging from 0.47 to 0.92.

1. Environmental factors.
   a) The influence of culture in Kuningan and Cirebon are in the high category and medium category with factor loading of 0.80 and 0.70, respectively.
   b) The influence of family motivation in Kuningan and Cirebon are both in the medium category with factor loading of 0.63.
   c) The influence of social stratification in Kuningan and Cirebon are in the low category and medium category with a factor loading of 0.47 and 0.73, respectively.
2. Psychological factors.
   a) The influence of information processing in Kuningan and Cirebon are both in the medium category with factor loading of 0.70.
   b) The influence of the price of vegetables in Kuningan and Cirebon are both in the high category with factor loading of 0.83 and 0.81, consecutively.
   c) The influence of the types of vegetables in Kuningan and Cirebon are in the high category and medium category with factor loading of 0.80 and 0.75, consecutively.
   d) The influence of social stratification in Kuningan and Cirebon are in the medium category and high category with factor loading of 0.70 and 0.81, consecutively.
3. Attribute factors.
   a) The influence of prices in Kuningan and Cirebon are both in the high category with factor loading of 0.83 and 0.81, respectively.
   b) The influence of quality in Kuningan and Cirebon are in the medium category and high category with factor loading of 0.73 and 0.81, respectively.
   c) The influence of the types of vegetables in Kuningan and Cirebon are in the high category and medium category with factor loading of 0.83 and 0.72, respectively.
   d) The influence of location in Kuningan and Cirebon are both the medium category with factor loading of 0.73.

There is difference in eating culture and habits in both regions. This will affect the preference for purchasing vegetables. People in Kuningan who are influenced by Sundanese culture usually eat vegetables in the form of fresh vegetables and cooked. While the people of Cirebon used to eat cooked/processed vegetables.

4 Conclusion

Based on the research results, it can be concluded that the factors influencing the preference of the consumers in Kuningan and Cirebon are as follow:
1. Environmental factors which influence the purchase of vegetables in Kuningan in the high category and in Cirebon in the medium category with factor loading of 0.80 and 0.70, respectively.
2. Psychological factors which influence the purchase of vegetables in both Kuningan and Cirebon in the medium category with factor loading of 0.70.
3. Attribute factors which influence the purchase of vegetables in Kuningan in the medium category and in Cirebon in the high category with factor loading of 0.73 and 0.81, respectively.

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