# Customer Value Analysis of Hydroponic and Organic Vegetable Products with Conjoint Analysis Approach

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## Abstract

The aim of this study is to analyze costumer value by their preferences on organic and hydroponic vegetables. This study conducted in Bengkayang, West Kalimantan with the member of Christian Women of Indonesia as participants. This study conducted with conjoint analysis approach. This research found that there are four important things for the consumer to make a purchase decision for this hydroponic and organic vegetables. They are packaging, kind of vegetables, price, and the label of brand. Producent can use this research findings to build a strategy for their product management.

Keywords: Consumer Behaviour, Costumer Value, Customer Preferences, Hydroponic and Organic, Conjoint Analysis

## Introduction

Today, people are starting to be spoiled with various choices of products and brands to fulfill their needs and desires. Therefore, marketers in the current era must first understand the values of their consumers before designing products in order to meet the expectations and criteria of their consumers (Keller & Webster, 2011).

For marketers, customers are very important parties in the spearhead of their business activities. This makes good marketers benefit from customer satisfaction (Bagozzi, 2006). It is important for every marketer to understand what consumers want and need (Aaker & Keller, 1990). Because the needs and wants of consumers are what keep marketers and business organizations afloat. Customer needs and wants are basically driven by several psychological factors consisting of affective, cognitive, and conative aspects (Ajzen, 2015). Ajzen said that these three aspects greatly influence consumers in making various decisions. One of the manifestations of these aspects is the formation of customer value.

In collective societies such as Asian societies, customer value is also heavily influenced by the closeness and breadth of social networks (Yoon, 2012). In general, Asian people strongly consider the input and reviews submitted by those closest to them. One of the problems that is being discussed by many people today is healthy living awareness. The phenomena of illness and even death caused by unhealthy lifestyles are realized to be one of the factors that encourage the formation of new customer values. These issues also shape public awareness of healthy living, which has begun to increase in recent years. This is evidenced by the increasing sales of vegetable products for consumption that do not use chemical fertilizers in the planting process. These products are called organic products. Organic products that can be found in the forms of agricultural and livestock products.

In addition, another healthy product alternative that is currently developing is soil-less agricultural products, or what is known as the hydroponic planting method. Vegetables

produced from hydroponic growing methods tend to be cleaner because they do not use soil as a growing medium (Yasmin et al., 2017).

Organic and hydroponic farming methods have been very widely applied by households and institutions in Bengkayang Regency itself. This is evident from educational institutions such as Shanti Bhuana Institute, SDN 02 Bengkayang, church institutions such as the Indonesian Spiritual Feeding Church (GSRI) Bengkayang, as well as villages where students perform community service have also begun to develop hydroponic and organic vegetables. However, marketers need to start with the target market in order to make these products have a marketable value (Varadarajan, 2010). Marketers need to know customer value, which is defined as the preference choice of consumers and customers about the attributes of the product to be offered (Aziz & Yasin, 2004). This study will examine consumer value based on product attribute preferences and its relation to the choice of organic and hydroponic vegetable products in Bengkayang district, West Kalimantan.

## Literature Review

*Customer Value*
Customer value is a bond that arises in the emotional aspects between customers and marketers (Payne et al., 2017). The emotional bond can be in the form of economic, functional, and psychological benefits and is a consequence of customers using products and services to meet certain needs and desires. There are two things that make up customer value, namely the sacrifices incurred (cost) and the benefits obtained (benefit) (Hur et al., 2011). Costs include money, time, energy, and psychological costs. Benefits include products, services, personals, and image. Another definition was put forward by Zeithaml et al. (1996), where customer value is the difference between total customer value and total customer cost. According to Zeithaml et al. (1996), total customer value is a set of benefits expected by customers from a particular product or service. Meanwhile, total customer costs are a set of costs expected by consumers to be incurred to evaluate, obtain, use, and dispose of products or services. This is what ultimately forms the behavior decision of the customer. The definition expressed by Zeithaml et al. (1996) shows that customer value involves benefits and sacrifices, where customers will compare the gains from the benefits and sacrifices made. If the perceived benefits are greater than the sacrifice, it is likely that he will choose the value of the offer, and vice versa if the perceived benefits are less than the sacrifice made, the customer will leave the company's offer.

There are four appropriate ways for companies to set the price of services or products based on the definition of value in the eyes of customers (Rehman, 2006), which are as follows: (1) low price, one of the things that is declared to have customer value is a low or cheap price. Consumers perceive that a product or service will be valuable if it sets a low or cheap price; (2) consumer expectations. For consumers, a good product is one that fulfils everything that consumers want in a product or service. The price set is not the main thing as long as consumers get what they want from the product or service received, so value is perceived as the highest quality of the product or service; (3) balance of exchange. Often the benchmark for consumers is the quality that consumers receive from the price paid. Some consumers see value as a balanced exchange between the money paid and the quality of the product or service obtained; and (4) comparison of sacrifice and gain. Value is what is obtained from what is given. Finally, consumers consider that all benefits obtained such as money, time, and effort can explain the meaning of value.The four definitions of value in the eyes of customers can be interpreted as the value obtained is all the results obtained by consumers from products or services based on their perception of what is obtained and what is given (Saraswatiwulandari & Santika, 2014).

Customer perceptions when responding to a product are different. Evaluation of the product is carried out not only when deciding to buy but also during use and after using the product (Zhang, 2015). In this case, customer value is the final part of the value system that will show the success of marketers in marketing products and services to consumers.

Burmann et al. (2009) outlined the factors that determine customer value. The research findings resulted in five value factors called value stars, consisting of price, product quality, trust, experience, and energy. This value star is grouped into two categories, namely rational value, which includes price and product quality, and emotional value, which includes trust, experience, and sacrifice. Previous research by Wijanarko (2014) in the context of electronic product brands found that customer value greatly affects customer satisfaction and ultimately will also affect customer loyalty. This result is also reinforced by the findings of Mardikawati and Farida (2013) that in service companies such as bus transportation, customer value also influences considerations for decisions and customer actions when using transportation mode services.

**Methodology**

The sample in this study were women members of the Bengkayang branch of the Indonesian Christian Women's Association. At the FGD stage, the mothers who attended were 15 people. And in the second stage, namely data collection based on the stimulus made, it was randomly conducted on five housewives in Bengkayang. This research uses a conjoin analysis approach. Conjoint analysis is an analytical technique that can be used to determine the relative importance based on customer perceptions brought by a particular product and the utility value that arises from related product attributes (Malhotra, 2012). In Green & Krieger (1991), conjoint analysis can also be used to view and analyze market segmentation of a product or brand.

The steps in conducting conjoin analysis according to Malhotra (2012) are:
a. exploring and formulating product or brand attributes;
b. create a stimulus combination based on the findings of these attributes;
c. data collection;
d. perform conjoint analysis procedures;
e. interpreting the results; and
f. testing reliability and validity.

The first stage of this research was to explore the attributes of organic and hydroponic vegetable products through focus group discussions (FGDs). The participants of this FGD are mothers who are members of the Persatuan Wanita Kristen Indonesia branch of Bengkayang Regency. The selection of mothers as participants is because mothers are consumption decision-makers in the household (Kotler & Kartajaya, 2019). The second stage is carried out with reference to the data processing process using conjoint analysis and interpretation of results. Based on the results of the focus group discussions conducted, the attributes of hydroponic and organic vegetable products are formulated as shown in the table below:

## Table 1. Product Attributes

| No | Attribute | Variation of attribute |
|----|-----------|------------------------|
| 1 | types of vegetable | 1. Hidroponic<br>2. Organic |
| 2 | packaging | 1. Plastic bag<br>2. Paper bag |
| 3 | Brand labeling | 1. with brand label<br>2. without brand label |
| 4 | Price | 1. < Rp 10.000<br>2. > Rp 10.000 |

Source: Authors (2023)

Based on the product attributes, we created stimulus combinations. Based on the results of the previously formulated attributes, 8 combinations were made obtained from the results of data processing with the help of SPSS version 23 software called stimulus cards. The stimulus card combinations are as follows:

## Table 2. Stimuli card

| Number | Stimuli Combination |
|--------|---------------------|
| 1 | Organic, plastic bag, without brand labels, > Rp 10.000 |
| 2 | Hydroponic, paper bag, without brand labels , < Rp 10.000 |
| 3 | Organic, plastic bag, without brand labels, < Rp 10.000 |
| 4 | Organic, paper bag, with brand labels, < Rp 10.000 |
| 5 | Hydroponic, paper bag, with brand labels, > Rp 10.000 |
| 6 | Hydroponic, plastic bag, with brand labels, < Rp 10.000 |
| 7 | Organic, paper bag, with brand labels, > Rp 10.000 |
| 8 | Hydroponic, plastic bag, with brand labels, > Rp 10.000 |

Source: Authors (2023)

Respondents were asked to sort from the most preferred combination (ranked 1, point 8) to the least preferred combination (ranked 8, point 1). After the data was collected, it was entered into the SPSS version 23 software. Then data processing was carried out by entering the syntax as follows:

```
CONJOINT PLAN=  'C:\KONJOIN_HIDROPONIK\stimulus_sayur.sav'
 /DATA= 'C:\KONJOIN_HIDROPONIK\responden.sav'
 /SCORE=p1 TO p8
 /SUBJECT=Responden
 /FACTORS=variation packaging labels price
 /PRINT= ALL
```

## Findings

After the data is entered in the conjoint syntax that has been made, the results of the data processing are as follows:

**Table 3. Individual data processing results**

| No. | Variations | | Packaging | | Label | | Price | |
|---|---|---|---|---|---|---|---|---|
| | Hydroponic | Organic | Plastic | Paper | With labels | Without labels | < 10.000 | > 10.000 |
| 1 | 0,750 | -0,750 | 0,00 | 0,00 | 1,250 | -1,250 | 1,250 | -1,250 |
| 2 | 1,00 | -1,00 | 0,250 | -0,250 | 0,250 | -0,250 | 1,00 | -1,00 |
| 3 | 1,500 | -1,500 | -1,500 | 1,500 | 0,00 | 0,00 | 0,250 | -0,250 |
| 4 | 0,250 | -0,250 | -1,00 | 1,00 | 0,250 | -0,250 | 0,500 | -0,500 |
| 5 | 0,250 | -0,250 | -1,250 | 1,250 | 0,00 | 0,00 | 0,00 | 0,00 |
| Overall | 0,750 | -0,750 | -0,700 | 0,700 | 0,350 | -0,350 | 0,600 | -0,600 |
| Importance Value | 27,679 | | 37,897 | | 12,192 | | 22,231 | |

Source: Authors (2023)

**Table 4. Overall Data result**

| Attributes | Importance Value | Order of importance |
|---|---|---|
| Variation | 27,679 | 2 |
| Packaging | 37,897 | 1 |
| Labels | 12,192 | 4 |
| Price | 22,231 | 3 |
| Pearson's R | | Value : 0,793 (Sig. : 0,009) |
| Kendall's Tau | | Value: 0,643 (Sig. :0,013) |

Source: Authors (2023)

## Discussion

From the results of the data processing, it can be seen that in the analysis of individual preferences, consumers prefer hydroponic vegetables over organic. Plastic or paper packaging is not a problem as long as it is branded and sold at a price below IDR 10,000. Consumer 2 also prefers hydroponic vegetables but prefers plastic packaging that is branded for the wrapper with a selling price below IDR 10,000. Consumer 3, who also prefers hydroponic vegetables in paper packaging. Brand is not an issue for consumer 3 and chooses a selling price below IDR 10,000. For consumer 4, hydroponic vegetables with branded paper packaging are also preferred, with a selling price below IDR 10,000. For consumer 5, hydroponic vegetables with paper packaging are the main choice. Regardless of the price and brand label, it is not an issue for consumer 5.

In general, packaging is the biggest consideration when consumers decide to buy vegetables. This is indicated by an importance value of 37.897. This is followed by the type of vegetable in the second preference order, with an importance value of 27.679. Price is the third consideration after packaging and type of vegetable, with an importance value of 22.231. The brand label comes last with an importance value of 12.192.

The results of this study show that there is a tendency for housewives to prefer if hydroponic and organic vegetable products are given packaging that distinguishes them from the general vegetables sold in the market. In addition, paper packaging can also provide an environmentally friendly image. This proves that packaging can also be the identity of a product (Ajzen, 2015). Hydroponic vegetables also tend to be preferred over organic vegetables allegedly because of the cleaner appearance of hydroponic vegetables because they do not use soil media in the planting process (Yasmin et al., 2017). In the findings of this research, price is the third consideration in the decision to buy this vegetable with an importance value of 22.231. And brand labels, although important, are not the main consideration of consumers

with an importance value of 12.192. Regarding validity and level of trust, the results of this study have a Pearson's R correlation value of 0.793 with a significance of 0.09 and Kendall's Tau of 0.643 with a significance level of 0.013. Based on the Pearson correlation value and Kendalls' tau, it can be seen that the significance value of the correlation of the two indicators is below 0.05. Which means that the results of this study are able to predict what is happening in the field and can be trusted (Kim et al, 2016).

Therefore, if hydroponic or organic vegetable producers want to sell their vegetables, please pay attention to the packaging because based on the results of this study, consumers can be said to be sensitive to vegetable packaging which is an identity and differentiation from conventional vegetables.

## Limitation/Implications/Conclusion

The purpose of this study was to analyze consumer preferences and values of hydroponic and organic healthy vegetable products. This research uses a conjoin analysis approach. The findings of this study are the main things that consumers consider in choosing hydroponic or organic vegetables in order are packaging, type of vegetable, price, and brand label. Paper packaging for hydroponic vegetables is preferred over plastic packaging and organic vegetables.

This study has limitations, among others, respondents were only mothers. In addition, this research method does not require many samples for the research process. Perhaps future research can add the number and variety of respondents so that the results can be more generalized. The coverage of the research area can also be included in the next research agenda.

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