Analysis of Household Consumers' Preferences for Packaged Milk

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Keywords:	Abstract
Conjoint analysis; consumers' preference; milk.	Increasing national milk consumption is a big opportunity for milk producers. In meeting market demands, producers must consider consumers' preferences. This research studied household characteristics, decision making processes, and preferences for packaged milk attributes in Jaten District. The study was conducted in December 2019 - January 2020 in Jaten District, Karanganyar. The research method used was survey method with 100 respondents from household consumers. Data collection was carried out by interview, observation and literature study. The data were implemented with descriptive analysis and conjoint analysis. The results showed that household respondents in Jaten District had the following characteristics: women (80%), ages 31-40 (36%), family size of 6 people (25%), high school education (36%), income of IDR 2,000. 000-2,5000 .000 / month (58%), milk purchasing costs IDR 10,000-25,000 / month (56%) with consumption of 3-4 packages / month (50%). Decision on the purchase of packaged milk consists of identifying needs, seeking information, evaluating alternatives, purchasing decisions, and post-purchase challenges. Household consumers' preferences for packaged milk products are those with mocca flavor, with prices less than IDR 5,000 per package, well-known brand, box packaging, and have clear expiration information. Prioritized attributes are expiration date, price, taste, brand, and packaging. The results of this study can be used as a reference by producers to maximize packaged milk products based on existing attributes.

INTRODUCTION

Milk is one of the primary products in animal husbandry that has many benefits. Consumption of packaged milk in Indonesia based on the data from the Central Bureau of Statistics in 2017 was around 16.5 liters / capita / year. Milk consumption in Indonesia has increased every year. According to the National Socio-Economic Survey, milk consumption grew rapidly by 12.41% during the period 2013 to 2018. Increased growth in milk consumption was caused by increased public awareness of the importance of healthy living (Hamtiah, et al, 2012).

The increasing growth of milk consumption in Indonesia raises problems for consumers and producers, i.e. the relatively low durability and storability of milk. This causes milk to stale quickly and difficult to sell. Weaknesses of milk can be reduced by the processing of milk. National Agency of Drug and Food Control (2015) stated the shelf life of milk can be extended by the application of preservation technology, including heat treatment or pasteurization method. One type of milk that applies the Ultra-High Temperature (UHT) method in its production process and is much loved by Indonesian people is packaged milk.

Packaged milk is one of the processed milk products that are processed using the Ultra-high Temperature Processing (UHT) method. Based on data from the Ministry of Agriculture (2018), it is known that the consumption of packaged milk (UHT milk) in Indonesia has increased from year to year. In 2015, consumption of packaged milk per capita was only 0.60 liters / year; however, in 2017 consumption of packaged milk per capita increased by 0.89 liters / year. Increased milk consumption is an opportunity for producers to market their products.

The large market potential is an attraction for dairy companies to enter and compete in it. This is proven by the many competing brands in packaged milk business. The tight competition requires producers to be able to master and develop good marketing strategies. Understanding the consumers is important market information for packaged milk producers to plan, develop, and market their products well so that they can ultimately provide recommendations on more effective marketing strategies according to consumer needs.

Research by Aizaki et al. (2012) showed that consumers in Japan pay attention to the quality of a product through its label. In regard to this, milk producers paid close attention to the label and packaging attributes in the production and marketing of their products. Preferred dairy product attributes by the Japanese people are 1-liter size packaging, original taste, price range of 160-200 yen, and have clear product information on the label and packaging.

Research by Neils & Williams (2016) stated that people in Texas prefer glass bottle packaging compared to other packagings and with the price range from $ 0.73 to $ 0.92. Texas people pay attention to the sustainability of the surrounding environment; therefore, they prefer glass bottle packaging because it can be reused.

Research by Onurlubaş & Yilmaz (2013) showed that the consumers in Kesan City, Turkey prefer packaged milk (51.8%) than fresh milk (48.2%). Consumers prefer

packaged milk because of the guaranteed quality and cleanliness of the product and lower risks to body health.

Research by Uzundumlu et al. (2018) showed that the expired information attribute (43.01%) was the most preferred attribute for UHT milk consumers Erzurum region, Turkey. Other attributes considered by consumers in buying UHT milk were brand (27.12%), price (14.79%), nutritional content (11.51%), packaging (0.82%), size (1.64%)), and taste (1.10%).

Research on consumers' preferences for dairy products usually only focuses on two aspects, i.e. consumers and products, without mentioning the process of how consumers choose the products according to their preferences. Therefore, the novelty of this study is studying the stages of consumers in making decisions before purchasing. The aims of this study were 1) analyzing consumer characteristics, 2) analyzing consumer processes in purchasing decision making, and 3) analyzing consumer preferences in packaged milk products in Jaten District, Karanganyar Regency. This research can be used as an evaluation material of production activities and consideration material in determining marketing strategies for packaged milk producers.

RESEARCH METHODS

The study was conducted from December 2019 until January 2020 in Jaten District, Karanganyar Regency. The location selection was done purposively with the consideration that Jaten District is an industrial center in Karanganyar Regency with higher average level of packaged milk consumption than other districts in Karanganyar Regency. The method used in this research was survey method.

The population used in this study was the households that bought and consumed packaged milk in Jaten District. Research respondents were housewives or family members who are responsible for making decisions for family consumption, as well as consuming packaged milk in the last 3 months and living in Jaten District. The numbers of samples taken in this study were 100 respondents.

Sampling was done by multistage random sampling method, which is the use of various random sampling methods together as efficiently and effectively as possible (Silvilia, 2015). The calculation used was standard deviation to help determine the homogeneity of the sub-district area. Village area determination was based on the number of residents living in the area or satisfied random sampling. The next step was determination of hamlet, which was carried out using the simple random sampling method. Three villages were selected as research locations: Suruhkalang Village, Jaten Village, and Ngingo Village. Next was the withdrawal of household samples that consume packaged milk.

Data were collected in the form of primary data and secondary data. Primary data were obtained from interview with respondents using questionnaires, while secondary data were obtained from relevant library sources. The data analysis method used was conjoint analysis that was conducted by the SPSS (Statistics Program for Social Science) program. This study used a complete combination method (full profile). Full profile method is the method of forming stimuli where all attributes are assessed together in the preparation of hypothetical products. The design of attribute level combination was done by SPSS orthogonal array design procedure to form 16 stimuli. The respondents' assessment of the combination of

packaged milk product attributes was done through the provision of scores based on Likert scale. This research was complemented by crosstab and chi-square analysis and correlation analysis to support the research results.

RESULT AND DISCUSSION
A Glimpse of Jaten Regency

Jaten District is one of the 17 subdistricts in Karanganyar Regency. The area of Jaten District is 25.55 km2 with an average height of 110 m above sea level. Administratively, Jaten District consists of 8 villages, 46 hamlets, 105 *dukuh*, 110 citizens association and 567 neighborhood association. The population of Jaten District in 2018 was 84,145 people, consisting of 41,425 men and 42,721 women. Jaten District's administrative boundary are: Kebakkramat District in the north, Sukoharjo Regency in the south, Surakarta City in the west, and Tasikmadu District and Karanganyar District in the east. The livelihoods of people in Jaten District include civil servants, traders, farmers, private employees, SoE employees, laborers, and domestic helpers (Central Bureau of Statistics of Karanganyar Regency, 2019).

Characteristics of Respondents

Based on Table 1, it is known that the majority of food purchases in the family are regulated by women with a percentage of 85%, while men only amount to 15%. Women generally pay more attention to the food needs of family members and are responsible for regulating household consumption; in line with the opinion of Amanaturrohim (2015) which stated that housewives play a role in determining and deciding food items to be consumed by families. According to Sundari (2016), most respondents who bought packaged milk were in the age range of 31-40 years with a percentage of 36%. People in this age range are mostly married and always try to meet the protein needs of their families; one of them is by consuming packaged milk because it is considered more practical. Respondents with the smallest percentage were 60 years old (9%) because they preferred fresh milk over packaged milk. The majority of respondents who consumed packaged milk have 6 family members (25%). According to Sundari (2016) respondents who consume packaged milk mostly have 4-6 family members. Most of the respondents in Jaten District are high school graduates or equivalent, amounting to 36%. This is in line with the opinion of Putri et al. (2015) which stated that the level of education of respondents influences the knowledge of packaged milk products.

Characteristics of respondents by gender, age, number of family members, and education, are presented in Table 1 as follows:

Table 1. Characteristics of Household Consumers

No	Characteristic	Number	Percentage
		---(person)---	---%---
1	Gender		
	Woman	85	85
	Man	15	15
		100	100,00
2	Age		
	21-30	25	25

	31-40	36	35
	41-50	14	14
	51-60	16	16
	>60	9	9
		100	100,00
3	Number of Family member		
	2	11	11
	3	17	17
	4	23	23
	5	24	24
	6	25	25
		100	100,00
4	Education		
	Elementary	13	13
	Middle School	17	17
	High School	36	36
	3-Year Diploma	29	19
	Bachelor	11	11
	Master	4	4
		100	100,00

Source: Processed Primary Data, 2020.

Crosstab and chi-square analysis were used to illustrate the relationship between income, family size, and household consumption level. Consumers who consume 1-2 boxes of milk per month are consumers with the income of IDR 1,000,000 - 2,500,000 (55.3%) while consumers who consume 3-4 boxes / month come from the income group of Rp 2,500,000 - 5,000,000 (80%), which means the higher the income, the more packaged milk are consumed every month. This is in line with research by Prastiwi and Setiyawan (2016) which stated that socioeconomic variables such as income, education level, and family size are significantly correlated with consumption of packaged milk. The highest consumption of packaged milk is 3-4 boxes per month (50%) (Table 2). Consumers who consume the largest number of packaged milk have as many as 6 family members, while families who only have 2 family members have the least consumption. This is in line with Destriana (2008) which stated that the number of family members has a positive and significant effect on the frequency of milk purchases. The more the number of family members, the consumption of packaged milk is also increasing.

Table 2. Crosstab income, number of family members, and consumption

No	Characteristic	Total Consumption of Packaged Milk			Total
		1-2	3-4	≥5	
		Unit/bulan			
1.	Household Income (IDR)				

	< IDR 1.000.000	0	1	0	1
	IDR 1.000.000 – 2.500.000	26	9	2	37
	IDR 2.500.000 – 5.000.000	21	40	1	62
	Total	47	50	3	100
2	Number of Family Member (person)				
	2	9	2	0	11
	3	15	2	0	17
	4	10	12	1	23
	5	3	20	1	24
	6	10	14	1	25
	Total	47	50	3	100

Source: processed primary data, 2020.

Decision Making Process

The first step in the decision to purchase packaged milk is to recognize the needs. The main reason for consumers to buy and consume packaged milk is practicality. Uzundumlu et al. (2018) stated that the majority of household consumers choose packaged milk over fresh milk because it is more practical and guaranteed quality. The main benefit most sought by consumers from packaged milk is to provide nutrition for the body. Haryadi (2017) stated that consuming milk regularly can provide many benefits for the body

The second stage is information seeking. At this stage, the source of information used by most consumers is personal experience. In contrast to Delley & Brunner (2020) which stated that consumers are more easily influenced by external parties such as close friends and social media in consuming a product. The focus of attention on the source of information is the quality of the product which includes taste, durability, and thickness. The most attractive form of promotion according to consumers is discount. According to Sundari (2016) the discounted price / discount is an effective method for marketing packaged milk products.

The third stage is alternative evaluation. The attributes of taste and durability are part of the quality of dairy products that are highly considered by respondents. Furthermore, the attribute that is considered important by consumers is price. Prastiwi and Setiyawan (2016) stated that milk consumers in Indonesia prefer processed milk products because of their longer shelf life and lower prices than fresh milk.

The most purchased brands of packaged milk are Ultramilk (51%) and Indomilk (39%). Milk brands are also considered by consumers before making a purchase. Khan (2012) states that the brand / brand is the attribute that most influences the consumer's desire to consume a product. The place to purchase packaged milk for the majority of respondents is a convenience store for reasons of convenience and is closer to consumers. Uzundumlu et al. (2018) stated that supermarket is the most popular place in buying milk because the consumers can directly buy milk in large quantities. Most consumers decide on a planned purchase. Packaged milk has become a daily family drink; therefore, consumers plan before making a purchase.

This is supported by Prasetio (2017), stated that Consumers make planned purchases of dairy products because they already know the benefits of drinking milk. Consumers give priority to dairy products in family consumption activities

Consumers of packaged milk in Jaten District tend to have a high level of loyalty in their favorite packaged milk brands. Consumers will look elsewhere if the preferred brand does not available. Consumers continue to buy despite price increases. Almost all consumers (98%) are satisfied with their chosen packaged milk brand and wish to consume it again. This is in line with Firmansyah (2008) which stated that consumers will feel satisfied if the milk products offered are as expected.

Household Consumers' Preference for Packaged Milk

Consumer preferences for packaged milk were analyzed using conjoint analysis with full profile approach. The packaged milk attributes studied included: flavor, packaging, price, brand, and expiration information. The conjoint analysis results of packaged milk preferences in Jaten District are shown in Table 3.

Tabel 3. Conjoint Analysis Results

Attributes	Information	Utility Estimate	Std. Error
Flavor	Original	0,076	0,034
	Fruits	-0,178	0,040
	Mocha	0,102	0,040
Packaging	Box	0,045	0,034
	Bottle	0,032	0,040
	Can	-0,077	0,040
Price	<IDR 5.000	0,360	0,034
	IDR 5.000- 10.000	0,052	0,040
	>IDR 10.000	-0,411	0,040
Brand	Popular	0,281	0,025
	Not Popular	-0,281	0,025
Expiry Information	Clear	0,634	0,025
	Unclear	-0,634	0,025
(*Constant*)		2,720	0,029

Source: Processed Primary Data, 2020.

Based on the results of the conjoint analysis, it is known that the level of expiry information attribute that clearly has the highest utility value is 0.634. This means that consumers are more concerned with clear product information than other attributes. The price preferred by consumers is around IDR 5,000 per package with a utility value of 0.360.

Famous packaged milk brands have a positive utility value of 0.281 which means that consumers prefer packaged milk with popular brands rather than the unpopular ones. The most favored flavor by consumers is mocha with the utility value of 0.102 which means that consumers prefer packaged milk that has the taste of mocha compared to fruit and original flavors. Packaging in the form of a box has the utility value of 0.045, which means that consumers prefer the milk packaged in boxes rather than in other packages.

Utility values are used to describe the level of choice between levels within an attribute. A feature of a product that gets the highest utility value shows the most preferred / most selected product combination (Santoso, 2010). Overall, consumers prefer packaged milk with mocha flavor at a price <IDR 5,000, box packaging,

popular brands that have clear expiry information. These results are different from Kapaj et al. (2011). The preferences of dairy consumers in the country of Albania are original flavor, low-fat UHT milk, packaged in glass bottles and bought from trusted milk shops, while Uzundumlu et al. (2018) showed that milk consumers in Erzurum City, Turkey prefers high fat dairy products, long shelf life, and clear information about dairy products on the label. The order of importance (importance value) of packaged milk attributes is shown in Table 4.

Table 4. Importance Value Conjoint of Packaged Milk Attributes

Attribute	*Importance Values* %
Flavor	18,447
Packaging	12,274
Price	23,021
Brand	14,722
Expiry Information	31,537

Source: Processed Primary Data, 2020.

Important attributes that influence consumers' preferences in buying a product are shown by their relative importance (Santoso, 2010). Based on Table 4, it can be seen that the most important attributes assessed by respondents in buying packaged milk is expired information attribute with importance value of 31.537%, then followed consecutively by price (23,021%), taste (18,447%), brand (14,722%), and packaging (12,274%). This is in accordance Uzundumlu et al. (2018) that the expiry information attribute is the most preferred attribute by UHT milk consumers in Turkey.

Flavor Attribute

The taste attribute has an importance value of 18,447% (Table 4). This shows that taste is one of the main factors in determining the purchase of packaged milk. Pratama (2018) who conducted research on consumer ratings of packaged milk showed that the milk flavor attribute is an important aspect that consumers consider before making a purchase based on their preferences
Consumers prefer mocha flavors (0.102) than original flavors (0.076) and fruits (-0.178). Mocha flavored milk is preferred by many consumers because it has an espresso flavor combined with chocolate and milk that makes a distinctive taste and is suitable for milk and coffee enthusiasts.

Packaging Attribute

Packaging becomes the last attribute considered by consumers in purchasing packaged milk with an importance value of 12.274% (Table 4). Consumers do not make the form of packaging as a top priority. However, producers should pay attention to the packaging attributes because packaging on the product will be an attraction for consumers.

The type of milk packaging favored by consumers is box with an importance value of 0.045, then bottle with the value of 0.032. On the other hand, can packaging is less preferred and has negative utility of - 0.07. This is because consumers consider box packaging is more practical to use.

Price Attribute

Price is the third attribute that is considered important by respondents. Importance value of the price attribute is 23,021% (Table 4). The price of packaged milk which ranges from less than IDR 5,000.00 per package is preferred by consumers compared to the existing price of IDR 5,000.00 - IDR 10,000.00 or more than IDR. 10,000.00 per package.

The price of IDR 5,000 / package, according to the majority of respondents, is considered quite appropriate and affordable. Setting price of more than IDR 10,000 / package is considered too expensive because most respondents belong to the middle income group. Prices below IDR 5,000 / package are considered to be in accordance with the expected quantity and quality. Pricing should be based on consumers' perceptions about the value they get (Kotler & Keller, 2007).

Brand Attribute

Brand is considered important by consumers in purchasing packaged milk with importance value of 14.722% (Table 4). Brand is an indicator of the quality or service that distinguishes a product from other products.
Packaged milk brands can be divided into popular and unpopular brands. Brand classification is based on the results of the Top Brand Index survey in 2019.

Popular brands of milk products are considered more preferred by consumers with the utility of 0.281, whereas the unpopular brands are less favored by consumers and have negative utility value of -0.281. This is in accordance with Nasution (2009), stated that consumers are more interested in popular brands of packaged milk products than those that are not popular.
- Popular brands are brands that dominate the domestic market share based on the 2019 Top Brand Index survey: Ultra Milk, Indomilk, Bear Brand, Frisian Flag, Milo.
- Unpopular brand are brands that are not included in the category of popular brands: Chil-go, Fresh Milk, Hilo, etc.

Expiry Information Attribute

The expiry information attribute is the factor that is considered the most important before the consumer decides to purchase. Importance value of expiry information attribute is 31,537 (Table 4).

Clear expiry information on packaged milk products has utility value of 0.634, while expiry information that is not clearly written on the product has negative utility value of -0,634. That is, consumers prefer packaged milk products that have clear expiration information than the unclear ones. Suprapto et al. (2014) showed that factors that encourage a person to buy packaged milk products are price, completeness of nutritional content, long expiration period, product availability, and clarity of information contained on product packaging.

CONCLUSION

Based on the results of the study, it was concluded that the preference of packaged milk in household consumers in Jaten District is mocha flavor, the price that is no more than IDR 5,000.00 per package, popular brand, box packaging, and has clear expiry information. The most preferred brand is Ultramilk. Based on the

value of relative importance, the attributes that are most prioritized by consumers are expiry information, price, taste, brand, and packaging.

RECOMMENDATION

Producers must maximize service and product quality and balance it with well-coordinated marketing activities. Good experiences of consumers when consuming dairy products can build a good brand image in their minds. The quality of existing product attributes should be paid more attention and improved.

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