



Market segmentation of Roasted Bean

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Abstract

Domestic coffee consumption in Indonesia for the past 7 years has increased. This is supported by the rapid growth of the number of coffee shops in Indonesia, one of which is the City of Bogor. The number of businesses engaged in the similar field raises high competition among producers in the coffee shop business. One effort that needs to be done to face the competition is by determining the right market segmentation in marketing the product. One of the coffee shops that is facing such competition is MM Café. Thus, the MM Cafemanager have to know which market segmentation that will be targeted at marketing their roasted bean products. The purpose of this study is to identify consumer characteristics, product characteristics, consumer behavior and identify whether there are differences between consumers who buy light roasted and medium roasted beans. The sample selection in this study used systematic random sampling technique with a sample of 110 respondents. The analysis used was descriptive analysis, discriminant analysis, and covariance matrix test. The results of the study showed that there were three market segmentations that must be addressed, namely demographic, geographical and psychographic segmentation. The results of hypothesis testing indicated that three indicators of consumer characteristics and consumer behavior $0.049 \leq 0.05$ (significant level of 5%), which means that there were differences in the average of two categories, Light Roasted and Medium Roasted. The difference was in consumer characteristics which consists of age, costs incurred to buy roasted beans and the distance from home to the coffee shop.

Keywords: Market segmentation, roasted Bean, discriminant analysis, Bogor.

Introduction

Coffee is one of the drinks that are often consumed by Indonesians, besides that, coffee is one of the commodities of plantation which has an important role in economic activities in Indonesia. The contribution of the plantation sub-sector in GDP was around 3.46 percent in 2016 which ranked first in the Agriculture, Livestock, Hunting and Agricultural Services sectors¹. Increased coffee consumption also resulted in many businesses engaged in the coffee industry such as becoming a producer of processed coffee beans or coffee shops. The Association of Indonesian Coffee Exporters noted an increase in coffee consumption in Indonesia occurred almost every year.

Nowadays drinking coffee has become a habit for a long time. For some people, drinking a cup of coffee has become a routine thus many coffee producers set up a coffee shop. The coffee shop industry is one of the sectors that have experienced rapid growth in recent years. Changes in the lifestyle of urban communities as well as the development of trends in people who like to socialize and do other activities in the coffee shop are suspected to be the main factors. However, besides drinking coffee, there are several coffee shops that sell roasted bean products.

MM Cafe is one of the cafes in the city of Bogor, which is located in the Commercial Complex of Braja Mustika No 14, Jl. Dr. Semeru, Menteng, West Bogor, Bogor City. MM

Cafe obtains its main raw material which is coffee from a supplier, Malabar Mountain Coffee (PT Sinar Mayang Lestari), located in Pangalengan, West Java, which has won once at the Australian International Coffee Roaster event in Melbourne, Australia. Thus, MM Cafe has its own charm in attracting the attention of consumers and the coffee products from Malabar Mountain are already well-known in West Java and outside West Java. MM Cafe Bogor also sells its roasted bean products famously branded as "Malabar Mountain Coffee".

There are two types of roasted beans sold by MM Cafe Bogor namely Light Roasted and Medium Roasted. Light Roasted bean type is usually used for drinks such as Manual Brew (V60, Siphon, Aeropres, Kalita, etc.). Meanwhile, Medium Roasted is usually used for Espresso Base (such as Cappuccino, Espresso, Latte, etc.).

One of the ways to win market competition is to develop a segmenting strategy. In its efforts to provide satisfaction to consumers with what is desired by consumers, companies need to group consumers or buyers according to their needs and desires. The group of consumers grouped is called the market segment, while the grouping attempt is known as market segmentation.

In the midst of this coffee shop competition and by considering the importance of doing segmentation in identifying consumers needs appropriately and creating products quickly by maximizing the resources owned.

Methodology

This research analyzes the segmentation of roasted bean markets. The objects studied were consumers who bought roasted beans. The implementation and location of this research took place at MM Cafe located in Bogor. The research method used was survey method. The data used were secondary data and primary data. This study involved all individuals in the population, thus the authors chose probability sampling techniques, namely random sampling techniques. The sampling model used the Systematic Random Sampling method, which is sampling using a certain interval. Systematic sampling is a method where only the first element of the sample is randomly chosen while the subsequent elements are systematically selected according to a particular pattern². The numbers of samples in this study were 110 respondents.

In this study, the data collection techniques were in the form of observation, interviews, literature studies, and questionnaires. The analyses used in this study were: i. Descriptive analysis is a statistic used to analyze data by describing or describe the data that has been collected as it is without intending to make a conclusions. In this research descriptive analysis was used to identify consumer characteristics, roasted bean product characteristics, and consumer behavior characteristics at MM Cafe Bogor. ii. Discriminant analysis was used to identify differences in market segmentation between light roasted and medium roasted beans based on consumer characteristics, and behavior characteristics of consumers who buy roasted beans at MM Cafe Bogor. iii. Homogeneity of the Covariance Matrix test is used to test the variance of each variable by using the Box's M test. iv. 4. The average vector similarity test was used to find the average of each group using the wilk's lambda test statistic.

The variables operationalized in this study are consumer characteristics, consumer behavior and product attributes. Definition of research variables are: i. Consumer characteristics contain information of the identity of the respondents such as: age, income, education, occupation, gender, distance to the coffee shop, travel time to the coffee shop and the consumers' residence. ii. Consumer behavior means how individuals make decisions to spend their available resources like time, money, effort on consumption of different products and services³. In this study, the variables examined from consumer behavior are seen from the consumers' lifestyle, namely the costs incurred to buy roasted beans, the intensity of purchasing roasted beans, and the roasted bean buyer category. Lifestyle is a pattern in which people live by spending time and money. Service is the process of fulfilling needs through other people's activities directly. iii. Product attributes are components that are product characteristics that ensure that the product can meet the needs and desires expected by the buyer⁴. In this case the product attributes are Price, Taste, Aroma and Brand. Price is a certain value that must be paid for the value of a product or service that has been purchased or used⁵. Taste is one of the factors forming intrinsic product attributes. Consumers will pay attention to the

taste choices of the products offered when choosing products. Taste can be felt when the product will be consumed by consumers. The taste is very related to the tastes of consumers so that the choice of taste offered to be considered by consumers, because not all flavors offered are in accordance with consumer tastes⁶. Aroma is an attribute that forms intrinsic product attributes because aroma can be identified when the product is going to be consumed. The aroma of a product will affect consumers' reaction to the product before they even consume it. Brand is the means for producers to convey the value and quality of a product so that loyal consumers buy the products they offer. Without a brand, a product will be difficult for consumers to recognize, and consumers will also doubt the product⁷.

The data used in the discriminant, homogeneity test of covariance matrix and vector similarity test, was the primary data obtained from the distribution of questionnaires.

In the covariance matrix test, the assumptions that must be fulfilled were the group covariance matrices of each variables was relatively the same.

Hypothesis: H_0 : Matrix covariance groups were relatively similar (both satisfied and dissatisfied dependent variables have the same variance-covariance matrix in existing groups). H_1 : Relatively different matrix covariance groups (both satisfied and dissatisfied dependent variables have different variance-covariance matrices in existing groups).

The significance level used = 0.05.

Test Criteria: Rejected if the sig. value on the Test Result < 0,05.

In the vector similarity test the average hypothesis testing was: i. $H_0: \mu_1 = \mu_2$ (there is no average difference between the two categories), ii. $H_0: \mu_1 \neq \mu_2$ (there are differences in the average between the two categories)

Test Statistics: The test statistic used in testing the hypothesis was the Wilk's Lambda statistic.

Test Criteria: Reject if the sign $H_0 < 0,05$, or vice versa. The expectation in this test is to be rejected.

Results and discussion

Consumer Characteristics: Consumers who buy roasted beans in MM Cafe have an average age of 23-37 years predominantly male who has a bachelor degree education (undergraduate/graduate/postgraduate) and has a job as a private employee and has four family members. The average distance covered by the consumers from their house to the coffee shop to buy roasted beans at MM Cafe is 1-15km with a travel time of 1-20 minutes and resided in the city of Bogor.

Characteristics of Consumer Behavior: The behavior of consumers who buy roasted beans at MM Cafe, on average, purchases these roasted beans per month for about 1 purchase/month and costs Rp. 60,000 - Rp. 120,000. The average consumers who buy roasted beans are mostly included in the category of coffee lovers, where coffee lovers are consumers who usually drink coffee as a daily ritual, understand various types of coffee and coffee brewing techniques, and tend to prefer pure coffee than coffee which have other mixtures.

Characteristics of Product Attributes: The average consumers who buy roasted beans in MM Cafe agrees that the roasted bean provided by MM Cafe has a consistent taste at every purchase and is in accordance with the consumers' taste preference. Then, for the aroma of the roasted bean, the average consumer agrees that roasted bean in MM has a distinctive aroma, distinguishing aroma, and strong aroma. As for the roasted bean brand provided by MM Cafes, it already has a brand that is well-known and memorable to consumers.

Age Variable: The average age group score that prefers light roasted bean products is 33.85, higher than the average age group score that chose medium roasted beans which was 27.26. This means that even though light roasted bean is preferred by 23-37 years old, there is a tendency that the older the respondents, the less they buy light roasted bean products.

Distance from home to coffee shop variable: The average distance variable score for roasted bean light roasted bean products is 24.27, higher than the distance score of the group that chooses medium roasted which is 8.52.

Costs incurred variable: The average score of cost variable for choosing light roasted bean products is 16,642, higher than the average score on the costs incurred to purchase coffee beans variable to choose the medium roasted bean product, which is 8,355. This means that consumers often spend around Rp. 60,000 - Rp. 120,000 to buy light roasted bean products.

Table-1: Homogeneity Test of Covariance Matrix.

Test Result		
F	Sign.	0,000

Based on Table-2, the results of the homogeneity test of the variance-covariance matrix are obtained with sig. output value 0. Because the sig value. In the Test Results table <0.05 then H0 is rejected. This means that the matrix covariance group is not the same (heterogeneous).

Table-2: Significance of Discriminat Functions.

Eigen values	
Function	Canonical Correlation
1	.373

The Table-2 above shows the value of Canonical Correlation 0.373. This means that the difference between Light Roasted and Medium Roasted beans consumers can be explained by age, cost and distance of 37.3% and the remaining 62.7% is influenced by other variables.

Table-3: Test of Function.

Wilks' Lambda	
Test of Function(s)	Sig.
1	.049

The Table-3 above shows the sign. value = 0.049 ≤ 0.05 which means that Ho is rejected. In conclusion, there are differences in the average of two categories of Light Roasted and Medium Roasted beans. The difference is in the consumer characteristics which consists of age, costs incurred to buy roasted beans and the distance from home to the coffee shop.

Table-4: Tests of Equality of Group Means.

	Wilks' Lambda	F	df1	df2	Sig.
Age	.928	8.420	1	108	.004
Cost	.960	4.557	1	108	.035
Distance	.935	7.561	1	108	.007
Income	.995	.588	1	108	.445
Family members	.996	.384	1	108	.537
Intensity of Purchase	.992	.860	1	108	.356
Time	.983	1.864	1	108	.175
Price	.994	.696	1	108	.406

Based on Table-4, the output sig value is obtained namely the age variable with a sign. value of 0.004, costs variable with a sign. value of 0.035 and distance variable with a sign. value. <0.5 thus they are rejected. The conclusion is that there are only three variables, namely Age, Cost and Distance and that can be used to identify differences between categories. Thus, the variables that are feasible and can be used for discriminant analysis are Age, Cost and Distance.

Table-5: Correlation between Variables.

Variables	Function
Age	.695
Distance	.658
Cost	.511
Time	.327
Intensity of Purchase	.222
Price	.200
Income	.183
Family Members	-.148

Based on Table-5, it shows that the highest correlation between consumers who buy light roasted and medium roasted is in the price variable, which is 0.69% higher than the family member variable, which is -0.148. It can be concluded that the age variable has a relation with consumers in choosing light roasted or medium roasted beans. This is because each age groups has their own taste preference. If consumers at a certain age choose the light roasted beans, then these consumers prefer coffee with high acidity and complex, high sweetness level and bitterness that is balanced with the sweet and sour taste that exists. Whereas, if consumers at a certain age choose medium roasted beans, those consumers prefer lower acidity, not too significant sweetness level, and high bitterness level.

Seen from the Table-6, the function that is almost similar to the multiple regression equation is obtained, which in discriminant

analysis is called the discriminant function. The discriminant function can be written as follows: $z\ score = -2.452 + 0.046age + 0.004cost + 0.057distance - 0.052earnings + 0.164\ family\ members + 0.251intensity\ of\ purchase - 0.025time - 0.023price$.

Viewed from Table-7, there is a classification between consumers who buy light roasted and medium roasted beans. This is used to see how big the match between the prediction and the original amounted to 63.64%.

Tabel-6: Discriminant Equations.

Canonical Discriminant Function Coefficients	
Variables	Function
	1
Age	.046
Cost	.004
Distance	.057
Income	-.052
Family members	.164
Intensity of purchase	.251
Time	-.025
Price	-.023
Constant	-2.452

Table-7: Classification Results.

	Count / %	Coffee choices	Predicted Group Membership		Total
			Medium Roasted	Light Roasted	
Original	Count	Medium Roasted	24	7	31
		Light Roasted	33	46	79
	%	Medium Roasted	77.4	22.6	100.0
		Light Roasted	41.8	58.2	100.0

Roasted Bean Segmentation Market: Market segmentation is the process of sorting a market into a group containing similar consumers, then selecting the group and the most appropriate individuals to be served⁸. Market segmentation is a grouping of markets from heterogeneous markets to homogeneous markets based on geographical, demographic, psychographic factors, and consumer behavior. The purpose of market segmentation is to distribute products to potential markets, to plan products for market demand, to determine effective specific product promotions, and to identify market targets. Light roasted and roasted medium beans segmentation is chosen by different variables, namely age, costs incurred to purchase roasted beans and distance from home to coffee shop where the age variable is included in the demographic segmentation, distance variable is included in geographic segmentation and costs incurred to purchase roasted beans variable is included in psychographic segmentation by looking at the consumer's lifestyle.

Table-8: Dominant Variables.

Variable	Mean	
	Light Roasted	Medium Roasted
Age	34	28
Costs incurred to purchase roasted bean	139.000	83.548
Distance from home to coffee shop	24 km	9 km

Based on Table-8 above, it can be concluded that the variables that are used as the differentiator between light roasted beans and medium roasted beans are age, costs incurred to purchase roasted beans and the distance from the consumer's house to the coffee shop.

In marketing products, a company must have the right marketing strategy, one of which is market segmentation. The advantages of market segmentation are as follows: i. Designing products that are more responsive to the market needs. ii. Analyzing the market. Market segmentation helps executives detect anyone who will undermine the market of their products. iii. Finding a niche. In addition to analyzing the market, those who are able to master the concept of segmentation well will come to the idea of finding opportunities. This opportunity is not always something big, but in its time it will be great. iv. Mastering superior and competitive positions. Those who master the segment well are generally those who really understand their consumers and learn the shifts that occur in their segments. v. Determining effective and efficient communication strategies because by knowing who the segment is, we can figure out how to communicate in a better way.

Market segmentation as a process to divide or group heterogeneous markets into potential groups of customers (potential customers) who have similar needs and or similarities

in characters who have the same response in spending their money⁹. From research conducted at MM Café Bogor, the segmentation is very important for MM Café because segmentation allows MM Café to provide its roasted bean product stock. Segmentation is the basis for determining the components of the strategy. Segmentation accompanied by the selection of the target market will provide a reference and basis for determining positioning. Then segmentation is a key factor to defeat competitors. Because consumers are too heterogeneous, the MM Café needs to classify the market into market segments, then choose and determine certain market segments as targets.

The main variables for segmenting the MM Café consumer market consist of various perspectives such as geographical, demographic, psychographic segmentation. In MM Café the things that need to be considered are segmentation based on demographics, the most widely used focus is age, gender, income / allowance, education, employment, number of family members.

Geographically, MM Café needs to adjust its marketing mix to suit different regions and even individual environments in a city such as the distance from consumer homes to MM Café, time taken by consumers from home to MM Café, and MM consumer domicile Café. And based on Psychographics, the pattern of people living and using time and money (lifestyle) such as the intensity of consumers buying roasted beans, costs incurred by consumers to buy roasted beans, roasted bean types purchased and access to roasted bean purchases.

Based on the results of discriminant analysis of consumers who bought roasted beans at MM Café, there were differences in consumers between consumers who bought light roasted and medium roasted types. The market segment of roasted bean products at MM Café is seen from the type of roasted bean that is the most widely purchased is light roasted with 71.82%. So that market segmentation that must be considered by MM Café on roasted bean sales at MM café is:

In this study, the market segmentations found in roasted bean sales at MM Cafe are:

Demographic Segmentation: Demographic market segmentation divides the market into groups based on variables such as gender, age, marital status, number of families, income, position, geographical location, mobility, home ownership, education, religion, a sense of nationality. These demographic factors are the most popular basis for creating consumer group segments. The main reason, namely the needs and desires of consumers is easily measured¹¹. Even if others types of segmentation variables are used a marketer must know and understand demographics to assess the size, reach and efficiency of the market¹⁰. In this study the distinguishing variables in demographic segmentation are age. Which in the light roasted category the average age group that chooses light roasted

products is 34 years higher than the age group that chooses roasted medium, which is 28 years. This means that light roasted seen from consumer characteristics is preferred by the age of 23-37 years, because at the age of 23-37 it is considered sensitive to taste, and the aroma produced in light roasted.

Geographical Segmentation: In this study the differentiating variable in geographical segmentation is the distance from the consumer's house to MM Café. The average distance traveled by consumers from home to MM Café for consumers who buy roasted light is 24km. Furthermore, the distance for consumers who buy roasted medium at MM Café. This is because seen during the research in the field, consumers who come to MM Café on average come from various types of regions but most of them are domiciled in Bogor City and buy light roasted because the roasted bean in MM Café has a grade cupping score of 90+ (outstanding) which means roasted beans at MM Café are almost perfect. And it has a type of specialty coffee where specialty coffee is coffee which has a value of 80-89¹¹. And light roasted is a type of roasted bean that will be used with manual techniques brew sought by consumers from various regions. Meanwhile, this has caused roasted beans in MM Café, especially consumers who buy light roasted, to be twice the distance from consumers who buy medium roasted. Because the roasted medium in MM Café is only used for espresso-based coffee types where the espresso base uses an automatic coffee machine¹².

Psychographic Segmentation: In this study the distinguishing variable in psychographic segmentation is the cost incurred by consumers to buy roasted beans. The average cost incurred by consumers in buying roasted beans in light roasted is Rp. 139,000 higher compared to consumers who buy medium roasted beans. This is because during research in the field, consumers who buy light roasted are loyal consumers because these consumers already believe in the quality of roasted beans provided by MM Café. So that the consumer buys a large amount of roasted bean, which is around 250 grams up to 1 kg, each purchase depends on the type of roasted bean purchased by the consumer (natural process, honey process, fully wash process, semi wash process, specialty blend and premium blend) it can be concluded that in marketing its roasted bean products, MM Café is more focused on providing light roasted stock by maintaining all aspects of the variables contained in product attributes such as price, taste, aroma and MM Café brand. So by considering this, consumers will be more loyal to MM café, especially in purchasing roasted beans.

Conclusion

Based on the results of the study through descriptive analysis, discriminant analysis and covariance matrix test, it can be concluded that the variable characteristics of MM Café consumers influence in distinguishing the purchases of Light Roasted and Medium Roasted beans.

Consumers who buy roasted beans at MM Café are dominated by consumers who buy roasted bean light roasted types, where the age of consumers is dominated by ages 24-37 years with male sex and undergraduate education (S1 / S2 / S3). The consumer has a job status as a private employee and has an income of Rp. 5,000,000. Then the consumer has 4 number of family members with the domicile of the city of Bogor with the distance traveled by the consumer from the house to MM Café as far as ≤ 15 km taken by 1-20 minutes.

Consumers who buy roasted beans at MM Café are dominated by consumers who buy a type of roasted bean light roasted where, on average, consumers are considered to be of high level of compliance with prices equal to 35.45%, consistent taste (acidity, sweetness, body) amounting to 33.64%, taste (acidity, sweetness, body) according to consumer tastes by 31.82% and having aroma (complex aroma) which is typical of 28.18%, aroma (complex aroma) which can be distinguished by 30.91% and has a strong aroma of 40% where complex aroma is the aroma produced in light roasted produces the aroma of fruit that is acidic (lemon, orange).

Consumer Behavior who buys roasted beans at MM Café is dominated by consumers who buy a type of roasted bean light roasted where the average consumer who buys light roasted knows the coffee brewing technique because light roasted at MM Café Bogor is a type of roasted bean that will be used for the type of coffee with manual brew technique, so it can be ascertained that if the consumer who buys light roasted knows the coffee brewing technique. And the brand of roasted bean at MM Café is considered to have a brand that is famous and easy to remember. The cost incurred by consumers to buy light roasted costs an average of Rp. 61,000-120,000 with the intensity of purchases as much as 1 time / month and buy these roasted beans at the coffee shop (MM Café).

Differences in market segmentation using discriminant analysis tools on roasted beans between light roasted and medium roasted are found in the characteristics of consumers who buy these roasted beans. A significant difference is in the age variable, the cost of buying a roasted bean and the distance traveled by consumers from home to the coffee shop. Whereas for family member income variables, the intensity of buying roasted beans, time from home to the coffee shop and prices have no effect on consumers' roasted bean buying interest.

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