

MARKET SEGMENTATION ANALYSIS OF CENTRAL SULAWESI'S PROCESSED CHOCOLATE PRODUCT AT PALU CITY

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ABSTRACT

By observing the development of cacao as one of the Central Sulawesi's best commodity that widely processed as chocolate, thus study was conducted with objective to give the information about Central Sulawesi's processed chocolate product market segments. Location determination is conducted deliberately, with the amount of respondent of 102 people that proportionally distributed among 5 districts, which is 21 people at Palu Barat District, 24 people at Palu Timur District, 21 people at Palu Selatan District, 14 people at Tatanga District and 22 people at Mantikulore District that determined using Proportional Stratified Random Sampling method. It is done with the consideration that the respondents can represent Palu City's residents. Analysis that was used in this study is Two Step Cluster analysis for market segment determination. Result from this study showed that Palu City's resident splitted into 3 segments, which is segment 1 as the largest segment but has low processed chocolate consumption, segment 2 as the smallest segment with moderate consumption and expenses for processed chocolate products and segment 3 as the second largest segment which is the most potential segment because of their high consumption and expenses for processed chocolate products.

KeyWords : Market segmentation, processed chocolate products.

INTRODUCTION

The development of Central Sulawesi's cacao as one of the best commodity makes this commodity widely used as business. One of the products that resulted from processing the cacao beans is chocolate bar that has been as snack for people. By observing the potential of Central Sulawesi's processed cacao products, makes this commodity as a potential business.

A good business potential is prone to risk. A precise processing and marketing method is needed for managing this considerably new business in Central Sulawesi. The competitors that already has widely known brand and reputation makes this business more prone to risk of failure in marketing their products.

According to McDonald and Dunbar (2004), market segmentation is a process of

splitting customers into different group or segments, within which customers share a similar level of interest. This showed that market segmentation is one of the effective way to do product marketing.

Market segmentation become one of the solution from the problem mentioned above, with studying the market about how the customers preferences based on the geographic, demographic, psychographic and behaviour characteristics, can give a chance for businessman in selling their products that considerate customers preferences (Kotler and Armstrong, 2014).

Palu city become one of the targeted market that has potential for chocolate businessman, because beside Palu is the capital of Central Sulawesi province, Palu city also will be the central administration for Special Economic Zone. The potential of Palu city are really useful for chocolate

business because they can easily promote and distribute their products because the diversity of people that will work and reside in Palu city.

By observing the total resident, Palu city also has a great potential to do business of processing cacao into chocolate. The greater the total of resident and their expenditure grows, the greater their purchasing power and their lifestyle, especially for youngsters.

Market segmentation analysis is hoped to create an information about the customers of chocolate in Palu city that can be used by the businessman and someone who want to make similar business that uses Central Sulawesi's cacao as based commodity for making chocolate to produce a product that not only has a great taste but also has high market value so it's also can give a high profit.

By observing the condition in Palu city which businessman that uses Central Sulawesi's cacao as ingredient for their products strated to grow, surely this study can become a base to design, produce, and marketed their products in order to make the Central Sulawesi's chocolate has its own value in residents, especially the one who lived in Palu city.

RESEARCH METHODS

This study was conducted in 5 districts in Palu city, that is Palu Barat, Palu Timur, Palu Selatan, Tatanga and Mantikulore districts. Location determined purposively, with consideration that sample that include in those 5 districts capable of representing market segment in Palu city.

Respondents determined using Proportional Stratified Random Sampling method, which in this study, population is stratified according to districts. Stratum that created in this study are residents of Palu city that reside in 5 districts that is Palu Barat, Palu Timur, Palu Selatan, Tatanga and Mantikulore districts with age ranging from 15 to 54 years old.

The size of this study's sample is calculated using Slovin formula, with the population size of 189.840 people with 10% margin of error (Setiawan, 2007).

$$n = \frac{N}{N \cdot d^2 + 1}$$

Explanations:

n = Sample Sizes

N = Total of Population

d² = Margin of Error

Pandey and Verma (2008) states how to calculate proportional sample sizes for each stratum with formula:

$$n_i = n \times \frac{N_i}{N}$$

Explanations:

n_i = Total Sample in Stratum i

N_i = Total Population in Stratum i

N = Total Population

n = Total Sample.

Sample size obtained using Slovin's formula from population of 189.840 Palu city residents is 99,94 people, which rounded to 100 people as respondents (minimum). Sample size that has been obtained then included in formula for determining proportional sampel for each stratum, which the sample size for each stratum is 21 respondents in Palu Barat distric, 24 respondents in Palu Timur distric, 21 respondents in Palu Selatan distric, 14 respondents in Tatanga distric and 22 respondents in Mantikulore distric, with total respondents of 102.

Data required for this study are in form of primary and secondary data. Primary data is obtained with giving respondents an online questionnaire, with considerations that online questionnaire has advantage that is fast, low cost, and economical (Dillman *et al.*, 2014). Software used in making and distribute the questionnaire is Google Forms.

The questionnaire that used in this study previously tested by conducting pre-test, by giving questionnaire to respondents that has similiar characteristics with sample of this study. This pre-test is conducted with

intention to assure the questionnaire is giving valid and reliable answers. The validity of the questionnaire is tested using KMO (Kaiser-Meyer-Olkin) test and reliability test using Cronbach-alpha test that both test is conducted using SPSS version 23 program.

List of questions used in questionnaire refers to marketing mix concept by measuring respondent's behaviour rate on marketing mix elements that most of the variables are continuous variables. Continuous variable is measured using Likert scale, which Likert scale is a way of systematically scoring each question in questionnaire with purpose of represent the qualitative question into quantitative data. Beside that, another questions proposed in questionnaire is questions about identity, location, and respondent's expenditure which is a categorical variable.

Reliability and Validity Test. Reliability and Validity test is conducted for questionnaire and from pre-test data result that has been given to 30 respondents which all of the respondents is author's friends and family members that included in this study's sample characteristics. Variable that tested for its reliability and validity is continuous variable with purpose to this variable will be used as based variable for segmentation analysis. Pre-test questionnaire is conducted with purpose to assure that the questionnaire used in this study will give a good result in explaining the variables that will be studied (Murhadi, 2011).

Result from reliability analysis showed that question that proposed when pre-test is conducted is reliable in giving answer because its Cronbach-alpha value is greater than 0,7 that is 0,798. This showed that questionnaire used in this study can give a good and consistent answer for each proposed question, thus the questionnaire is reliable (Ancok, 2011).

KMO value for testing the pre-test questionnaire construct validity showed that the questionnaire's construct is valid with KMO value of 0,659, but for content validity test, eighth variable has KMO vlue

of 0,447 which mean that this variable is less valid in describing the respondent's behaviour in buying Central Sulawesi's chocolate product if the price is 10% higher than other brand of chocolate. This condition is understandable because of the limited amount of respondents, the KMO value that is not far from valid criteria (0,50), and the construct validity at pre-test showed that the questionnaire is valid as a whole.

Data Analysis. This study using market segmentation analysis with Two Step Cluster method. Primary data collected is a qualitative data, which then this data will be transformed into quantitative data using Likert scale.

Cluster analysis used in this study is to determine segmen based on the data that has been collected. Method that used in segmentation analysis is TwoStep Cluster, which in this analysis, this method can process categorical and continuous variable simultaneously and giving the freedom to determine the maximum and spesific cluster size (Mooidan Sarstedt, 2011).

Method used in Two Step Cluster analysis is Build-up method with Priori approach. The reason of this method and approach is choosen for this analysis is that respondents has different preferences for chocolate products so that author is trying to group respondents based on the similarity of preferences among respondents for Central Sulawesi's chocolate products (Munandar, 2005).

This TwoStep Cluster analysis is using SPSS version 23 as analysis tool by inputting the data that obtained from online questionnaire. Result from this analysis will produce clusters that later will be interpreted according to charateristics of each cluster. Variabel that inputted in this Two Step Cluster analysis are :

1. Chocolate bar consumption rate.
2. Chocolate ice cream consumption rate.
3. Chocolate Wafer/Biscuits consumption rate.
4. Chocolate cake consumption rate.
5. Chocolate flavored beverages consumption rate.

6. Respondents agreement rate of buying Central Sulawesi's Chocolate.
7. Respondents agreement rate of buying Central Sulawesi's Chocolate if the price 10% lower than other chocolate products.
8. Respondents agreement rate of buying Central Sulawesi's Chocolate if the price 10% higher than other chocolate products.
9. Respondents agreement rate of buying Central Sulawesi's Chocolate if the product has better packaging than other chocolate products.
10. Respondents agreement rate of buying Central Sulawesi's Chocolate if the product advertised on printed media.
11. Respondents agreement rate of buying Central Sulawesi's Chocolate if the product advertised on electronic media.
12. Respondents agreement rate of buying Central Sulawesi's Chocolate if the product advertised on internet.
13. Respondents rate of visiting shopping centre.

Besides all of the variables mentioned above, there is also several variables used as cluster evaluation variables. Evaluation variable is a variable that not become the base of segmentation and only to show how those variables is positioned among segments that has benn created. Those variables are:

1. Respondents' Gender.
2. Respondents' age.
3. Distric where respondents reside.
4. Respondents expenditure for snack.

After the segments has been formed, valuation of the respondents' consumption/behaviour rate will be measured using range scale formula. Range scale formula will produce a range for each value of average likert scale so that it can interpreted into certain characteristics of each segments. Bram (2005) states the range scale formula as follows:

$$\text{Range Scale} = \frac{\text{HighestScale} - \text{SmallestScale}}{\text{TotalScaleCategories}}$$

Likert scale range used in this study is 1 – 5 with 7 categories to determined characteristics of each segment which is very low/strongly disagree, low/disagree, quite low/some what disagree, moderate/doubtful, quite high/somewhat agree, high/agree, and very high/strongly agree. Obtained scale range is:

$$\text{Scale Rate} = \frac{5-1}{7} = 0.57$$

Thus, the indicators for valuate the

VL/SD	L/D	QL/Sw	M/Db	QH/SwA	H/A	VH/S
1	1,	2.14	2.71	.28	3.85	4.,2
5						

segment characteristics become :

After conducting the segmentation analysis, formed segment will be tested using one way ANOVA test to see if there is a difference among the segments to fulfill the criteria of good segmentation.

RESULT AND DISCUSSION

Segments Characteristics. Formed segments has characteristic that describe respondents which include in that segment. Each variable that construct the segment will give description of how respondents behaviour on this variables.

Average value from respondents consumption and behaviour rate towards chocolate products segmentation variables is an indikator to determine segment characteristics. Valuation of consumption and behaviour rate is measured using scale range formula. Average value of respondents' consumption and behaviour rate then interpreted to characteristics valuation for each segments that can be seen in Table 1.

One Way ANOVA Test. One Way ANOVA test is a test to see if each segment that has been formed is significantly different. This test conducted with purpose to see if the segment that has been formed fullfild the criteria of good segment as Kotler and Armstrong (2014) states that segment can be differentiated one of another.

The result from one way ANOVA test showed, only chocolate bar consumption

and respondents's shopping centre visit rate variable (15,4% from total variable) that is not significantly different at each segment because of the significance level (α) is above 5% (0,05). Although 2 variables is not significantly different, the segment that has been formed still considerate decent because another 11 variables (84,6% from total variable) is significantly different.

Central Sulawesi's Processed Chocolate Product Development Based on Formed Segments. After the market segments of processed chocolate products has been formed and the characteristics of each segments is acknowledge, is a certainty for businessman to used this information in developing their products. Products development is conducted by paying attention to each segments characteristics and try to make a product that best suited for them.

Based on Table 1, it can be seen that segment 3 is the most potential segment in marketing chocolate products. The reason is that segment 3 is consisted of respondents that has high consumption rate for all

chocolate products, has high possibility of buying Central Sulawesi's chocolate products, and has high expenditure on snack so that this segment market is really need to be captured by Central Sulawesi's chocolate businessman by making different kind of chocolate products so that the market share of this segment can be fulfilled.

Segment 2 has quite potential in marketing Central Sulawesi's processed chocolate products. This is caused by respondents in segment 2 has diverse chocolate consumption rate, but still doubt to purchase Central Sulawesi's chocolate products. Expenditure on snack ranging from 10.000 Rupiahs to 14.000 Rupiahs and quite sensitive on the price of Central Sulawesi's chocolate products if it more expensive than other chocolate products. The market share of segment 2 which is the smallest segment can be acquired by making chocolate in form of biscuits/wafers and chocolate flavor beverages. According to author, this phenomenon is caused by respondents in segment 2 that still consume chocolate products that cheap and easy to obtain.

Table1. Characteristics of Each Segment Towards Segmentation Variables

No.	Variable	Segment 1	Segment 2	Segment 3
Respondents' Consumption Rate Variable				
1	1	Quite Low	Moderate	Quite Low
2	2	Quite Low	Quite Low	Quite High
3	3	Moderate	Quite High	High
4	4	Quite Low	Quite High	High
5	5	Moderate	Quite High	High
Respondents' Behaviour Variable				
6	6	Agree	Doubtful	Agree
7	7	Agree	Doubtful	Strongly Agree
8	8	Somewhat Disagree	Somewhat Disagree	Doubtful
9	9	Somewhat Agree	Doubtful	Agree
10	10	Somewhat Agree	Doubtful	Agree
11	11	Somewhat Agree	Doubtful	Agree
12	12	Agree	Doubtful	Strongly Agree
13	13	Moderate	Quite High	Quite High
Evaluation Variable				
14	Gender	Male	Male	Male
15	Age	20 - 24 Years Old	20 - 24 Years Old	20 - 24 Years Old
16	Location	Palu Timur	Mantikulore	Palu Timur
17	Expenditure	Above Rp. 20.000	Rp. 10.000 - Rp. 14.000	Above Rp. 20.000

Source: Processed Data using SPSS 23 and Microsoft Excel 2016, 2016.

Explanation : 1 – 13 is a Segmentation Variables.

Segment 1 as the largest segment actually consisted of respondents that has low consumption on chocolate products. Respondents expenditure in this segment is quite high but their rate of shopping centre visitation is low and still doubt to purchase Central Sulawesi's chocolate products. This segment's market share needed to be acquired by using marketing strategy that uses direct marketing method like making booth in shopping centres and promoting the chocolate by giving free samples to visitors, so people can directly know more about Central Sulawesi's chocolate.

CONCLUSION AND SUGGESTION

Conclusion

Based on the result and discussion above, it can be concluded :

Market segmentation of Central Sulawesi processed chocolate products are consist of 3 segment, that is segment 1 as the largest segment but has low processed chocolate consumption, segment 2 as the smallest segment with moderate consumption and expenditure for processed chocolate products and segment 3 as the second largest segment which is the most potential segment because of their high consumption and expenditure for processed chocolate products.

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