

Green marketing mix: an example of its influences on purchasing decision

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Abstract. The awareness of consumers about environment has been increasing considerably. The green marketing mix is one of strategies for producers to meet the need of consumers. This study aimed to develop a theoretical structural model representing the influences of green marketing mix on purchasing decision. The conceptual framework was empirically tested using Partial Least Square (PLS) method based on a survey of 42 consumers of mozzarella cheese produced by CV. Brawijaya Dairy Industry (BRADY) in Malang City, Indonesia. Data were collected using questionnaires given to respondents who were taken by purposive sampling. Exogenous latent variables in this study were green product, green price, green place, and green promotion as variables of green marketing mix, meanwhile endogenous latent variable was purchasing decision. The results showed that green product, green price, and green promotion influenced significantly purchasing decision. Green place did not influence significantly on purchasing decisions because the consumers, who were mostly snack producers, did not consider the distance of the marketplace. They usually bought BRADY mozzarella cheese with other ingredients for snack production. They saved more energy by buying BRADY mozzarella cheese at one-stop-shop of ingredients for snack production although it was sold at a little bit far marketplace. The most influential variable of green marketing mix on purchasing decision of BRADY mozzarella cheese was a green product because the ingredients of the product were toxic-free.

1. Introduction

The awareness of consumers about environment has been increasing considerably. Consumers tend to sensibly assess the features of the product and to consider its environmental impact before purchasing activities. These issues have stimulated companies to be more environmentally responsible by minimizing the negative impact on environment in their activities. On the other hand, the company also competes strictly to increase critical market share, economic conditions, and social levels. Companies must understand and respond to consumer desires to be able to survive in their business. A



good and appropriate marketing strategy is an important factor of the company because the strategy has effects on the purchasing decision of consumers.

Marketing mix is the set of manageable variables that companies can practice impacting the purchaser's response. It simplified the broad scope of marketing concept into 4 marketing policies that are commonly called 4P, i.e. product, price, place, and promotion [1]. Several studies on the implementation of marketing mix showed this strategy influenced consumer purchasing decisions [2] [3] [4]

A company which considers both the direct benefit of a product and long term environmental benefits should expand the fundamental of marketing mix. The approach to environmental awareness is the difference between the green marketing mix and a conventional marketing mix. Green marketing mix manipulates 4 elements of the conventional marketing mix to sell the products and services using the advantageous of environmental maintenance from waste management innovatively [5]. Analyzing and understanding the influence of green marketing mix on the purchasing decision of consumers will help marketers to understand the buyer's paradox more comprehensively. This study aimed to develop a theoretical structural model representing the influences of green marketing mix on purchasing decisions.

2. Methods

The conceptual framework was empirically tested using Partial Least Squares (PLS) method based on a survey of consumers of mozzarella cheese produced by CV. Brawijaya Dairy Industry (BRADY) in Batu City, East Java, Indonesia. Mozzarella cheese was selected in this study because the processing of mozzarella is a complex process with a number of processes and multiple inputs and outputs, which in turn cause various environmental effects.

2.1. Model variables and hypotheses

The variables in this study were latent variables and manifest variables which are commonly referred to as indicators (Table 1). The latent variables in this study were reflective variables which consist of 4 exogenous latent variables and 1 endogenous latent variable.

Table 1. Model variables.

	Latent Variables	Manifest Variables
Exogenous:	Green Product (X1)	Halal of product (X11) Melt ability of cheese (X12) Stretch ability of cheese (X13) Raw material (X14) Color (X15)
	Green Price (X2)	Suitability of price to product quality (X21) Affordable price (X22) Price Discount (X23)
	Green Place (X3)	Reachable selling places (X31) Clean selling places (X32)
	Green Promotion (X4)	Green advertising (X41) Supporting local farmers (X42)
Endogenous	Purchasing Decision (Y)	Satisfaction of consumers on the product (Y1) Trust of consumers (Y2) Fulfillment of consumers' need (Y3)

A green product is a product that has been made of toxic-free ingredients and measures that are environmental-friendly and approved by a recognized organization. Green product of mozzarella cheese is not limited to the last object only but involves also all the elements of the product. Some examples of them are the materials it used which may affect its color, the production process which affects its melt and stretch characteristics, and the certification of halal from the acknowledged

organization. Halal was considered to be the indicator of a green product because halal food is believed to be a food product that is safe for consumption and does not contain elements that harm the body and human health [6]. The next variable of green marketing mix is green price. Green price is the price attached to the environmentally oriented products which are high value orientation as compared to conventional products because of their environmental-friendly features and perspectives [7]. The price should be affordable for the consumers which inspires them to buy green products. The high value of green price should also suitable for the product quality. Price discount was considered in this study as the indicator of green price because some studies showed that price discount influenced the purchasing decision of consumers [4]. Green place is about managing the distribution of the products to cut down on transportation emissions [8]. It is related to the place of selling green products which are reachable for customers and the hygiene of the marketplace. The last variable of the green marketing mix consists of the promotion of green products, which includes information on environmental commitments and the efforts made by companies to consumers. Green promotion should not only be measured on the basis of the environmental effect, but also on the social impact of the company [9]

The endogenous latent variable of this study was purchasing decisions. Consumer purchase decision can be described as the phases through which consumers make a final purchase decision. Consumer satisfaction with the product is one element of perceived value which plays a significant role in consumer purchasing decisions. Behavior of the consumers also shows that consumer will buy a product if their needs are fulfilled. The consumer's purchasing decision is also reflected in consumer's trust, as consumers are hesitant to shop unless they trust the products. Some previous studies in general posit that implementation of green marketing mix influenced on purchasing decisions of consumers. Hence, the proposed hypotheses that addresses the relationships among the latent variables are as follows:

H1: Green product influences significantly on purchasing decision of mozzarella cheese consumers

H2: Green price influences significantly on purchasing decision of mozzarella cheese consumers

H3: Green place influences significantly on purchasing decision of mozzarella cheese consumers

H4: Green promotion influences significantly on purchasing decision of mozzarella cheese consumers.

2.2. Sample and data

The population in this study were consumers of BRADY mozzarella cheese. Quantity of the population is unknown in this study. The respondents of this study were 42 based on the assumption for the PLS method that the sample size must be 10 times the maximum number of inner or outer model links to any latent variable in the model [10]. The sample of consumers of BRADY mozzarella cheese were taken based on the criteria of respondents who had consumed mozzarella BRADY cheese at least 2 times and purchased the cheese in the last 6 months.

A questionnaire was used to test the conceptual model and associated hypothesis. Likert scale was used to scale the opinion of respondents on the statement related to the conceptual model and associated hypothesis. The scale were from 1 to 5 (the degrees of respondent's opinions were from strongly disagree to strongly agree). Pilot tests using Pearson Product – Moment Correlation Coefficient and Cronbach's Alpha (using SPSS version 17.0 for Windows) were carried out in order to make sure that the questionnaire was valid and reliable to be used in this study. The results of validation test in this study showed that the Pearson Product – Moment Correlation Coefficient of all indicators of variables were bigger than that in the table of Pearson Product – Moment Correlation Coefficient. Meanwhile, the reliability test in this study showed that the value of Cronbach's Alpha of the variable is more than 0.60. All the tests showed that the questionnaire in this study was valid and reliable to be used for taking the data so the data can be continued to be taken without revising the variables or indicators used in the questionnaire [11]. In addition, 42 questionnaires have been distributed to assess sample representativeness and improve the generalizability of the results.

2.3. Data analysis

PLS was used to analyze the data in this study using smartPLS software. This method is a distribution-free and flexible sample size [12]. The path model, which describes the links between indicators and variables, was measured in this study. The model was designed to explain causal mechanisms and validate the theoretical hypothesis that empirically derived and to take a predictively oriented measure [13].

Evaluations of the goodness of fit were carried out to the outer model (reflective measurement model) and inner model. The evaluation of the measurement model consists of convergent validity, discriminant validity, and composite reliability (CR). The evaluation of the convergent validity of individual item can be seen from the value of standardized outer loading which is ideally above 0.7. If the value of standardized loading factor is under 0.5, then the indicator should be eliminated from the model [10]. Discriminant validity evaluation was carried out using the cross loading criteria. The cross loading value between indicators and its latent variable which are greater than the correlation with other latent variables shows an adequate discriminant validity [14]. CR shows the consistency of a measurement tool with the same symptoms. The indicator group which measures a latent variable is considered reliable if it has a value of composite reliability above or equal to 0.7 [10].

Evaluation of goodness of fit to the inner model then was done to learn about the predictive capabilities of the model by criteria of the coefficient of determination (R^2), cross-validated redundancy (Q^2), and the path coefficients. Coefficient of determination (R^2) indicates the variance explained in each of the endogenous constructs, meanwhile the Q^2 value is built on the blindfolding procedure to predict the omitted data points [12]. The strength and significance of the path coefficients then were evaluated regarding the relationships hypothesized between the constructs. The significance assessment is built on bootstrapping standard errors as a basis for calculating t and p values of path coefficients or their confidence intervals [15].

3. Results and Discussion

3.1. Profile of respondents

A total of 42 responses to 42 distributed questionnaires were received and completed. The data revealed the characteristic of the BRADY Mozzarella cheese consumers in Batu City. Most of the consumers are women (69.05%) who graduated with a bachelor degree (69.05%) and in the range of age of 26-40 years old (45.24%). Most of them buy mozzarella cheese once a month. According to the gender, age, and educational background, the respondents can be considered as a good decision maker in purchasing because women, in general, will consider several factors in shopping.

The consumers have various jobs, but most of them are culinary entrepreneurs who run the micro, small and medium scale of snack producers (33.33%) with the range of income per month of IDR 1,000,000-IDR 2,000,000. It means that most of the BRADY Mozzarella cheese consumers are in the middle to lower economic class. They buy BRADY Mozzarella cheese for the raw material of their business.

3.2. Testing the measurement model (outer model)

The results of testing the measurement model are shown in Table 2 and Table 3. Overall, the conceptual model passed all the required tests of validity and reliability of the measurement constructs.

Table 2. Result of measurement model.

Variables	Indicators	Outer Loadings	CR	Variables	Indicators	Outer Loadings	CR
Green Product (X ₁)	X ₁₁	0.708	0.874	Green Place (X ₃)	X ₃₁	0.889	0.891
	X ₁₂	0.825			X ₃₂	0.905	
	X ₁₃	0.864		Green Promotion (X ₄)	X ₄₁	0.935	0.916
	X ₁₄	0.873			X ₄₂	0.902	
	X ₁₅	0.504			Purchasing Decision (Y)	Y ₁	
Green Price (X ₂)	X ₂₁	0.863	0.832	Y ₂		0.851	
	X ₂₂	0.846	Y ₃	0.900			
	X ₂₃	0.649					

3.3. Testing the structural model (inner model)

Evaluation of goodness of fit to the structural model then was done to learn about the predictive capabilities of the model. The value of R² resulted by SmartPLS showed that the green marketing mix explained 83.8% of the variance in the purchasing decision of mozzarella cheese consumers and that 16.2% was due to unexplained variance. The Q² value then was computed using the formula of Q² = 1 - (1 - R²). The value of Q² was 0.838 which indicated that the predictive accuracy of the path model is acceptable for this particular construct [12]. Table 4 and Figure 1 show the results of testing the structural model. The relationship between the green marketing mix and the purchasing decision of mozzarella cheese was analysed. This study used a p-value of 5% as the significant level of acceptance (p < 0.05), which was equivalent to a 1-tailed t value of 1.645 for accepting the proposed hypotheses. The hypothesis was rejected if the p-value was more than 0.05. Finally, the path coefficients showed that green marketing mix was correlated with the purchasing decision of mozzarella cheese. Three indicators of green marketing mix were statistically accepted with a p-value of less than 0.05. Green product, green price, and green promotion were significantly related to the purchasing decision of mozzarella cheese. Conversely, the green place was not related to the purchasing decision of mozzarella cheese. Thus, H1, H2 and H4 were supported, and H3 was not.

Table 3. Discriminant validity of the model construct.

Variables	Indicators	X ₁	X ₂	X ₃	X ₄	Y
Green Product (X ₁)	X ₁₁	0.708	0.383	0.355	0.304	0.591
	X ₁₂	0.825	0.359	0.360	0.267	0.596
	X ₁₃	0.864	0.475	0.379	0.558	0.772
	X ₁₄	0.873	0.532	0.401	0.297	0.714
	X ₁₅	0.504	0.643	0.455	0.357	0.506
Green Price (X ₂)	X ₂₁	0.589	0.863	0.613	0.253	0.651
	X ₂₂	0.373	0.846	0.516	0.247	0.492
	X ₂₃	0.464	0.649	0.190	0.684	0.542
Green Place (X ₃)	X ₃₁	0.420	0.561	0.889	0.217	0.415
	X ₃₂	0.479	0.463	0.905	0.325	0.447
Green Promotion (X ₄)	X ₄₁	0.539	0.520	0.366	0.935	0.677
	X ₄₂	0.309	0.375	0.176	0.902	0.555
Purchasing Decision (Y)	Y ₁	0.681	0.553	0.440	0.667	0.841
	Y ₂	0.805	0.670	0.457	0.405	0.851
	Y ₃	0.697	0.647	0.354	0.681	0.900

Table 4. Summary of the structural model.

Hypothesis		Coefficient	Standard Error	t Value	Significance	Supported
1	X1 → Y	0.567	0.130	4.368	p<0.05	Yes
2	X2 → Y	0.245	0.106	2.312	p<0.05	Yes
3	X3 → Y	-0.033	0.088	0.375	Not Significance	No
4	X4 → Y	0.297	0.088	3.386	p<0.05	Yes

3.4. Managerial implication

The finding confirmed that green products influenced significantly on purchasing decision of mozzarella cheese consumers. The green product of BRADY mozzarella cheese is reflected by the halal of product, the melt of cheese, stretch of cheese, its raw material, and color. The functional quality of Mozzarella's cheese is characterized by its ability to melt and stretch, elasticity, free oil formation and melted browning. The taste of BRADY mozzarella cheese has a slightly salty taste. It has a fairly fast-melting time and has a good elongation (2-3 inches). The consumers decide to purchase BRADY mozzarella cheese because the product fulfilled their need for basic quality of mozzarella cheese. Furthermore, the product manufactured using toxic-free ingredients. It is also halal certified by an acknowledged organization. According to the path coefficient, the green product was the most influential variable of the green marketing mix on the purchasing decision of BRADY mozzarella cheese. The management of CV. BRADY should keep its strategy in marketing using green products by maintaining or event increasing their product quality.

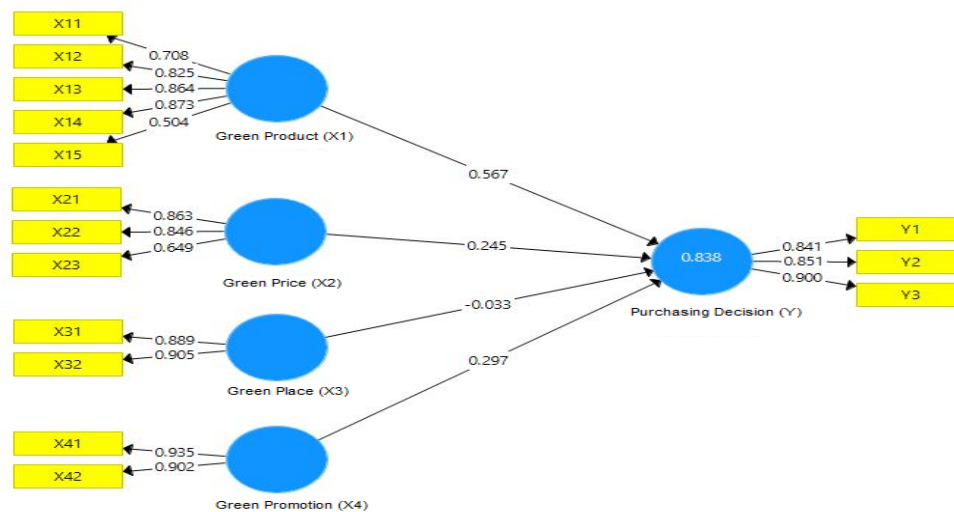


Figure 1. Structural model for green marketing mix influences on purchasing decision of mozzarella cheese.

The result of this study also showed that green price influenced significantly on purchasing decision of mozzarella cheese consumers. The green price of BRADY mozzarella cheese is reflected by the suitability of price to product quality, affordable price, and price discount. Consumers of BRADY mozzarella cheese confirmed that the cheese can be considered as a good quality product (it is also supported by the high outer loading of melt ability and stretch ability indicators) with an affordable price, meanwhile, its production is environmental-friendly. The price of green products is usually more expensive than conventional products due to the features and perspectives of environmentally friendly. On the other hand, the price of BRADY mozzarella cheese as a good quality green product can be afforded by the consumers from the middle to lower economic class. The management of CV. BRADY can increase the impact of green price on the purchasing decision of BRADY mozzarella cheese by giving more events of price discount.

The green promotion was another variable which influenced significantly on purchasing decision of mozzarella cheese consumers. The green promotion of BRADY mozzarella cheese is reflected by the green advertising and supporting local farmers. Green advertising of BRADY mozzarella cheese is done by communicating benefits of consuming this product such as less harmful of production to environment and society and the ingredients do not contain elements that harm the body and human health. The business of CV. BRADY also has a societal impact on the local farmers. Milk as the main raw material of mozzarella cheese is supplied by local farmers. CV. BRADY supports the local farmers to improve their skills in running their business according to the good practice. The support from CV. BRADY is the part of its green promotion. The management of CV. BRADY should be more exposing its green promotion, especially the supporting local farmers. Consumers will consider the attitude of the companies to support the local farmers. It will have a strong and direct influence on consumer purchase.

However, the green place insignificantly influenced on purchasing decision of mozzarella cheese consumers. The consumers who were mostly snack producers did not consider the distance of the marketplace of BRADY mozzarella cheese. They used to buy BRADY mozzarella cheese with other ingredients for snack production. They saved more energy by buying BRADY mozzarella cheese at a one-stop-shop of ingredients for snack production although it was sold at a little bit far marketplace. The management of CV. BRADY still can use the strategy of green place for influencing the purchasing decision of the consumers. CV. BRADY has to make sure that the places for selling BRADY mozzarella cheese should be clean places where there is no contamination. It can be done by placing a representative of CV. BRADY on the marketplace of BRADY mozzarella cheese. The representative of CV. BRADY can monitor the hygiene of the marketplace intensively.

4. Conclusions

A structural model was tested in this study and provides evidence that three of the 4 latent variables of green marketing mix influenced on purchasing decision of mozzarella cheese consumers. Green product, green price, and green promotion were the marketing strategies based on green marketing mix which influenced the purchasing decision significantly. This study has implications for the company and is much related to green marketing strategy. Other variables of green marketing mix should be observed for the future research to explain the other variance in purchasing decision of mozzarella cheese consumers, such as green process, green people, and green physical evidence.

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