Research Journal of Agriculture and Forestry Sciences _____ISSN 2320– 6063
Vol. **13(1),** 21-26, January **(2025)** *Res. J. Agriculture and Forestry Sci.*

Tea Consumer Purchasing Decision: Impact of Price in Green Marketing

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Available online at: www.isca.in, www.isca.me
Received 8th September 2024, revised 1st November 2024, accepted 1st January 2025

Abstract

The focus of this study is on evaluating the effect of price and green marketing practices on the purchasing decisions of Walini tea bags in Bandung City. The agricultural sector, especially the plantation subsector, significantly contributes to Indonesia's GDP, with tea being a major commodity. PT Perkebunan Nusantara I Regional 2, managing certified tea plantations, faces increased production costs due to green marketing certifications. A survey of 102 consumers was conducted using systematic random sampling, with data analyzed via the Method of Successive Intervals (MSI) and multiple regression. The results indicate that price significantly influences purchasing decisions, and green marketing-related price increases are also a factor. The study highlights the importance of balancing cost and sustainable practices in consumer behavior.

Keywords: Tea, Price, Purchasing Decisions, Green Marketing.

Introduction

The agricultural sector holds a significant position in Indonesia's economic framework. Agriculture contributed significantly to the Gross Domestic Product (GDP) during the 2019-2022 period[1]. This sector is divided into several subsectors, including food crops, horticultural crops, and plantation crops. In 2021, the plantation subsector made the largest contribution to Indonesia's GDP, amounting to 3.94% or IDR 668.3 billion. This subsector is vital for absorbing labor, providing raw materials for industries, and generating foreign exchange. One of the most important commodities in this subsector is tea (Camellia sinensis L. Kuntze).

Indonesia is one of the leading tea-producing countries, alongside China, Sri Lanka, Turkey, Kenya, and Vietnam. West Java had the highest tea production in Indonesia in 2022, with 75,892 tons or about 66.87% of the national production[1]. The climate and topography of West Java are ideal for tea cultivation, leading to its dominant production share.

PT Perkebunan Nusantara (PTPN) I, a state-owned agribusiness company. PTPN I (2nd Regional) manages 7 tea plantations in West Java, covering a total area of 13,597 hectares. These plantations are certified with ISO 9001:2000, ISO 22000, Ethical Tea Partnership (ETP), UTZ, Rainforest Alliance (RA), Halal, and the Food and Drug Administration (BPOM). PTPN's managed area constitutes 45% of the tea plantation area owned by Large State Plantations (PBN) in Indonesia. The following table illustrates the expansion of tea cultivation areas and production within Indonesia.

Table-1: Development of Area and Dry Leaves Production of Tea[1].

Year	Area (ha)			Dry Leaves Production (ton)		
	PBN	PBS	PR	PBN	PBS	PR
2018	32,684	25,475	51,777	54,555	35,461	50,220
2019	37,205	22,581	51,329	48,463	30,986	50,383
2020	38,333	22,740	51,235	57,314	36,843	49,907
2021	32,283	19,445	50,350	56,281	31,287	50,269
2022	29,561	21,407	50,313	50,848	23,917	49,896

Legend: PBN: Large State Plantations, PBS: Large Private Plantations, PR: People's Plantations.

In today's market, green marketing has gained significant importance as consumers become more environmentally conscious. Green marketing involves promoting products that are environmentally sustainable and produced through eco-friendly practices. For tea producers like PTPN, adhering to green marketing practices involves obtaining various certifications such as ISO 9001:2000, ISO 22000, Ethical Tea Partnership (ETP), UTZ, Rainforest Alliance (RA), Halal, and BPOM. These certifications ensure that the production processes meet high environmental and safety standards, but they also increase production costs.

Price, defined as the total value a customer pays for a product, is another critical factor[2]. Every product and service has a value worth exchanging for money[3]. The Table-2 compares the prices of tea bags from various brands in Indonesia.

Table-2: Price Comparison of Tea Bags Brands.

Brand	Product Name	Contents	Price
Cap Poci	Cap Poci Jasmine Tea Bags 25 pcs	25 bags	Rp 8000
2Tang	2Tang Jasmine Tea Bags 25 pcs	25 bags	Rp 7900
Sariwangi	Sariwangi Jasmine Tea 25 Tea Bags	25 bags	Rp 9200
Sosro	Sosro Tea Heritage Jasmine	25 bags	Rp 9900
Walini	Walini tea Classic Jasmine	25 bags	Rp 10700
Tong Tji	Tong Tji Jasmine Tea non enveloge 25s	25 bags	Rp 11000

Source: Shopee Marketplace

The price of Walini's classic jasmine-flavored tea bags is generally higher than similar products. This higher price reflects the cost of high-quality raw materials from certified plantations, emphasizing green marketing practices. Given this price difference, it is essential to analyze how these prices affect consumer decisions to purchase Walini tea bags.

Sales of Walini tea across all flavors have shown a significant downward trend from 2021 to 2023. The highest sales were recorded in February 2021, with fluctuations each month thereafter. Sales reflect consumer purchasing decisions, making it interesting to analyze the factors influencing the decision to purchase Walini tea, particularly in Bandung City.

Based on this explanation, the main objectives of this study are twofold: i. to analyze the impact of price on purchasing decisions for Walini tea bags in Bandung City, and ii. to understand how green marketing-related price increases influence consumer behavior.

Bandung was selected as the study site due to its role as the main distribution hub for Walini tea bags, where all variants are more accessible compared to other cities.

Methodology

Research design involves organizing, securing resources, and carrying out a research project[4]. Survey research in marketing entails the creation, administration, and analysis of questionnaires to gather significant insights while adhering to strict guidelines[5]. This study was a cross-sectional design aimed at analyzing the causal relationships between independent and dependent variables. A survey method was employed to collect data through a structured questionnaire. This research adopted a quantitative approach to draw conclusions applicable to the general population.

The target population included consumers of Walini teabags in Bandung City. A total of 102 consumers of Walini teabags in Bandung City were chosen as participants through systematic random sampling, a method where every nth individual from the list of buyers was included. The sample size of 102 respondents was determined to ensure adequate statistical power for the analysis. The sample size aligns with the rules of thumb suggested by Hair et al.[6] which recommends a sample size of 100 observations. Table-3 explains multiple indicators and parameters to assess each variable.

Table-3: Operational of Variables and Measurements.

Variable	Dimension	Indicator	Parameter
Price	Price affordability	Consumer purchasing power	Likert scale
	Price compatibility	Compatibility with purchasing power	Likert scale
		Compatibility with value/ benefits obtained	Likert scale
Purchasing Decision	Product and brand selection	Product selection	Likert scale
		Brand selection	Likert scale

The Likert scale presented in the Table-3 consists of five levels, ranging from strong disagreement to strong agreement. Each level corresponds to a numerical value, which will be processed in the analysis through the Successive Intervals method. This scale was employed to capture both favorable and unfavorable responses from consumers.

The survey was carried out offline at supermarkets in Bandung City where Walini tea is sold. Ethical principles were adhered to by ensuring participants provided informed consent and their responses remained confidential. A preliminary survey was conducted to identify appropriate locations, leading to the selection of Borma Supermarket in Kecamatan Panyileukan and Kecamatan Kiaracondong. In May 2024, researchers engaged with customers who were shopping for tea and invited them to participate. Each hour, one respondent who had previously purchased Walini tea was chosen. Those who had not bought Walini tea previously were not included in the survey.

The methods of analysis used in this research include instrument validity and reliability tests, the Method of Successive Intervals (MSI), classical assumption tests, linear regression, and hypothesis tests.

The validity test of the instrument evaluates the accuracy of the measurement tool using the Pearson correlation coefficient. A question is considered valid if its correlation (r) exceeds the critical value from the r table. The correlation coefficient for each question is compared to the critical value to determine whether the item is valid for further analysis. The reliability test examines the consistency of the instrument through Cronbach's alpha. A variable is considered dependable if its Cronbach's alpha value is greater than 0.65.

Method of Successive Intervals (MSI) was employed to convert Likert scale responses into interval-level data. This technique involves mapping the cumulative proportion for each Likert category to its corresponding value on a normal distribution curve[7]. MSI calculations were performed using Microsoft Excel 2013. After transformation, each respondent's score for each variable was calculated.

Before conducting the regression analysis, tests for classical assumptions, including normality, multicollinearity, and heteroscedasticity, were performed[6].

Normality	Assessed through the Normal Q-Q plot, where the residuals are considered normally distributed if the points align closely with the diagonal line.
Multi-collinearity	Evaluated using collinearity tolerance and variance inflation factor (VIF). Multicollinearity is suggested if the VIF is greater than 10 or if the collinearity tolerance is lower than 0.1[8].
Hetero-scedasticity	Tested using Spearman's correlation or Spearman's rho. Heteroscedasticity refers to an inconsistent pattern of covariance around the regression line. A significant value of Spearman's rho exceeding 0.05 indicates that heteroscedasticity is not present, allowing for continuation with regression analysis[9].

Following the classical assumption tests, linear regression analysis was conducted Google Collab. The program enables to write and execute Python in browser, without configuration. The analysis provided outputs for the regression and hypothesis tests (t-test and F-test).

Results and Discussion

Instrument Validity and Reliability: Instrument validity refers to the extent to which a measurement represents the characteristics present in the phenomenon being studied[10]. This study uses a validity testing technique based on the Pearson correlation coefficient which is denoted by r. Pearson correlation is employed to assess the strength of the linear relationship between variables and to quantify the degree of linear association in quantitative research[11].

Table-4: Validity Test.

Variable	r	r table	Conclusion
Variable X: Price			
X.01	0.826	0.195	Valid
X.02	0.724	0.195	Valid
X.03	0.827	0.195	Valid
Variable Y: Purchasing Decision			
Y.01	0.872	0.195	Valid
Y.02	0.842	0.195	Valid
Y.03	0.861	0.195	Valid

The validity of the questionnaire was confirmed, with all questions deemed appropriate for subsequent analysis. To verify the consistency of the instrument, a reliability test was carried out. This test utilized Cronbach's Alpha to analyzed and determined the internal consistency of the tool, and the resulting value was compared to the accepted benchmark, where a value above 0.65 is considered reliable. The Table-5 displays the outcomes of these calculations.

Table-5: Reliability Test.

Variable	Cronbach's Alpha Value	Conclusion
Price	0,686	Reliable
Purchasing Decision	0,821	Reliable

As the Table-5, all of the question in the questionnaire is deemed reliable and can be used to do further analysis.

Classical Assumption: Test of Normality: Figure-1 shows that the data points generally follow the diagonal line, but there are some deviations, especially at the ends (tails) of the distribution. The deviations at the tails suggest that there are some deviations from normality, particularly in the extremes of the data.

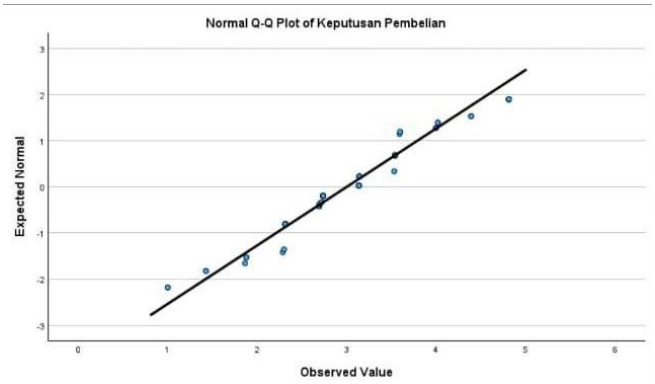

Figure-1: Normality Q-Q Plot of the Data.

Multicollinearity Test: The results from the analysis conducted using the Collab website are presented in the following multicollinearity test calculation.

Table-6: Multicollinearity Test.

Test	Collinearity Tolerance	Statistics VIF
Price	.778	1.285

Based on the test standards, where the tolerance value exceeds 0.1 and the VIF is below 10, the findings indicate that there is no multicollinearity present in this study. This suggests that the independent variables do not exhibit significant correlations that would disrupt their relationship with the dependent variable. Therefore, the multicollinearity calculation result supports the validity for further analysis i.e. the linear regression.

Heteroscedasticity Test: The following presents the results of the heteroscedasticity test conducted using the Collab website.

Table-7: Heteroscedasticity Test.

Heteroscedasticity Test.			Price	Unstandardized Residual
Spearman's rho	Price	Sig (2-tailed)	.	0.804

To interpret the heteroscedasticity test, the rule is that there is no heteroscedasticity if the significance value (denoted as "sig" in the table) exceeds 0.05. For regression analysis, it is essential that there be no heteroscedasticity. As shown in the table above, the significance value for the variable is greater than 0.05, indicating that heteroscedasticity is not present in this study.

Hypothesis Test: F test: The F test is a hypothesis test that indicates the significance of the relationship between all independent variables simultaneously on the dependent variable. The following table presents the F test results from the regression analysis, showing the simultaneous effect of the independent variables on the dependent variable.

Table-8: F test.

F test	Sum of Squares	df	Mean Square	F	Sig.
Regression	18,250	3	6,083	30,060	<0,001
Residual	19,832	98	0,202		
Total	38,082	101			

The hypothesis tested with the F test is related to the effect of all variables simultaneously on purchasing decisions. The null hypothesis is formulated as Price have no simultaneous effect on purchasing decisions for Walini tea bags in Bandung City. The criterion for rejecting the null hypothesis is that the significance value of the calculation results is smaller than 0.05. The calculation results showed a significance value of less than 0.001, which is well below the 0.05 threshold. Therefore, the null hypothesis is rejected. The results suggest that the price of Walini teabags in Bandung plays a crucial role in influencing consumer purchasing decisions.

Regression Analysis: Multiple linear regression analysis is a parametric statistical method utilized to determine the impact of multiple X variables toward a single Y variable[12]. This analysis is characterized by a regression equation with the level of influence of a variable X in the form of a coefficient of X. The regression equation used in this study is presented in the Table-9.

Table-9: Linear Regression Output: Impact of Price on Purchasing Decision.

Output	Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
Constant	-0,366	0,575		-0,636	0,526
Price	0,371	0,103	0,298	3,601	<0,01

Based on Table-9, the following is the regression equation in this study.

$Y = -0{,}366 + 0{,}371X_1$

The dependent variable (Purchase Decision) is influenced by price with a constant of -0.366. This means that if the independent variable is assumed to be 0, the purchase decision will be -0.366, indicating that the purchase decision will be negative without the contribution of the independent variable.

In conclusion, the purchasing decision of Walini tea relies on the independent variables in this research.

Price (X) has a significant positive effect with a coefficient of 0.371 (37.1%). An increase of 1 unit of price increases purchasing decisions by 0.371. Thus the results suggest that price explains 37.1% of purchasing decisions.

The Collab website provides the results of the R square calculation in addition to the automatic regression analysis results. The adjusted R square column describes the degree to which the independent variable in the model can explain the dependent variable. The adjusted R square scale has a range of 0-1, which means that this value characterizes the level of the dependent variable explained by the independent variables in the model. Table-10 presented the results of the calculation of R square.

Table-10: R Square.

R	R Square	Adjusted R Square	Std. Error of the Estimate
0,692	0,479	0,463	0,450

Calculation result of R Square on Table-10 concluded that adjusted R square value of the regression in this study is 0.463. This means that 46.3% of the dependent variable (Purchase Decision) can be defined by the independent variable in the model, namely Price (X). The remaining 53.7% is attributed to factors that were not included in this research.

Conclusion

This study concludes that the price of Walini tea bags in Bandung City has a significant impact toward consumer purchasing decisions. The regression model reveals that price affects purchasing decisions with a coefficient of 0.371. The adjusted R square value of 0.463 indicates that 46.3% of the variation in purchasing decisions can be explained by the factors of packaging design, brand image, and price, while the remaining 53.7% is influenced by other factors not addressed in this research. These results highlight the importance of maintaining competitive pricing as a key strategy for increasing purchasing decisions, particularly within the context of green marketing. The company should prioritize this factor to enhance market share and customer loyalty. Future research could investigate other variables that may affect purchasing decisions to gain a deeper understanding. Additionally, examining the Walini tea market among online consumers would be valuable, as Indonesia ranks as the third-largest country in terms of social media users globally.

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