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The Effect of Environmental Attitude Through Perceived Environmental Responsibility on Pro-Environmental Consumer Behavior in Organic Food Consumer

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ABSTRACT

The Covid-19 pandemic has hurt the Indonesian economy. To achieve sustainable economic recovery, the government has begun to transform the economy towards a greener direction or a circular economy for long-term economic growth. Contributions to the circular economy in Indonesia can be made through reuse, recycling, raw materials, design, production, and consumption. In terms of consumption, people are currently encouraged to choose organic products to meet their needs. According to data from the Indonesian Organic Agriculture Statistics (SPOI), Central Java province is in the top four for the highest use of organic food products after other provinces. The purpose of this study was to test the effect of environmental attitudes on pro-environmental consumer behavior. It will also test the mediation of perceived environmental responsibility between environmental attitudes and pro-environmental consumer behavior in Central Java. Furthermore, the urgency of this research is important to provide information about the potential for organic food businesses with the phenomena that occur, there by increasing the number of organic food entrepreneurs/consumers and being able to contribute to the circular economy in Central Java, Indonesia.

Keywords: pro-environmental consumer behavior, environmental attitude, perceived environmental responsibility

1 Introduction

The Covid-19 pandemic has had a negative impact on the Indonesian economy. To achieve sustainable economic recovery, the government has begun transforming the economy towards a greener direction, or a circular economy. The goal is for long-term economic growth. Contributions to the circular economy in Indonesia can be made through reuse, recycling, raw materials, design, production, and consumption. Regarding consumption, people are currently encouraged to choose organic products to meet their needs (Krajewska & Solis, 2021). Global Organic Trade explains that the organic market share in Indonesia in 2019 was US$13.9 million or 0.02% compared to the international organic market of US$47.28 billion. In addition, the predicted compound annual growth rate for organic products is 3.5% so that in 2024 it is estimated that the development of the organic market in Indonesia will continue to

grow. From the 2022 Indonesian Organic Agriculture Statistics data, it explains the types of organic products in Indonesia based on the percentage where vegetable products occupy the first position, followed by rice, fruit, eggs and others.

The obstacle that tends to occur when choosing organic products is the price is more expensive than regular products. It can even be more than twice the normal price. However, this does not discourage people from buying organic products because they tend to feel the benefits more. Table 1.1. illustrates the comparison of organic and non-organic product prices.

Table 1.1. Prices of Organic and Non-Organic Foods

Food Products	Organic	Non Organic
Rice	Rp20.000-25.000/kg	Rp9.000/kg
Chicken Eggs	Rp28.000/6 butir	Rp15.000/kg
Kangkung	Rp10.000-15.000/250grams	Rp3.000/bunch
Green Spinach	Rp10.000-13.000/250 grams	Rp3.000/bunch
Kailan	Rp12.500/250 grams	Rp9.250/500 grams
Caisim	Rp12.000/250 grams	Rp5.000/500 grams

The behavior in using organic products is called pro-environmental consumer behavior. The supporting theory is the theory of planned behavior (Shah Alam & Mohamed Sayuti, 2011). Community behavior is supported in Figure 1 West Java ranks fourth compared to other regions after DKI Jakarta, West Java, DI Yogyakarta. The factors that drive this behavior are environmental attitude (Nahavandian et al., 2022),(Odhiambo Joseph, 2019). Although there are studies that state otherwise (Liu et al., 2020). However, there are mediating factors such as perceived environmental responsibility (Sugandini et al., 2020), (Sultana et al., 2022), (Shahrin et al., 2020). This statement is supported by several previous studies on pro-environmental consumer behavior.
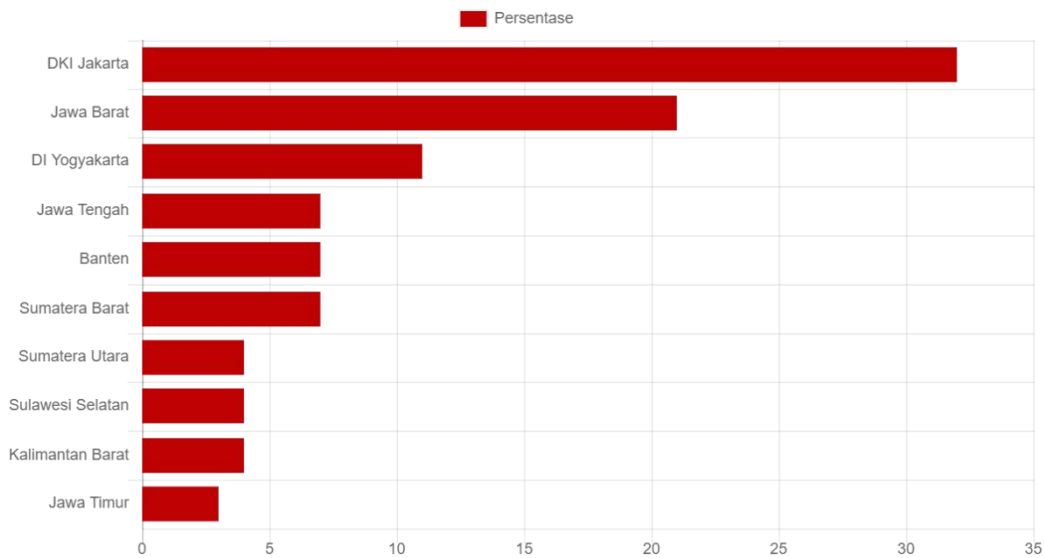
Source: Indonesian Organic Agriculture Statistics (SPOI) 2019 by the Indonesian Organic Alliance
Figure 1. Distribution of Organic Product Consumers in Indonesia

The purpose of this study is to examine the influence of environmental attitude on pro-environmental consumer behavior. As well as to examine the mediation of perceived environmental responsibility between environmental attitude dan pro-environmental consumer

behavior especially in Central Java. Furthermore, the urgency of this study is important to provide information about the potential of organic food businesses with the phenomena that occur, so as to increase the number of organic food entrepreneurs/consumers and be able to contribute to the circular economy in Indonesia.

2   Literature Review

2.1 Pro-Environmental Consumer Behavior

Pro-environmental consumer behavior is an action that tends to reduce environmental damage caused by individual behavior and is likely to contribute to environmental welfare (Shahrin et al., 2020). Pro-environmental consumer behavior is related to the purchase of ecological products. This behavior can be in the form of consumer purchase intentions or consumer willingness to pay more for ecological products. There are several reasons why consumers prefer ecological products, namely because of taste, concern for nature and health benefits, and consumer education. So pro-environmental consumer behavior is a person's behavior in choosing to use ecological products or services because they are aware of the impact of using these products or services in the future. Pro-environmental consumer behavior is influenced by several factors such as environmental attitude (Liu et al., 2020). There are also those who bridge the two, such as perceived environmental responsibility, to further support someone to behave in an environmentally conscious manner. Examples of pro-environmental behavior can be done by becoming an environmental activist, politically participating in signing petitions that lead to environmental sustainability, buying green products, recycled products, reducing energy use and changing consumption habits and many more.

2.2 Environmental Attitude

Attitude is one of the internal factors that has a strong influence on behavior. According to the theory of Schiffman and Kanuk, a positive consumer attitude towards something will be followed by positive behavior. Environmental attitude is an attitude that is applied as a result of concern for the environment. Environmental attitude influences pro-environmental consumer behavior, supported by other studies (Odhiambo Joseph, 2019). An attitude of caring for the environment with behavior will occur even though bridging factors are needed, such as a sense of responsibility and trust (Yulika Dewi & Rina Ariani, 2023).

2.3 Perceived Environmental Responsibility

Perceived environmental responsibility is a form of individual or group responsibility for preserving the environment (Yulika Dewi & Rina Ariani, 2023). This action encourages the sustainable use of natural resources. Perceived environmental responsibility influences pro-environmental behavior. This is explained in the norm activation theory and the theory of planned behavior. In addition, there are several other studies related to this relationship (Sugandini et al., 2020). This variable can be a mediator between knowledge and attitudes towards the environment (Shahrin et al., 2020).

3   Research Methodology

The research methodology in this paper uses the SEM-PLS method. Researchers used the SEM method with the PLS (Partial Least Square) tool through outer and inner model tests including reliability and validity tests as well as mediation (Ghozali & Latan, 2015). This method uses a quantitative research type. Quantitative research design which is a systematic plan used to collect and analyze numerical data to answer research questions or test hypotheses. Data collection using purposive sampling. These criteria can be based on demographic characteristics, experiences, or information that is relevant to the phenomenon being studied. The criteria are customers in Central Java who have gone through the Covid-19 pandemic, customers who have knowledge about caring for the environment, consumers who have actively purchased organic products for at least the last 1 year, consumers who have purchased products that are included in organic products at least 2 times purchasing organic products. This paper uses a questionnaire instrument to obtain 100 samples that have been determined according to the sample criteria of the PLS method.

3.1 Results

3.1.1   Measurement Evaluation Models (Outer Model)

Data analysis using outer model and inner model evaluation. Outer model to see the validity and reliability of the model. Evaluation of the indicator model is seen from convergent validity, with factor loading values, discriminant validity with cross loading or comparison of AVE values   and AVE roots, then the reliability test is seen from Cronbach's alpha and composite reliability. When viewed from the SEM-PLS output results in Figure 2, it can be seen that the model that meets the criteria is the indicator value of the three variables, namely perceived environmental responsibility, environmental attitude, and pro-environmental consumer behavior is more than 0.7 to be said to be valid or reliable, as described in the table below.
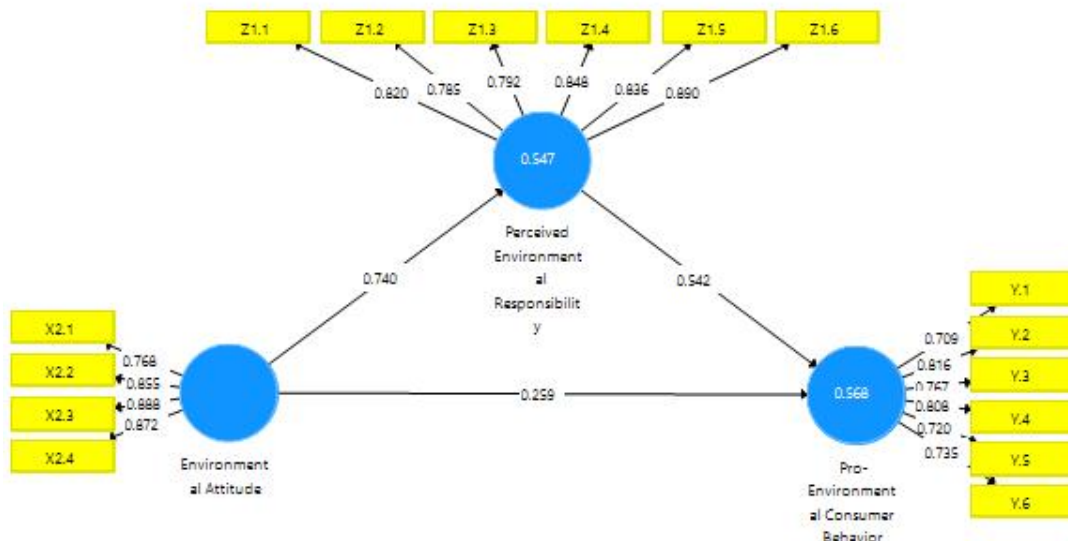
Figure 2. Measurement Models

3.1.2 Convergent Validity

Convergence Analysis is a measure of how well indicators in a construct correlate with each other. Convergent validity refers to the extent to which indicators of a latent variable actually measure the same concept, or in other words, the extent to which the indicators are highly correlated with each other. Convergent validity is important to ensure that the indicators used in a latent variable truly reflect the intended construct. In this case, it can be seen from the AVE value. To show good convergent validity, the AVE value should be ≥ 0.5. This means that at least 50% of the variance of the indicators must be explained by the latent variables, and the rest (less than 50%) is unexplained variance (error).

Table. 4.1 Average Variance Extracted (AVE)

Variable	Average Variance Extracted (AVE)
Environmental Attitude	0,717
Perceived Environmental Responsibility	0,688
Pro-Environmental Consumer Behavior	0,578

Source: Processed Primary Data, 2023

3.1.3 Discriminant Validity

Discriminant validity refers to the extent to which a latent variable is empirically different from other latent variables in the model. This means that each latent variable in the model should measure a unique and distinct concept, and its indicators should not be highly correlated with other latent variables that they are not supposed to measure. Discriminant validity ensures that different constructs in the model are truly distinct from each other, and that indicators held by one latent variable do not match those of other latent variables. Discriminant Validity is measured using the Fornell-Larcker Criterion and the Heterotrait-Monotrait Ratio (HTMT).

Table. 4.2 Cross Loadings

	Environmental Attitude	Perceived Environmental Responsibility	Pro-Environmental Consumer Behavior
X2.1	0,768	0,557	0,490
X2.2	0,855	0,606	0,528
X2.3	0,888	0,617	0,553
X2.4	0,872	0,710	0,647
Y.1	0,462	0,539	0,709
Y.2	0,588	0,600	0,816
Y.3	0,407	0,495	0,767
Y.4	0,552	0,650	0,808

	Environmental Attitude	Perceived Environmental Responsibility	Pro-Environmental Consumer Behavior
Y.5	0,532	0,557	0,720
Y.6	0,434	0,474	0,735
Z1.1	0,630	0,820	0,635
Z1.2	0,619	0,785	0,565
Z1.3	0,599	0,792	0,555
Z1.4	0,658	0,848	0,688
Z1.5	0,539	0,836	0,529
Z1.6	0,622	0,890	0,654

Source: Processed Primary Data, 2023

The Fornell-Larcker criterion is the most frequently used in testing discriminant validity. It is based on the comparison between the Average Variance Extracted (AVE) of each latent variable and the correlation between the latent variables. To meet the discriminant validity according to the Fornell-Larcker criterion, the square root of the AVE of a latent variable must be greater than the correlation between the latent variable and other latent variables in the model. This means that the latent variable has a stronger relationship with its own indicators than with other latent variables.

Table 4.3 Fornell-Larcker Criterion

Variable	Environmental Attitude	Perceived Environmental Responsibility	Pro-Environmental Consumer Behavior
Environmental Attitude	0,847		
Perceived Environmental Responsibility	0,740	0,829	
Pro-Environmental Consumer Behavior	0,660	0,734	0,760

Source: Processed Primary Data, 2023

Table 4.4. AVE and Akar AVE

Variabel	AVE	AKAR AVE
Environmental Attitude	0,717	0,847
Perceived Environmental Responsibility	0,688	0,829
Pro-Environmental Consumer Behavior	0,578	0,760

Source: Processed Primary Data, 2023

3.1.4 Reability Testing

Reliability test can be seen from several aspects, namely Cronbach's alpha and composite reliability. Cronbach's Alpha is to measure the internal consistency of the indicator. Values above 0.7 are considered adequate. While composite reliability is to measure the overall reliability of the indicator against latent variables. Values above 0.7 are also considered good.

Table 4.5. Composite Reliability

	Cronbach's Alpha	Composite Reliability	Explanation
Environmental Attitude	0,868	0,910	Reliable
Perceived Environmental Responsibility	0,868	0,930	Reliable
Pro-Environmental Consumer Behavior	0,854	0,891	Reliable

Source: Processed Primary Data, 2023

3.1.5 Measurement Structural Models (Inner Model)

The inner model in Partial Least Squares (PLS) analysis describes the structural relationships between latent variables in the model. It is part of the overall model that focuses on the relationships between dependent (response) and independent (predictor) variables. Inner model analysis can be seen from the path coefficient and R-Square value. The Path Coefficient shows the strength and direction of the relationship between variables. This coefficient ranges from -1 to 1. While R-squared shows the proportion of variability in the dependent variable that can be explained by the independent variable. The advantage of the inner model is that it can overcome multicollinearity between independent variables. Allows analysis with data that does not meet the assumption of normality. The inner model is a crucial part of PLS   analysis because it provides an understanding of the interactions and relationships between the variables being studied.

Table 4.6. R Square

Variable	R Square
Perceived Environmental Responsibility	0,547
Pro-Environmental Consumer Behavior	0,568

Source: Processed Primary Data, 2023

3.1.6 Hypothesis Testing

Hypothesis testing is usually carried out to test the significance of the relationship between latent variables and indicators or between latent variables in the structural model and the measurement model. Hypothesis testing in PLS allows researchers to evaluate whether the proposed model fits the data and whether the hypothesized relationships in the model are significant. Hypothesis testing in structural models involves Path Coefficients, which indicate the strength and direction of the relationship between latent variables. To test significance, the path coefficient is tested with a t-test or p-value through the bootstrapping method. In addition, R-Squared (R^2), which measures how well the independent variables can explain the dependent variable. A higher R^2 indicates a better model.

Table 4.7. Path Coefficient Values   in Structural Testing

	Original Sample (O)	*p-value*	Explanation
Environmental Attitude -> Perceived Environmental Responsibility	0,740	0,000	supported
Environmental Attitude -> Pro-Environmental Consumer Behavior	0,259	0,000	supported
Perceived Environmental Responsibility -> Pro-Environmental Consumer Behavior	0,542	0,000	supported

Source: Processed Primary Data, 2023

In the inner model validation test, it is seen from the p-value, which is a significance test to determine whether the relationship between variables is significant. The table 4.7 shows the relationship between environmental attitude and perceived environmental responsibility is less than 0.05, which is 0.00, which means it has a significant effect. The relationship between environmental attitude and pro-environmental consumer behavior is also less than 0.05, which is 0.00, so it has a significant effect. Likewise, the relationship between perceived environmental responsibility and pro-environmental consumer behavior is less than 0.05, which is 0.00, so it has a significant effect. Then, bootstrapping which is a technique used to obtain an estimate of the path coefficient distribution and test significance, can be seen in Figure 3. In Figure 3, bootstrapping is a resampling method often used in PLS to obtain the distribution of the estimator and calculate test statistics (eg t-statistics and p-values). With bootstrapping, PLS can test whether the path coefficient is significantly different from zero.
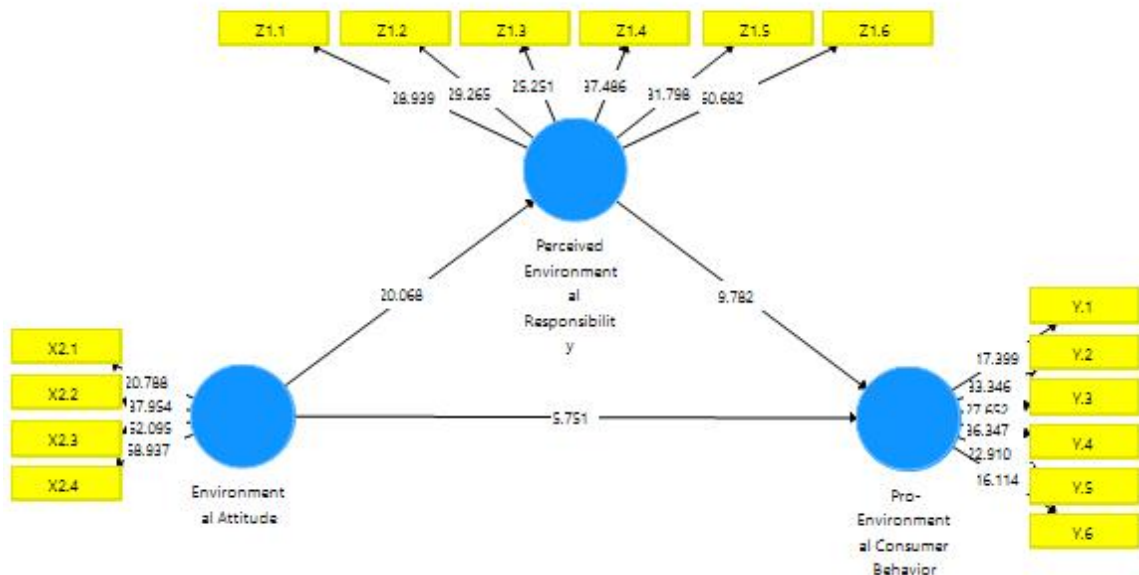

Figure 3. Bootstrapping Analysis Result

3.1.7 Mediation Testing

Mediation test is used to evaluate whether the relationship between independent and dependent variables is through one or more mediator variables. This can be seen from the path coefficient. X → Z: Test the influence of the independent variable (X) on the mediator (Z). Z → Y: Test the influence of the mediator (Z) on the dependent variable (Y). X → Y: Test the direct influence of the independent variable (X) on the dependent variable (Y). Table 4.8 explains the relationship between environmental attitude and pro-environmental consumer behavior which is mediated by perceived environmental responsibility showing a p-value of 0.000, which means there is mediation of the relationship.

Table 4.8 Path Coefficient Value of Mediating Variable Effect Test

Construct	Original Sample (O)	P Values
Environmental Attitude -> Perceived Environmental Responsibility -> Pro-Environmental Consumer Behavior	0,401	0,000

Source: Processed Primary Data, 2023

4   Discussion

4.1 Environmental attitude has a positive effect on pro-environmental consumer behavior

Environmental attitudes refer to a person's perceptions, values, and beliefs about the importance of preserving and protecting the environment. These attitudes can be cognitive, affective, and conative. Cognitive is knowledge or awareness of environmental issues. Affective is feelings or emotions towards the environment, such as concern for ecological problems. Conative and a person's readiness or intention to take action on environmental problems. In this case, customers who have an attitude of preserving and protecting the environment will tend to think in deciding to purchase environmentally friendly products. The figure uploaded in the PLS model shows the relationship between how significantly environmental attitude influences pro-environmental consumer behavior. The results of the test that has been explained previously show a significant path coefficient, so it can be concluded that environmental attitudes have a positive influence on pro-environmental consumer behavior. This is also supported by previous studies (Nahavandian et al., 2022; Odhiambo Joseph, 2019).

4.2 Environmental attitude has a positive effect on perceived environmental responsibility

This relationship suggests that positive environmental attitudes have a direct effect on a person's perception of environmental responsibility. That is, when a person has a positive attitude toward the environment (e.g., caring about ecological issues, being aware of the negative impacts of human activities on nature), it tends to make them feel responsible for taking actions that protect the environment. This can happen because of ecological awareness, namely people with positive attitudes toward the environment are more likely to have higher levels of ecological awareness. They understand the importance of protecting the environment, which then increases their perception that they are responsible for taking action. In addition, it can be caused by the intention to act, namely this positive attitude also motivates individuals to play an active role in protecting the environment, either by reducing pollution, recycling, or adopting a more environmentally friendly lifestyle. In the PLS model this relationship is expressed as a positive influence, meaning that the more positive a person's attitude toward the environment, the more likely they are to feel responsible for taking action on environmental problems. This is also supported by previous studies (Zheng et al., 2021).

4.3 Perceived environmental responsibility mediates between environmental attitude and pro-environmental consumer behavior.

Pro-environmental consumer behavior includes concrete actions taken by consumers in their daily lives to minimize negative impacts on the environment, such as reducing

plastic use, purchasing environmentally friendly or sustainable products, recycling waste and reducing energy consumption. Attitudes towards the environment are often assumed to be important predictors of environmental behavior. A person who has a positive environmental attitude is more likely to adopt environmentally friendly consumption behavior, choose environmentally friendly products, participate in activities that support environmental conservation. However, there are other factors that may influence the strength of this relationship, namely perceived environmental responsibility as a mediating variable. The role as a mediating variable is that when individuals have a positive environmental attitude, they may not immediately engage in environmentally friendly behavior. They are more likely to engage if they feel they have a personal responsibility for the environment. In this case, perceived environmental responsibility acts as a bridge between attitude and behavior. To transform positive attitudes towards the environment into real behavior, a strong sense of environmental responsibility needs to be built first. Perceived environmental responsibility acts as a mechanism that connects a person's beliefs about the importance of preserving the environment with their actions in everyday life. This is also supported by previous studies (Sugandini et al., 2020; Sultana et al., 2022).

5   Conclusion

In this study, the following conclusions were obtained:

- Environmental attitude has a positive effect on pro-environmental consumer behavior
- Environmental attitude has a positive effect on perceived environmental responsibility
- Perceived environmental responsibility mediates between environmental attitude and pro-environmental consumer behavior.

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