Institute for Advanced Science,
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MORALITY BEFORE KNOWLEDGE

The impact of willingness to pay, environmental awareness, consumer behavior, consumer attitudes toward purchase decisions on sustainable packaging in Indonesia

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ABSTRACT

Background: Packaging is considered a vital component of the marketing mix. Sustainable Packaging is packaging that is very important to use in Indonesia because of the large amount of environmental damage due to plastic waste and the large amount of plastic waste that we usually find in waterways which causes flooding everywhere. Environmental Awareness is one of the reasons for increasing public awareness to reduce the use of plastic waste and to start switching to sustainable packaging. In Indonesia, they have started to use sustainable packaging, but public awareness is still lacking and sometimes they still like to use plastic. The purpose of this research is to examine the impact of willingness to pay, environmental awareness, consumer behavior, and consumer attitudes toward purchasing decisions on sustainable packaging in Indonesia. **Methods:** A quantitative method was used as the research design method by conducting online questionnaires. The questionnaires were distributed online for those who have an intention to sustainable packaging in Indonesia. The total respondents in this research are 153. The data analysis design that is used in this research is Partial Least Square-based Structural Equation Modeling (PLS-SEM) using Smart-PLS software 4 starting from the measurement of the outer model, inner model, and hypothesis testing. **Findings:** This study has 4 hypotheses and the results show that willingness to pay, environmental awareness, consumer behavior, and consumer attitudes directly impact purchase decisions. **Conclusion:** Willingness to pay and consumer behavior significantly impact purchase decisions regarding sustainable packaging, whereas environmental awareness does not. **Novelty/Originality of this Study:** This comprehensive examination investigates how willingness to pay, environmental awareness, consumer behavior, and consumer attitudes specifically influence purchase decisions on sustainable packaging within the unique socio-economic and cultural context of Indonesia. By using Partial Least Squares-based Structural Equation Modeling (PLS-SEM), the study provides nuanced insights into the direct impacts of these variables, an area that is relatively unexplored in Indonesian market dynamics.

KEYWORDS: sustainable packaging; environmental awareness; purchase decisions; consumers behavior; consumer attitude.

1. Introduction

Packaging has been found to be a major source of garbage that is not biodegradable and has an adverse effect on the environment (Fig.1) (Singh and Pandey, 2018). It is also seen as an essential part of the marketing mix (Singh and Pandey, 2018). It also satisfies the manufacturer's legal obligations and conveys to customers important brand messaging. According to several studies (Holdway et al., 2002; Verghese et al., 2012; Hellström and Saghir, 2007; Grönman et al., 2013), packaging has a significant long-term contribution potential. The environment is one of the main factors influencing the creation of ecologically friendly packaging (Chisenga et al., 2020). Three aspects of packaging harm the environment: it uses resources, produces pollution and waste that is solid, liquid, and gaseous, and it disperses pests and bacteria (Zhang and Zhao, 2012). Packaging accounts for a remarkably large amount of trash, much of which ends up in the wrong place. It produces more garbage made of plastic than the following four biggest industrial sectors put together. The Smithers Pira report titled "The Future of Global Packaging to 2022" (Pira, 2017) projects that the global packaging market will grow by 2.9% annually to reach USD 980 billion in 2022, driven by the world's population growth and increasingly complex supply chains.

By 2024, the Indonesian packaging market is expected to grow at a 2.4% annual pace to 159.2 billion units, with food goods accounting for 44% of this share (Tseng et al., 2021). In contrast to the 0.39% collected by the waste bank system, the informal recycling sector in Jakarta gathered roughly 33.8% of the plastic garbage generated, and 54.3% of the plastic waste ended up in ultimate disposal locations, according to a recent study on the subject by Putri et al. (2018). These results show that waste management in Indonesia is primarily dependent on ultimate disposal locations, although the unofficial recycling industry continues to play a significant role. Despite their existence, alternative recycling strategies such as trash banks only contribute a little amount to waste management because of their reliance.

Growing customer pressure to be more environmentally conscious is one reason why many businesses are changing their product packaging to be more sustainable. More sustainable packaging is becoming a prerequisite for companies to compete. Companies that use to report increased brand recognition and reputation, cost savings, and a smaller environmental footprint, among other benefits (Shoda, 2013). Environmental awareness can help change people's relationships with nature and inspire environmentally responsible behavior (Hadzigeorgiou and Skoumios, 2013).

Packaging is closely linked with food, providing functions such as containment, protection, and transportation of contents, making it an integral part of food systems (Bauer et al., 2022). Food packaging is a critical component in addressing the primary consuming food sustainably presents a challenge (Coussy et al., 2013; Licciardello, 2017) and is regarded as a positive step toward waste reduction as opposed to a financial and environmental price (Matar et al., 2018; Verghese et al., 2015; Wikström and Williams, 2010). Due to its widespread use, packaging contributes Acidification, resource depletion, global warming, and excessive energy and water consumption are all examples of environmental issues (Bohlmann, 2004; Ligthart and Ansems, 2018). As a result, recycling is now more convenient and recycling collection costs are lower. However, about 1 out of every 4 items put in recycling bins are not recyclable, which greatly raises the cost of processing them (Ogunola et al., 2018). Numerous studies have confirmed the significant potential for sustainable development of packaging, particularly food products. First Romanian research. The study's goal is to find out how Romanian consumers perceive eco-packaging's contribution to the development of sustainable behavior. The primary goals of the study are to identify consumer preferences for various eco- packaging options, to determine how information about eco-packaging helps to promote sustainability and understand why people buy green packaging (Orzan et al., 2018).

1.1 Problem statement and research gap

Waste is a major issue due to the growing population, and an adequate recycling

system is lacking (Genoveva and Samukti, 2020). Consumers in Indonesia were willing to pay more for environmental concern products (Sutikno et al., 2020). As Prakash and Pathak (2017) supported the statement that environmentally conscious consumers accept higher prices because they are not price sensitive. Some customers are known to be price sensitive and unwilling to pay more for additional product features (Anderson et al., 1992). In contrast, the price and quality of sustainable products often positively influence consumers' purchasing intentions, with price being less important than quality. Added, more expensive products often have better or more features, which is a common deterrent to sustainable consumption intentions (Katt and Meixner, 2020; Ketelsen et al., 2020).

Since people's awareness of the depletion of natural resources has grown in recent years, environmental conservation has received a great deal of attention (Prakash & Pathak, 2017). Health is significantly impacted by Indonesians' inadequate awareness of hygiene (DLHK Provinsi Banten, 2021). In order to manage waste, notably the selective collection and sorting of abandoned packaging, many nations in Europe and Asia have implemented programs including recognized producer responsibility groups, which are funded by the producers (Abejón et al., 2020). Packaging's effects on the environment vary depending on its composition and features, although design is crucial from a sustainability standpoint (Simon et al., 2016). However, about 1 out of every 4 items put in recycling bins are not recyclable, which greatly raises the cost of processing them (Granger, 2018). Environmental awareness must be promoted because it has a significant impact on recovery efforts and environmental protection (Maulana & Haryanto, 2020).

The non-eco-friendly packaging materials are primarily to blame for the current environmental damages (Koenig-Lewis et al., 2014). An increasing population will bring up various human needs, where these human needs are sometimes the cause of environmental problems (Siregar, 2012). Natural disasters that occur as a result of human activity, where the forest which should have a function as a guard has been destroyed. Economic losses are caused by forest destruction, specifically the loss of potential benefits such as forest tree stands, humans use it to get together their requirements for animal protein, while animals use it to make construction materials, food ingredients, and pharmaceuticals.

In this study, the researcher will analyze independent variables (Willingness to Pay, Environmental Awareness, Consumer Behavior, Consumer Attitude) and dependent variables (Purchase Decision). This research will use quantitative research. The researcher took a sample of customers that have intention to sustainable packaging in Indonesia, Furthermore, respondents who do not fulfill the requirement will be eliminated. Previous studies have found that most studies are related to the impact of gender, environment awareness, and consumer attitudes on purchasing decisions and sustainable packaging. And there hasn't been much research on the impact of gender on purchasing decisions and sustainable packaging. Previous researchers conducted their study in Italy (Chirilli et al., 2022). In Malaysia (Suki, 2013). Meanwhile, this research will be conducted in Indonesia, where there are still many who have not conducted research on the impact of gender on purchasing decisions and packaging sustainability.

2. Methods

2.1 Research design and variable identification

If the sample size is small, even though PLS-SEM is the optimal method to use, this study must still meet the minimum sample size requirements (Hair et al., 2014). In this research, a quantitative approach is used as a technique to collect data and interpret its meaning. It does this by using statistical equations, quantitative or empirical data from questionnaires, or by changing existing statistical data and using computer techniques to make changes.In SEM equations, exogenous variables are always independent variables. SEM formulas model causal relationships between both endogenous and exogenous variables, as well as among endogenous variables (Gunzler et al., 2013). To create the

product indicators for interaction terms, use each indicator of the moderator variable with an exogenous construct. Consequently, for the product-indicator method, both the exogenous construct and the moderator variable must be measured reflectively (Becker et al., 2018).

Endogenous variables are variables that can become independent variables in other equations within; they are referred to as endogenous variables rather than response variables in SEM equations. In at least one of the SEM equations, perform the function of a dependent variable (Gunzler et al., 2013). Meanwhile, a mediation analysis's primary hypothesis to ascertain if a change in the mediating variable has the potential to mitigate the impact of the independent variable (intervention) on the outcome (Gunzler et al., 2013).

2.2 Population and sampling plan

A sampling plan specifies which measurements, when taken, will be done on what, how, and by whom. Plans for sampling should be created so that the resulting data contains a sample that is representative of the variables of interest and allows for the resolution of all the objectives' questions. A sample is a smaller, more manageable portion of a larger group. It is a smaller portion of a population that shares many of the same traits. Samples are used when population sizes are too large for a test to include every potential participant or observation. A sample is a segment of a studied target population by a researcher in order to draw broad conclusions about the target population (Creswell,2012).

A research population is a large group of individuals or objects being studied scientifically. The research conducted provides benefits to the public. A research population consists of a clearly defined group of individuals or objects that share similar characteristics. Members or objects in a population typically share a common, unifying trait. According to Sugiyono (2017), a population is a group of objects or subjects selected by researchers for analysis and conclusion-drawing based on specific traits and characteristics. In this study, the population is anyone who knows and has intention in purchasing sustainable packaging in Indonesia.

2.2.2 Sampling technique and sample size

The demographics of the study are unknown due to the study's focus on respondents who have ever purchased Sustainable Packaging. For this study, there is no accurate data on population members. So, in this study, non-probability sampling was employed. Non-probability sampling is a sampling technique in which not all sample participants are allowed to take part. Non-probability sampling includes methods such as purposeful, convenient, accidental, systematic, quota, saturation, and snowball. Purposive sampling is used to select and sample research participants. It is defined as a strategy for determining the research sample based on specific factors, criteria, or characteristics in order to obtain data that can then be more presentable (Sugiyono, 2017).

A sample is a subset of a population that reflects its size and characteristics (Sugiyono, 2017). According to Hair et al. (2014) and Sarwono (2015), in a structural model aimed at specific latent variables, the sample size should be ten times the number of structural paths or ten times the number of formative indicators used to measure one latent variable. As a result, the researcher employs the following formula to calculate the number of samples (Sarwono, 2015; Hair et al., 2013) in Equation 1, where N is sample size and Q is the largest number of questions in a variable:

$$\text{Formula } N = 10 \times Q \qquad \text{(Eq. 1)}$$
$$N = 10 \times 11$$
$$N = 110$$

From Equation 1, it could be concluded that the minimum number of respondents in this research is 110 as the largest number of questions in a variable is 11 questions. Therefore, according to the formula the minimum number of respondents should be 110 respondents. It is necessary to have 110 respondents who meet requirements.

2.3 Data collection design (questionnaire and data source)

The most common data collection techniques are participant observation, in-person in-depth interviews, and focus group discussions (Moser and Korstjens, 2018). The process of gathering structured and organized data for research is known as data collection. Data collection techniques include observation, questionnaires, interviews, and combinations of these (Sugiyono, 2017) . In order to identify the theoretical framework and prior research pertinent to this study, the researcher will use a questionnaire as a data collection tool along with online analysis.

Furthermore, Google Forms is free to use for electronic survey questionnaire distribution via Telegram, WhatsApp, Instagram, and email accounts. Respondents can access an online survey in this manner by clicking on a link posted on a Facebook page or sending an intended message via email, Messenger, or WhatsApp that has been specifically configured for the research (Barnes et al., 2021). Social media is a powerful tool for connecting people and spreading information (Glazier and Topping, 2021).

Table 1. Likert scale

Grading statement scale	Score
Strongly disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly agree	5

(Sugiyono, 2017)

Sugiyono (2017) stated that there are two types of questionnaires: closed and open. This study used a closed questionnaire, which was a list of options from which the respondent could choose and then immediately write their response. Likert scale in this study using 5 levels to express the attitude of respondents answer as follows (Table 1). In this study, the researcher will only make use of primary data created directly from the survey results. Primary data is defined as information collected by the researcher that is directly relevant to the study's objectives and specifically relates to the variable of interest (Sekaran and Roger, 2010).

2.4 Data analysis design

2.4.1 Partial Least Square-Structural Equation Model (PLS-SEM) and outer model measurement

In this study, the SmartPLS data design will be analyzed, beginning with the evaluation of the outer model, internal model, and hypothesis testing. Smart-PLS is PLS-SEM graphical user interface software (Memon et al., 2021). PLS predicts that the study's results do not have to be related to a single distribution, allowing for the use of normally distributed data, and PLS-main SEM's goal is to maximize the endogenous latent variable (Sarwono & Narimawati, 2015). Using SmartPLS, the research framework can be seen more clearly in the location of the variables used and also the numbers that are the result of data processing (Adityaningrat, 2022). According to Hair et al., (2017) This study should assess the consistency of the measurement in order to develop a good measurement model for PLS-SEM. This study must produce an outer model fitness measure that meets three criteria: convergent validity, differential validity, and internal consistency. This research

also uses a reflective model in which the latent structures influence measurement covariance.

The "outer model" is a measurement model that links indicators to their variables and is used to evaluate the model's validity and reliability. In PLS-SEM, this measurement model, also known as the outer model, is part of a path model that includes the indicators and their connections to the constructs (Ringle and Sarstedt, 2022). The outer model is assessed by comparing all manifest (indicator) variables to their latent variables (Sarwono and Narimawati, 2015).

2.4.2.1 Convergent validity

The level at which the constructs converge to describe the variation of the indicator is known as convergent validity. The average variance extracted and outer loadings are two methods for assessing convergent validity (AVE) (Ringle and Sarstedt, 2022). The outer loading result shows that each indicator has an outer load value greater than 0.708, indicating that all indicators are valid.

To determine convergent validity, the average variance extracted (AVE) roots for each construct are compared to the correlations between the constructs and other constructs in the model. The indicator reliability is also referred to as the outer loading size. The outer loadings should be standardized to at least 0.708 (Latan, 2013). The acceptable minimum AVE is 0.50 or greater than the construct's indicator variance of 50% or greater (Hair, Sarstedt, et al., 2021).

2.4.2.2 Discriminant validity

Discriminant validity refers to the degree to which a construct actually differs from other constructs according to empirical standards. Demonstrating discriminant validity requires a structure that is distinct and possesses unique properties not shared by other constructs in the model (Ringle and Sarstedt, 2022). The discriminant validity of measurement models using reflective indicators is examined using cross-loading factors. For the cross-loading measurement, each variable's loading value must be greater than 0.7, and each indicator's loading on its own construct should exceed its cross-loading on other constructs (Ghozali and Latan, 2015).

Meanwhile, the Variance Inflation Factor (VIF) can also be used to determine discriminant validity. A VIF of less than 5 indicates good discriminant validity (Hair et al., 2018). The discriminant validity test is one method for evaluating the Fornell-Larcker criterion (Ringle and Sarstedt, 2022). To calculate discriminant validity, the square root of the average variance extracted (AVE) for each construct is compared to its correlations with all other constructs in the model. Additionally, according to Hidayat (2018), the AVE of each latent variable should be greater than the R^2 of the combined latent variables to ensure discriminant validity.

2.4.2.3 Reliability

Internal coherence, measured through reliability, utilizes two main measures: Cronbach's Alpha and Composite Reliability. According to Sarwono & Narimawati (2015), Cronbach's Alpha should ideally be between 0.8 and 0.9, with a minimum threshold of 0.7 considered acceptable. Cronbach's Alpha assesses the lower bound of a construct's reliability. Composite Reliability, on the other hand, evaluates the upper limit of a construct's reliability. For exploratory research, Hair, Ringle, et al. (2021) suggest that a minimum value of 0.7 for Composite Reliability indicates that the construct is acceptable. However, for more stringent standards, values between 0.60 and 0.70 may also be considered acceptable in exploratory contexts.

2.4.3 Inner model measurement

According to Hair, Sarstedt, et al. (2021), in PLS-SEM, the constructs (represented as circles or ovals) are connected by a structural model, which is also referred to as the inner model. Two aspects when considered when creating a structural model, there are connected relationships (paths) between the constructs. By checking the relevance of R2 and T-test, the determinant coefficient, and path coefficient, used to quantify the internal model in PLS-SEM.

The SmartPLS Boot-Strap software's default test method is the path coefficient test, and R-squared is used to calculate the model's estimated predictive power (Huang et al., 2013). If a path coefficient's value falls outside of the 95% confidence interval, it is significant at the 5% level. There should be at least 5,000 bootstrap samples, and the number of cases should be equal to the number of reliable observations. If the statistical T-value is close to 1.96 (significance level 5%) and the P-value is less than 0.05 or 5% on each path, the hypothesis will be considered valid for this study (Sarwono and Narimawati, 2015).

The coefficient of determination of the value between constructs in a particular model is calculated using R2 for endogenous constructs and directional coefficients, or t- values. As it measures the variance of endogenous models, the R2 is a measure of the experiment's explanatory capacity. The coefficient denotes the sum of the independent latent variables' effects on the dependent latent variable (Ringle and Sarstedt, 2022). Higher values of the R2 indicate a greater explanatory power, which goes from 0 to 1 (Table 2).

Table 2. R^2 value rule of thumb

R^2 value	Interpretation
0.75	Substantial
0.50	Moderate
0.25	Weak

(Hair et al., 2017)

2.4.4 Hypothesis testing

A hypothesis is a provisional and stable statement that determines what is to be identified by the researcher's empirical results. The bootstrapping method allows statistical testing of the hypothesis that the coefficient of a coefficient equals zero (null) rather than testing the alternative hypothesis that the coefficient of a coefficient does not equal zero. (Two-tailed test). The bootstrap's effectiveness is dependent on how much of the target population the sample actually represents. A minimum of 5.000 bootstrap samples should be used, with as many instances as there were in the original sample (Hair et al., 2011). Whether or not a path coefficient's value falls outside of the 95% confidence interval, it is still significant at the 5% level (Hair et al., 2021). Thus, the significant t-value that needs to be met is 1.96. In other words, whether or not the t-statistic or t-value is greater than 1.96, the latent construct and the latent endogenous building tested are positive and significant. according to (Hair et al., 2021).

3. Results and Discussion

3.1 Data analysis

3.1.1 Outer model measurement

The researcher used the outer model measurement to determine the validity and reliability of the entire data set. Because this research model primarily employs a reflecting indicator, the validity and reliability test consist of two steps: convergent validity and discriminant validity (Figure 1).
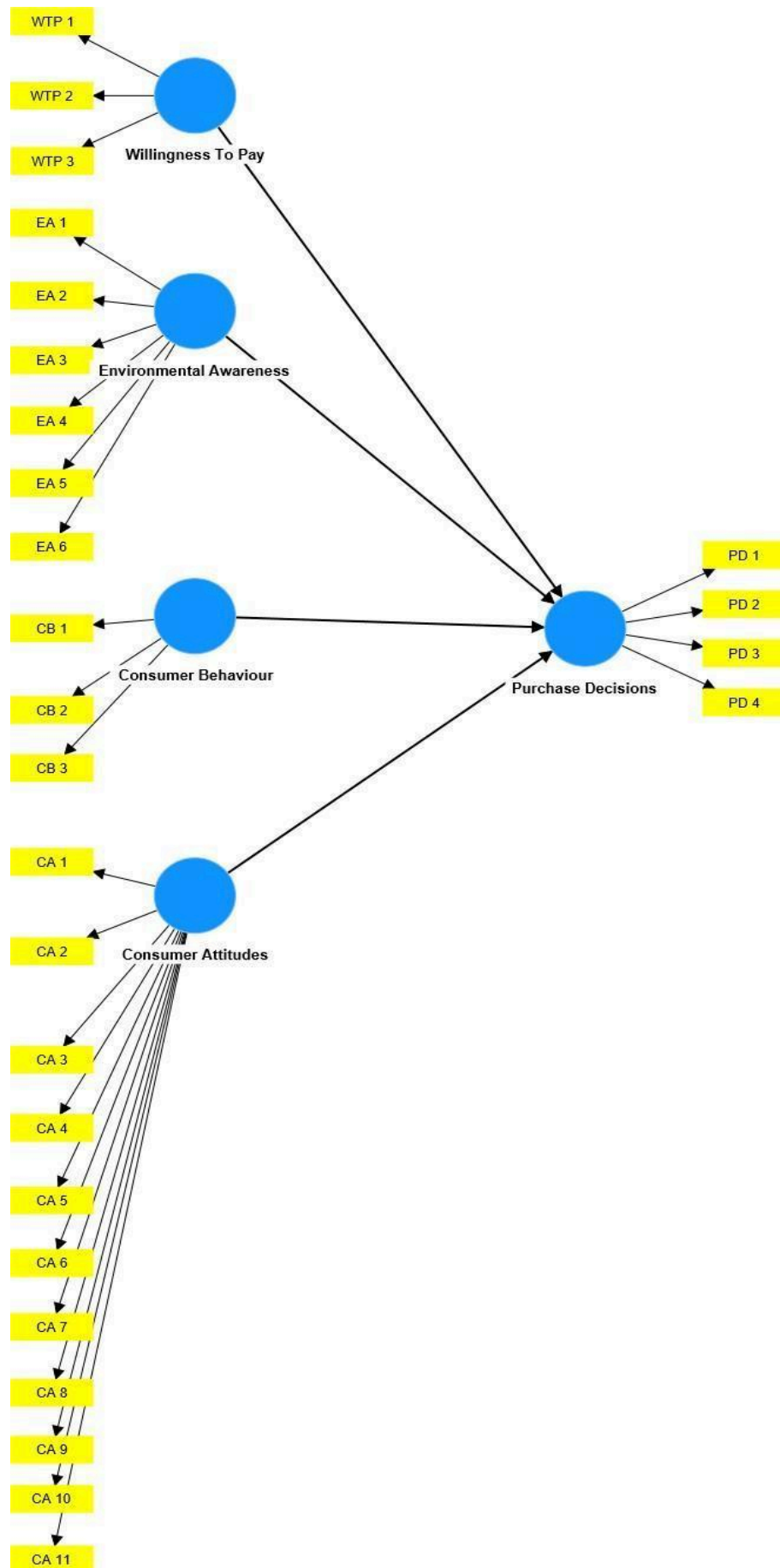
Fig. 1. Conceptual model

3.1.1.1 Convergent validity

Two methods were used to assess convergent validity: outer loading and average variance extracted (EVA). (Hair et al., 2017) recommended the loadings above 0.708, when the outer loadings of a construct are high, it means that linked indicators have many characteristics that the construct can capture. Thus, constructs will be deleted in order to establish a valid result of convergent validity (Table 3).

Table 3. Outer loading result (Before removal)

	Willingness to Pay	Environmental awareness	Consumer behavior	Consumer attitude
WP1	0.837			
WP2	0.837			
WP3	0.827			
EA1		0.808		
EA2		0.782		
EA3		0.828		
EA4		0.685		
EA5		0.772		
EA6		0.815		
CB1			0.858	
CB2			0.718	
CB3			0.791	
CA1				0.717
CA2				0.595
CA3				0.633
CA4				0.663
CA5				0.764
CA6				0.657
CA7				0.514
CA8				0.652
CA9				0.765
CA10				0.667
CA11				0.654

(SmartPLS, constructed by researcher (2023))

The outer loading test shows that one of the 23 indicators is invalid, because there are several outer loading values less than 0.708. EA4, CA2, CA3, CA4, CA6, CA7, CA8, CA10, CA11 must be removed from the model, and the model is then re-estimated. The result of outer loading factor after removal is shown in Table 4.

Table 4. Outer loading result (After removal)

	Willingness to Pay	Environmental Awareness	Consumer Behavior	Consumer Attitude
WP1	0.837			
WP2	0.837			
WP3	0.827			
EA1		0.808		
ES2		0.782		
ES3		0.828		
EA5		0.772		
EA6		0.815		
CB1			0.858	
CB2			0.718	
CB3			0.791	
CA1				0.717
CA5				0.764
CA9				0.765

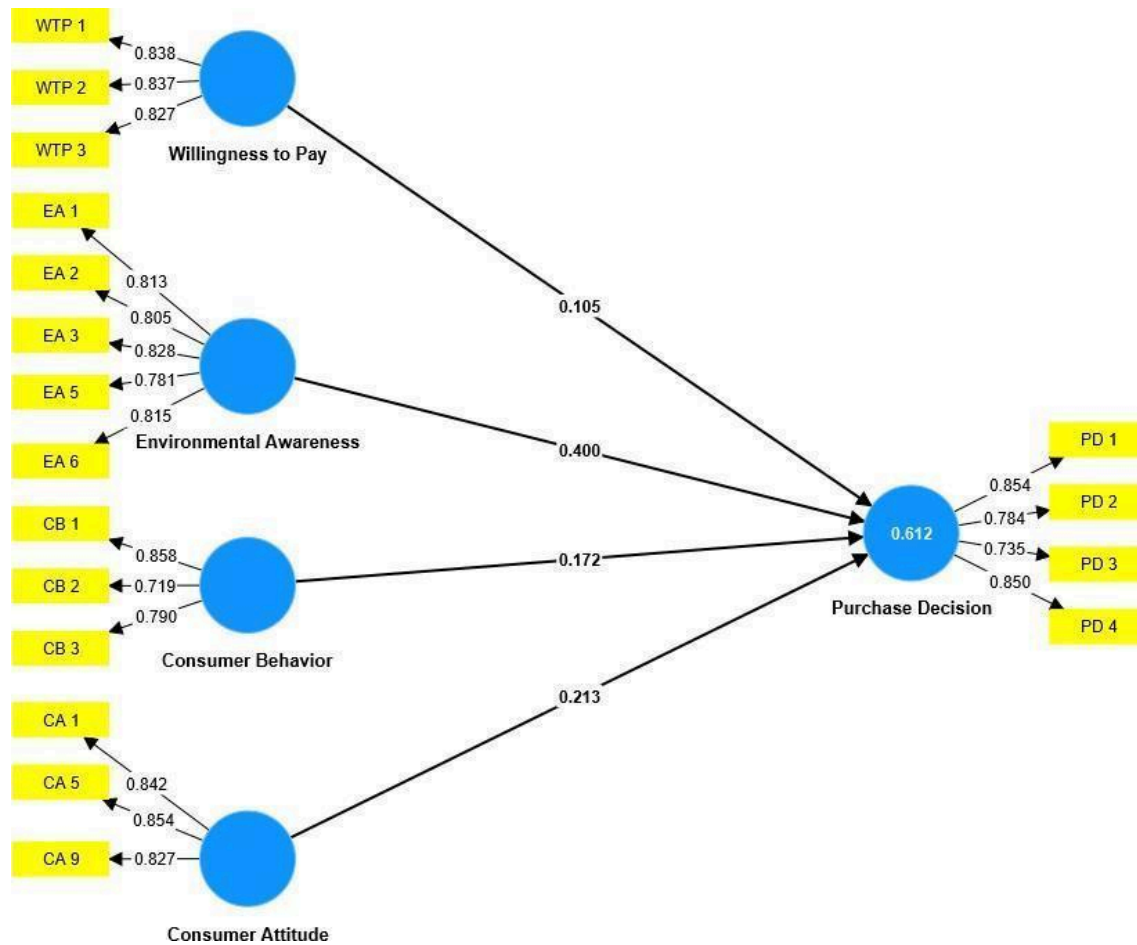(SmartPLS, processed by researcher, 2023)

Fig. 3. Outer model result
(SmartPLS, processed by researcher, 2023)

After removing the invalid construct, the outer loading result shows that each indicator has an outer load value greater than 0.708, indicating that all indicators are valid (Figure 3). The Convergent Validity test is used to determine the AVE value. Table 5 shows the AVE results for each variable that outperformed the validity parameter by more than 0.50.

Table 5. Average Variance Extracted (AVE) value

	Average Variance Extracted (AVE)	Interpretation
Willingness to pay	0.695	Valid
environmental awareness	0.654	Valid
Consumer behavior	0.626	Valid
Consumer attitude	0.708	Valid
Purchase decision	0.651	Valid

(SmartPLS, constructed by researcher, 2023)

3.1.1.2 Discriminant validity

In determining discriminant validity, three methods are typically used: cross-loading, Variance Inflation Factor (VIF), and the Fornell-Larcker criterion. Cross-loading involves ensuring that each indicator's loading on its intended construct is higher than its loading on other constructs. Table 6 illustrates that each indicator's loading on its respective variable exceeds its cross-loading on other variables. Therefore, the cross-loading model satisfies the criteria for discriminant validity.

Table 6. Cross loading factors

	Consumer attitude	Consumer behavior	Environmental awareness	Purchase decision	Willingness to pay
CA 1	0.842	0.518	0.509	0.501	0.482
CA 5	0.854	0.575	0.524	0.567	0.527
CA 9	0.827	0.586	0.532	0.553	0.613
CB 1	0.693	0.858	0.610	0.598	0.613
CB 2	0.366	0.719	0.540	0.505	0.475
CB 3	0.495	0.790	0.533	0.472	0.465
EA 1	0.496	0.532	0.813	0.620	0.580
EA 2	0.617	0.624	0.805	0.540	0.684
EA 3	0.474	0.604	0.828	0.550	0.582
EA 5	0.498	0.485	0.781	0.626	0.486
EA 6	0.434	0.643	0.815	0.601	0.557
PD 1	0.539	0.623	0.658	0.854	0.551
PD 2	0.409	0.522	0.530	0.784	0.458
PD 3	0.506	0.500	0.529	0.735	0.419
PD 4	0.610	0.510	0.626	0.850	0.621
WTP 1	0.471	0.592	0.643	0.610	0.838
WTP 2	0.549	0.538	0.547	0.481	0.837
WTP 3	0.610	0.516	0.577	0.495	0.827

(Smart-PLS, constructed by researcher, 2023)

A model's discriminant validity also can be calculated by looking at the Variance Inflation Factor (VIF) of less than 5, which means that each build is not collinear (Table 7) (Hair et al., 2018).

Table 7. Variance Inflation Factor (VIF)

	VIF	Interpretation
CA 1	1.790	Valid
CA 5	1.743	Valid
CA 9	1.562	Valid
CB 1	1.624	Valid
CB 2	1.207	Valid
CB 3	1.540	Valid
EA 1	1.929	Valid
EA 2	1.988	Valid
EA 3	2.187	Valid
EA 5	1.697	Valid
EA 6	2.009	Valid
PD 1	2.092	Valid
PD 2	1.673	Valid
PD 3	1.460	Valid
PD 4	2.087	Valid
WTP 1	1.479	Valid
WTP 2	1.799	Valid
WTP 3	1.728	Valid

(SmartPLS, constructed by researcher, 2023)

Based on the VIF values being less than 5 for each construct, it can be inferred that there are no collinearity issues among them. However, assessing discriminant validity through the Fornell-Larcker criterion and cross-loadings has shown inconsistencies in identifying issues consistently, as noted in recent research (Table 8) (Henseler et al., 2015). Therefore, while these methods are commonly used, they may not always reliably indicate problems with discriminant validity. As stated on Table 8, it can be inferred that the discriminant is present. The correlation between a construct and any other construct must be greater than the square root of the average variance extracted by the construct.

Table 8. Fornell-Larcker

	Willingness to pay	Environmental awareness	Consumer behavior	Consumer attitude	Purchase decisions
Willingness to pay		0.719	0.661	0.674	0.641
Environmental awareness		0.783	0.718	0.719	
Consumer behavior			0.791	0.728	
Consumer attitude				0.665	
Purchase decision		0.724	0.668	0.746	0.807

(SmartPLS, constructed by researcher, 2023)

3.1.1.3 Reliability

Cronbach's alpha and Composite reliability are two methods for evaluating the internal consistency reliability. The Cronbach's Alpha test should have a minimum value 0.7, with the ideal value is 0.8 or 0.9 value. As we can see on table 4.16, every value surpassed 0.7, which means that all variables are reliable (Table 9).

Table 9. Reliability

	Cronbach's alpha	Composite reliability	Interpretation
Willingness to pay	0.783	0.792	Valid
Environmental awareness	0.873	0.880	Valid
Consumer behavior	0.699	0.712	Valid
Consumer attitude	0.873	0.880	Valid
Purchase decisions	0.821	0.829	Valid

(SmartPLS, constructed by researcher, 2023)
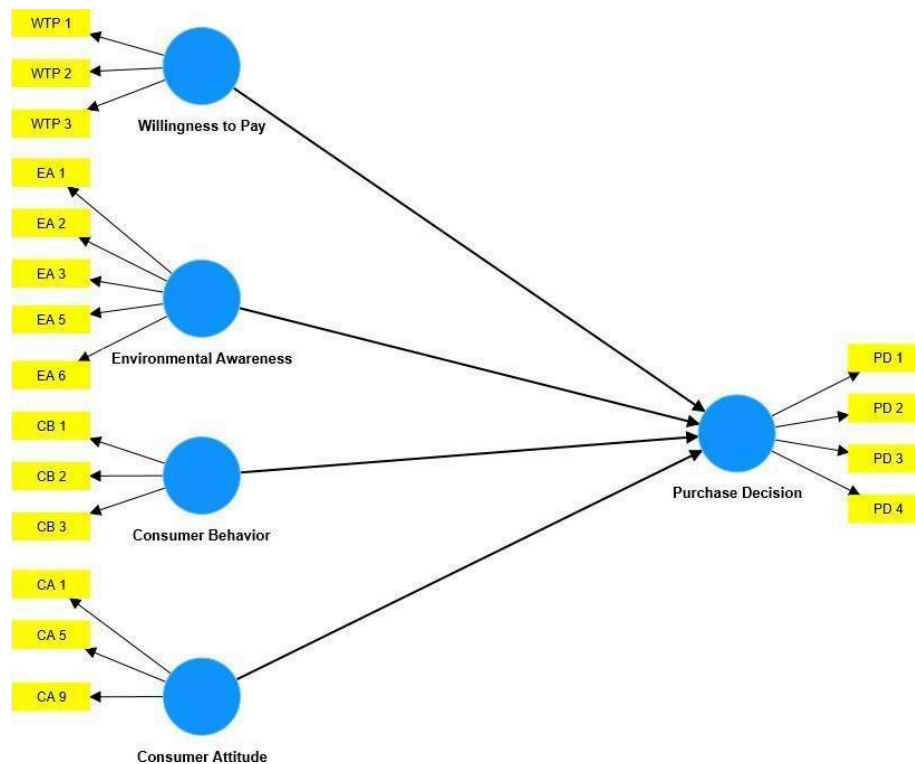
Fig. 4. Inner model measurement

(SmartPLS, constructed by researcher, 2023)

After determining the validity and reliability of all the variables in this research, which demonstrated that all of the indicators matched all of the criteria for outer model measurement, it was possible to move on to the inner model analysis. The internal model measurements in this research can be seen in Figure 4.

3.1.2.1 Path coefficient

According Table 10 also show in Fig. 4, three variables in this research have a direct significant of path coefficient and 1 variable insignificant of path coefficient. 1) Willingness to pay has a positive impact on purchase decisions with the t- statistic value of 2.070, which means that willingness to pay can impact their purchase decisions. 2) Environmental awareness has a positive impact on purchase decisions with the t-statistic value of 3.150, which means that Environmental Awareness can impact their purchase decisions. 3) Consumer behavior has a negative impact toward Purchase Decision with the t-statistic value of 0.931, which means that consumer behavior of sustainable packaging cannot impact purchase decisions. 4) Consumer attitude has a positive impact on purchase decisions with the t- statistic value of 2.062, which means that consumer attitude can impact their purchase decision.

Table 10. Path coefficient

Path	T statistics	P values	Interpretation
Willingness to pay -> Purchase decision	2.070	0.038	Significant
Environmental awareness -> Purchase decision	3.150	0.002	Significant
Consumer behavior -> Purchase decision	0.931	0.352	Insignificant
Consumer attitude -> Purchase decision	2.062	0.039	Significant

(SmartPLS, constructed by researcher, 2023)

3.1.2.2 Determination of coefficient (R2)

This coefficient, which is determined as the squared correlation between the actual and projected values of a specific dependent variable, is a measure of the model's predictive power. Table 11 shows the correlation between independent variables and dependent variables was 63.9% which indicates high correlation.

Table 11. R-Square

	R-Square	R-Square adjusted
Purchase decision	0.639	0.628

(SmartPLS, constructed by researcher, 2023)

3.1.3 Hypothesis (Bootstrapping)

The bootstrapping resampling method accepts a hypothesis in this section if the t-significance value is 1.90 and the p-value is less than 0.50. The measurement estimates and standard errors in this method are based on empirical observations as opposed to statistical hypotheses. The following are four hypotheses include the following:

H1: There is the impact of willingness to pay toward purchase decisions on sustainable packaging.
H2: There is the impact of environmental awareness toward purchase decisions on sustainable packaging.
H3: There is the impact of environmental awareness toward purchase decisions on sustainable packaging
H4: There is the impact of consumer behavior toward purchase decisions on sustainable packaging.

Based on Table 10, the decision to accept or reject the hypothesis is as follows: the t-statistic for the willingness to pay variable influencing purchase decisions is 2.070, exceeding 1.96, and the p-value is 0.038, less than 0.05. Hence, hypothesis H1, which asserts that willingness to pay affects purchase decisions regarding sustainable packaging in Indonesia, is accepted. The environmental awareness variable shows a t-statistic value of 3.150, surpassing 1.96, with a p-value of 0.002, below 0.05. Consequently, hypothesis H2, which posits that environmental awareness influences purchase decisions regarding sustainable packaging in Indonesia, is accepted. On the other hand, the t-statistic value for the consumer behavior variable on purchase decisions is 0.931, below 1.96, and the corresponding p-value is 0.352, exceeding 0.05. Therefore, hypothesis H3, suggesting that consumer behavior impacts purchase decisions of sustainable packaging in Indonesia, is rejected. The t-statistic value of 2.062 is greater than 1,96 and the p-value is less than 0.05 for the consumer attitude variable on purchase decisions. Therefore, the fourth hypothesis (H4) which indicates that environmental awareness has an impact towards purchase decisions of sustainable packaging in Indonesia is accepted.

3.2 Discussion of findings

All the findings are about the effect of all independent variables which consist of willingness to pay, environmental awareness, consumer behavior and consumer attitudes on purchase decisions.

3.2.1 The impact of willingness to pay on purchase decisions of sustainable packaging in Indonesia

Hypothesis 1 (H1) testing indicates that Willingness to Pay (WTP) significantly influences Purchase Decisions (PD). The t-statistic value of 2.070, exceeding 1.96, and the p-value of 0.038, less than 0.05, both support this assertion. Therefore, Hypothesis 1 (H1) is accepted. Two factors influence perceived behavioral control: price and packaged goods category. Based on this, we propose the following hypothesis: fundamental attributes such as package appearance and reusability of green packaging positively correlate with consumers' willingness to purchase, while package price and environmental impact negatively correlate with consumers' willingness to pay (Hao et al., 2019). Consumer willingness to pay a premium for food in environmentally friendly packaging reflects their attitude toward price and affordability, assessing the product's cost relative to the benefits it offers (Popovic et al., 2020).

3.2.2 The impact of environmental awareness on purchase decisions of sustainable packaging in Indonesia

Hypothesis 2 (H2) testing indicates that Environmental Awareness (EA) significantly influences Purchase Decisions (PD). The t-statistic value of 3.150, which exceeds 1.96, and the p-value of 0.002, less than 0.05, both support this assertion. Therefore, Hypothesis 2 (H2) is accepted. Consumer environmental awareness plays a crucial role in shaping consumption habits and fostering environmental conservation (Fu et al., 2020). It influences consumer behavior towards environmentally friendly products and services (Sekhokoane et al., 2017).

In developing countries, the packaging industry must prioritize environmental awareness among consumers and aim to enhance pro-environmental behavior, particularly among those with lower levels of such behavior (Prakash & Pathak, 2017). Environmental awareness directly impacts pro-environmental behavioral intentions, which in turn influence actual pro-environmental actions (Sekhokoane et al., 2017). Moreover, as consumer awareness of environmental issues grows, the adoption of green products becomes integral to the lifestyle of environmentally conscious consumers (Genoveva & Syahrivar, 2020; Liu et al., 2020).

3.2.3 The impact of consumer behavior on purchase decisions of sustainable packaging in Indonesia

Hypothesis 3 (H3) testing reveals that Consumer Behavior (CB) does not have a significant impact on Purchase Decision (PD). This conclusion is supported by the t-statistic value of 0.931, which is less than 1.96, and the p-value of 0.352, which exceeds 0.05. Therefore, Hypothesis 3 (H3) is rejected. According to Biswas and Roy (2015), Consumer Behavior (CB) may influence segments of sustainable consumption behavior but does not significantly impact overall consumer sustainable consumption behavior. The importance of consumer behavior in purchase intentions for sustainable packaging has been increasing (Boz et al., 2020).

Understanding the attitudes of different economic groups is crucial for aligning sustainable packaging with consumer preferences (Scott and Vigar-Ellis, 2014). The growing willingness among consumers to pay more for environmentally friendly products underscores the trend toward environmentally conscious consumer behavior (Mishra et al., 2017). Despite the environmental benefits of sustainable packaging, its higher cost compared to conventional packaging remains a significant barrier to widespread adoption of sustainable consumer behavior (Orzan et al., 2018).

3.2.4 The impact of consumer attitudes on purchase decisions of sustainable packaging in Indonesia

Hypothesis 4 (H4) testing indicates that Consumer Attitudes (CA) significantly influence Purchase Decision (PD). The t-statistic value of 2.062, which exceeds 1.96, and the p-value of 0.039, less than 0.05, both support this assertion. Therefore, Hypothesis 4 (H4) is accepted. Consumer attitudes reflect how consumers perceive environmentally friendly packaging as positive or negative, beneficial or harmful, pleasant or unpleasant, likable or dislikable.

Previous research has examined the relationship between consumer attitudes toward environmentally friendly products and their purchasing behavior (Popovic et al., 2020). Consumer attitudes toward what is considered environmentally friendly generally align with conventional sustainability views, indicating varying degrees of greenness across different consumer behaviors (Rettie et al., 2012). Understanding consumers' environmental attitudes in their daily lives is crucial as these attitudes influence their decisions to purchase sustainable products (Chen, 2007).

4. Conclusions

The purpose of this research is to analyze The Impact of Willingness to Pay, Environmental Awareness, Consumer Behavior, Consumer Attitude Toward Purchase Decisions on Sustainable Packaging in Indonesia. The scope and limitations that were discussed in the previous chapter were used in conjunction with the data analysis results from this study. Researchers can draw the following conclusions based on their findings: 1) Willingness to pay has an impact on purchase decisions regarding sustainable packaging. 2) Environmental awareness has an impact on purchase decisions regarding sustainable packaging. 3) There is no impact of environmental awareness on purchase decisions regarding sustainable packaging. 4) Consumer behavior has an impact on purchase decisions regarding sustainable packaging.

The government can start from providing regulations for companies to use more environmentally friendly packaging such as reusability. Future research needs to be carried out to find other factors besides willingness to pay, environmental awareness, consumer behavior, and consumer attitudes that can influence purchase decisions of sustainable packaging in Indonesia. Factors that might be used for future research include gender, Consumer Considerations, and Consumer Perception. Because there is still a lot of research that can be done in the future related to sustainable packaging and especially

sustainable packaging related to daily life patterns that really need to be known and studied.

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Author Contribution

J.T., F.R., J.R.J., and R.S.B.M. conceived the study, carried out all research activities, analyzed the data, wrote the manuscript, and were responsible for the final content. The authors approved the final version and agreed to be accountable for all aspects of the work.

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