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Reducing Food Waste in Indonesia: Examining the Moderating Roles of Impulsive Buying and Value-Seeking in Discount Strategies

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Abstract: This study examines the application of discount strategies to reduce consumer food waste in Indonesia, focusing on the interplay between bundling discounts as short-term interventions and loyalty member discounts as long-term interventions. Indonesia is a country facing serious environmental and economic challenges due to its position among the largest generators of food waste in the world. This research investigates the impact of bundling discounts, moderated by impulsive buying, and loyalty member discounts, moderated by value-seeking behavior, on reducing food waste. In a quantitative approach, SEM was employed, with data sampled through questionnaires distributed across major Indonesian cities renowned for their large restaurant industries, including Bali, Jakarta, Yogyakarta, and Malang. A total of 350 questionnaires distributed resulted in 312 being eligible for further analysis. The findings indicate that bundling discounts have certain positive effects, which are usually weakened by impulsive buying, leading to over-purchasing. However, loyalty member discounts have stronger and more sustainable impacts, mediated by value-seeking behavior that encourages planned and responsible consumption. These findings highlight that tailored discount strategies have a critical role in food waste reduction, while loyalty programs provide an effective framework for sustainability. Insights from this study put restaurant managers and policymakers in a better position to align Indonesia's discount strategies with its sustainability goals and to advance responsible consumption practices in the restaurant sector.

Keywords: bundling discount; loyalty program discount; impulsive buying; value-seeking behavior; consumer food waste reduction behavior

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Academic Editors: Flavio Boccia and Nadia Palmieri

Received: 29 November 2024
Revised: 12 January 2025
Accepted: 13 January 2025
Published: 18 January 2025

Citation: Leksono, A.B.; He, Y. Reducing Food Waste in Indonesia: Examining the Moderating Roles of Impulsive Buying and Value-Seeking in Discount Strategies. *Sustainability* **2025**, *17*, 747. https://doi.org/10.3390/su17020747

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1. Introduction

Food waste in Indonesia represents a critical issue requiring special attention, particularly in the household and restaurant sectors. Data indicate that Indonesia generates approximately 23–48 million tons of food waste annually, making it one of the countries with the highest levels of food waste worldwide [1]. This waste not only impacts the environment but also causes significant economic losses, ranging from IDR 213 trillion to IDR 551 trillion annually, equivalent to 4–5% of Indonesia's gross domestic product [1]. Restaurants in Indonesia contribute significantly to food waste. Indonesian consumers are highly responsive to promotional strategies such as discounts, especially bundling and loyalty member programs, which are often used to attract customers. These practices are often not accompanied by sufficient awareness of the impact of food waste. The culture of communal dining and the tendency to order large quantities of food further exacerbate the

risk of food waste. Combined with the rapid development of the restaurant sector, which plays a significant role in the economy, these characteristics make Indonesian restaurants a relevant context for studying the relationship between discount strategies and food waste reduction [2].

Consumer behavior is a key factor influencing food waste in restaurants. Research shows that consumers often order large portions of food driven by the economic benefits of lower per-unit costs when ordering more [2]. This consumption pattern is not always balanced with consumers' ability to finish their meals, resulting in waste. A lack of awareness of the consequences of food waste often exacerbates this issue. Restaurant promotions or special offers also have the potential to influence consumer behavior, but their specific contribution to food waste remains unclear [3]. Discounts are often perceived as triggers for waste, but they remain relevant for research in the context of food waste reduction. Properly designed discounts can encourage more responsible consumption patterns. Bundling discounts, for instance, can be used to market near-expired food products, while loyalty member discounts can reward consumers who successfully reduce food waste. These strategies position discounts as a tool not only for increasing sales but also for promoting sustainability in the restaurant sector.

Consumer behavior theory provides an essential framework for understanding how external factors, such as promotional strategies, influence purchasing decisions and consumption behavior. The theory highlights that consumer behavior is driven not only by rational needs but also by emotional and social incentives, including discounts and loyalty rewards [4]. In the Indonesian context, the cultural tendency to prioritize economic incentives like discounts in consumption decisions makes the theory highly relevant. This framework explains how bundling discounts can trigger impulsive buying behavior among consumers seeking "greater value" and how loyalty member discounts encourage consumers to pursue long-term benefits from their purchases [5]. Prior studies have extensively examined the impact of discounts on purchasing decisions but have not specifically explored their contributions to food waste reduction [6]. Most studies have focused on the short-term effects of discounts on consumer behavior without investigating how these strategies can be designed for sustainability purposes. Relevant research has predominantly been conducted in Western countries, which have distinct market characteristics and consumption cultures compared to Indonesia [5,6]. Two main questions are explored to address this gap: How do bundling discounts and loyalty member discounts affect consumer food waste reduction behavior when moderated by impulsive buying and value-seeking? What are the differences in effectiveness between bundling discounts and loyalty member discounts in shaping consumer food waste reduction behavior?

This study offers significant contributions to understanding the relationship between discount strategies and food waste reduction. Key questions are addressed through a novel approach that distinguishes this research from previous studies. Research is conducted in the Indonesian restaurant sector, which has unique consumer characteristics that are highly responsive to promotional strategies like discounts yet exhibit low awareness of food waste issues. The approach integrates impulsive buying and value-seeking as moderating variables to explore emotional and rational dimensions of consumer behavior in greater depth. Field data from Indonesian restaurants offer contextual and empirical insights, differing from prior studies predominantly conducted in Western countries or laboratory-based experiments. Results are expected to guide restaurant industry practitioners in designing promotional strategies that are both economically effective and sustainable in the long term.

2. Literature Review

2.1. Discount Theory: Bundling and Loyalty Programs

Discounts are a widely used promotional tool that influence consumer behavior through mechanisms such as price cuts, bundling, coupons, and loyalty programs. These strategies enhance perceived value and urgency, driving consumption and brand loyalty [7], but their application must balance optimizing sales with potential negative outcomes, such as food waste in the food service industry. Bundling and coupons boost sales by decreasing perceived acquisition costs [4] but could lead to over-ordering, impulse buying, and the tendency toward stockpiling and hence waste [8]. Loyalty programs, despite building long-term relationships with customers and value perceptions [5], might create over-consumption in unintended ways due to the customer wanting to have more rewards [9,10]. The effectiveness of discount strategies varies based on consumer traits, with price-sensitive consumers responding more to direct discounts and value-seekers preferring bundling offers [10]. To avoid unsustainable behaviors such as food waste, businesses must align discount strategies with sustainable practices, like offering smaller portions or incentivizing leftover takeaway [11]. Therefore, a nuanced understanding of the effect of different types of discounts is significant for achieving profitability and sustainability goals in consumer-driven industries.

2.2. Food Waste

Food waste is a rejected amount of food, which has value and is fit for consumption, and includes leftovers from meals, vegetables that become limp, fruits that are rotten, and goods that are past expiration but not consumed [12,13]. Food waste occurs from production and distribution to food services and consumption. However, the largest cause is consumer behavior [13,14] and the most consuming is identified as being due to urban consumers [14]. Effective food waste management involves systematic planning to reduce unnecessary food loss and maximize the utilization or recycling of consumable food [15]. This practice is essential for fostering eco-friendly restaurants and promoting sustainable tourism by minimizing environmental impacts and conserving natural resources. Implementing food waste management strategies in the restaurant sector is crucial to achieving sustainability goals and addressing food waste challenges.

2.3. Consumer Food Waste Reduction Behavior

Food waste is a pressing global issue with significant economic, environmental, and social consequences, characterized by discarded food across the supply chain, from production to consumption [16]. Annually, 1.3 billion tons of food waste is generated, costing USD 990 billion and producing 3.3 billion tons of CO_2 emissions [17]. It encompasses spoilage and packaging damage and expiry dates. Consumer behavior, as highlighted, is at the heart of food waste generation and potential reduction [18,19]. Sustainable consumption, with the 3R concept in mind—reduce, reuse, and recycle—is centered on meal planning, the reuse of leftovers, and avoiding over-purchasing as a principle [20,21]. Barriers like mistrust in recycling systems and limited awareness hinder waste management efforts [22]. Effective interventions in the restaurant industry, such as reducing plate sizes and promoting sustainable dining practices, along with sustainable tourism campaigns, encourage responsible behaviors [23]. This underlines the need to combine consumer behavior knowledge with specific waste management practices and sustainability for changes in food waste from households, restaurants, and tourism industries.

2.4. Impulsive Buying

Impulsive buying is a spontaneous, unplanned decision driven by emotional urges, often overriding rational thinking [24,25]. Influenced by psychological traits such as impulsiveness, materialism, and low self-control, as well as situational factors like store layout, promotions, and limited-time offers, this behavior is amplified in environments that create urgency or reduce cognitive resistance [26,27]. While impulsive buying can enhance sales and profitability for businesses, it often leads to negative consequences for consumers, including financial strain, regret, and decreased life satisfaction [16,28]. Theoretical frameworks such as the Stimulus–Organism–Response model, self-regulation theory, and dual-process theory explain the interplay of environmental stimuli, self-control, and decision-making processes in impulsive buying behavior [26,29]. While being good for businesses, this has harmful effects on consumers and calls for strategies aimed at enabling one to better handle one's impulses, especially in an environment set to initiate impulsive buying.

2.5. Value-Seeking Behavior

Value-seeking behavior is a consumer's purposeful attempt to maximize perceived benefits relative to cost through the trade-offs of quality, functionality, and price. Embedded in conceptual frameworks such as the theory of consumption values [21] and perceived value theory [30], this behavior is still influenced by psychological factors such as frugality, price consciousness, and perceived risk, besides situational factors such as economic conditions and promotional activities. Consumers strive for value by saving resources, reducing costs without affecting quality, or using other means such as reading online reviews to make better decisions [10,31]. Value-seeking behavior has a significant effect on brand loyalty, where consumers will choose a brand when perceived value is high and switch brands when their expectation of value cannot be met [32]. It also extends to sustainable consumption, where consumers are willing to pay premiums for eco-friendly or ethically produced goods if they perceive added value [33]. Understanding this behavior enables businesses to align strategies with consumer expectations, fostering satisfaction and long-term loyalty.

2.6. Hypothesis Development

This research investigates the effect of two kinds of discounts, bundling and loyalty membership, on consumer food waste reduction behavior. Bundling discounts, which are short-term in nature, are expected to affect consumer behavior through impulsive buying as a moderator, in which consumers always tend to buy more products without much earlier planning. Meanwhile, loyalty member discounts are long-term in nature; thus, they are assumed to influence food waste reduction behavior through value-seeking, with consumers having more regard for the derived long-term value from their purchases. This research aims to understand how these short-term and long-term mechanisms interact with consumer behavior in terms of food waste reduction. The following are the hypotheses of this study:

STUDY A (SHORT-TERM)

Hypothesis 1: The Influence of Bundling Discounts on Consumer Food Waste Reduction Behavior.

Hypothesis 2: The Influence of Bundling Discounts on Consumer Food Waste Reduction Behavior Moderated by Impulsive Buying.

STUDY B (LONG-TERM)

Hypothesis 1: The Influence of Loyalty Member Discounts on Consumer Food Waste Reduction Behavior.

Hypothesis 2: The Influence of Loyalty Member Discounts on Consumer Food Waste Reduction Moderated by Value-Seeking.

Below is the conceptual framework that gives further insight into the relationships between the key variables examined in this study. This contains the basic theoretical framework and interactions based on our hypotheses. The conceptual research framework of this research is shown below (Figure 1).

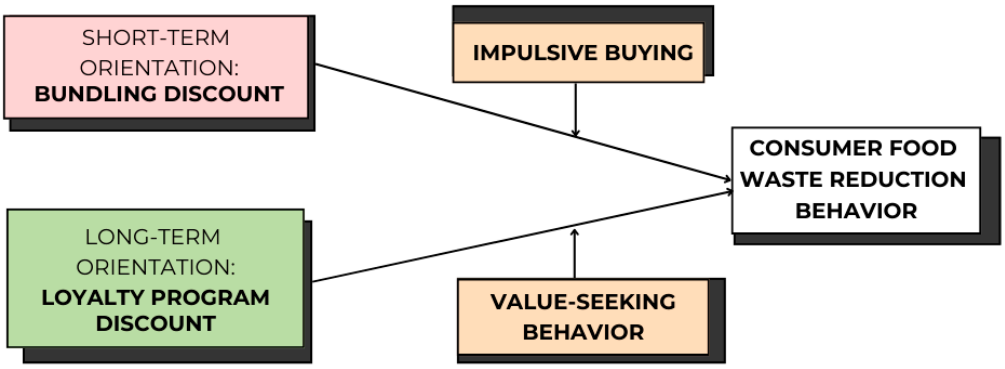


Figure 1. Framework of this study.

2.7. Research Gap

The existing literature lacks a complete examination of the effects of discount strategies, namely bundling discounts and loyalty member discounts, on food waste reduction behavior in spite of numerous studies on reductions in food waste and consumer behavior. While many past research studies have dealt mainly with theoretical constructs such as hedonic and instrumental values, the practical influence of measurable factors like discounts has been underexplored. While bundling discounts are known to encourage impulsive buying and overconsumption, their role in either mitigating or exacerbating food waste, especially with impulsive buying as a moderating factor, has not been analyzed to a sufficient extent. The influence of loyalty member discounts on reductions in food wastage, through value-seeking behavior, is also insufficiently examined. This research has overcome the existing gaps in studies by examining the immediate and long-term effects of bundling and loyalty member discounts on food waste reduction by consumers, using impulsive buying and value-seeking as moderating variables. Through the gapped research area, it shows that discount strategies can balance economic incentives and sustainability goals, hence providing broad insights relevant to the advancement of the academic literature and industrial practices in the restaurant sector.

3. Materials and Methods

3.1. Participants and Procedure

This study used quantitative research methods, with confirmatory data analysis using structural equation modeling (SEM) with SmartPLS software version 3 and the bootstrapping method to test hypotheses. Surveys were conducted in cities that had both eco-friendly and regular restaurants, including Bali, Jakarta, Yogyakarta, and Malang, through structured questionnaires. Data were collected from a total sample of 312 participants who had dined in these kinds of restaurants within the past three months. The respondents included in the sample are individuals who have visited restaurants in these cities which

have been summarized in (Tables 1 and 2) on the distribution of respondent characteristics. A structured questionnaire gathered data on demographic characteristics, dining habits, discount perceptions, impulsive buying tendencies, value-seeking behavior, and self-reported food waste behavior. The collected data were analyzed using SEM to assess the direct and moderated effects of discount strategies on food waste reduction behavior, with impulsive buying and value-seeking behavior examined as moderating variables. Ethical considerations were addressed throughout this study, ensuring that all participants were fully informed about the research purpose, procedures, and their rights, including assurances of confidentiality and voluntary participation.

Table 1. Distribution of Study A respondent characteristics.

NO.	CHARACTERISTICS	TOTAL	PERCENTAGE
1.	**Gender**		
	Male	163	53%
	Female	149	47%
	Total	**312**	**100%**
2.	**Age**		
	Less than 20 years old	54	17%
	20–25 years old	162	52%
	More than 25 years old	96	31%
	Total	**312**	**100%**
3.	**Country**		
	Indonesia	263	84%
	Thailand	16	5%
	Japan	10	3%
	South Korea	10	3%
	Australia	8	3%
	Malaysia	5	2%
	Total	**312**	**100%**

Table 2. Distribution of Study B respondent characteristics.

NO.	CHARACTERISTICS	TOTAL	PERCENTAGE
1.	**Gender**		
	Male	170	55%
	Female	142	45%
	Total	**312**	**100%**
2.	**Age**		
	Less than 20 years old	60	19%
	20–25 years old	150	48%
	More than 25 years old	102	33%
	Total	**312**	**100%**
3.	**Country**		
	Indonesia	250	840%
	Thailand	20	6%
	Japan	12	4%
	South Korea	15	5%
	Australia	10	3%
	Malaysia	5	2%
	Total	**312**	**100%**

Based on the summary in Table 1, it can be concluded that the majority of respondents were male, accounting for 53%, while female respondents made up 47%. The largest age group was 20–25 years old, comprising 52% of the respondents, followed by 31% aged

over 25 years and 17% under 20 years old. The majority of respondents (84%) were from Indonesia, with smaller groups from Thailand (5%), Japan (3%), South Korea (3%), and other countries such as Australia (3%) and Malaysia (2%), each representing a smaller percentage of the total respondents.

Based on the summary in Table 2, it can be concluded that the majority of respondents were male, accounting for 55%, while female respondents made up 45%. The largest age group was 20–25 years old, comprising 48% of the respondents, followed by 33% aged over 25 years and 19% aged under 20 years. The majority of respondents (80%) were from Indonesia, with smaller groups from Thailand (6%), Japan (4%), South Korea (5%), and other countries such as Australia (3%) and Malaysia (2%), each representing a smaller proportion of the total respondents.

This research expected to offer valuable insights into how discount strategies can be effectively utilized to reduce food waste in the restaurant industry, providing practical recommendations for restaurant managers and policymakers in promoting sustainable consumption practices in Indonesia. Descriptive analysis summarized data to describe, group, and classify them into tabular forms for the interpretation of the dominant and weakest indicators. Data were obtained from respondents' responses to the items of the questionnaire; thus, the frequency distribution and mean scores were analyzed for each variable. A 5-point Likert scale was used, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). This means that the interpretation of the mean score was easy in order to gain a full understanding of how the respondents thought concerning the measured items, indicators, and variables (Tables 3 and 4).

Table 3. Baseline of indicator score interpretation for research variables.

No.	Average Interval	Interpretation
1	1–1.8	Strongly Disagree
2	1.8–2.6	Disagree
3	2.6–3.4	Neutral
4	3.4–4.2	Agree
5	4.2–5	Strongly Agree

3.2. Research Indicators

Table 4. Research indicators and variables.

No.	Variable	Operational Definition of Variable	Indicators
1.	Bundling Discount	Discount offers when two or more products are purchased together as a bundle.	- The number of bundled products. - The percentage discount from the total price of individual products. - The frequency of bundling discount usage. - An increase in purchase quantity due to bundling. - Consumer satisfaction with bundling.
2.	Loyalty Program Discount	A special discount program for loyal members who frequently purchase from a company.	- The accumulated purchase amount to qualify for a discount. - Purchase frequency by members. - The percentage of discount for members. - The consumer loyalty level toward the program. - Consumer satisfaction with the loyalty program.

Table 4. *Cont.*

No.	Variable	Operational Definition of Variable	Indicators
3.	Impulsive Buying (As a Moderator)	Consumers' tendency to purchase products without prior planning is influenced by momentary emotional impulses.	- The frequency of unplanned purchases. - The amount of money spent impulsively. - The impact of discounts on spontaneous decisions. - Feelings of regret after purchase. - The level of emotional drive during a purchase.
4.	Value-Seeking (As a Moderator)	Consumers' preference for obtaining greater value from products or services through better pricing offers.	- The frequency of price comparison to seek greater value. - Satisfaction with lower prices. - The behavior of seeking better discounts. - Increased shopping frequency for greater value. - A preference for promotions that offer more value.
5.	Consumer Food Waste Reduction Behavior	Consumer behavior in reducing food waste through various actions such as smaller portion sizes, selecting food that will be fully consumed, or storing leftover food for future use.	- Reducing portion sizes to avoid leftovers. - The frequency of finishing meals completely. - Efforts to take leftover food home (takeaway). - Storing leftover food for later consumption. - The frequency of discarding unfinished food.

3.3. Variables' Measurements

This study examined the relationships between short-term orientation (bundling discounts) and long-term orientation (loyalty program discounts) as independent variables, both measured using a 5-point Likert scale, to assess how often respondents are influenced by these types of discounts in restaurants. Mediating variables included impulsive buying, which evaluates consumers' tendencies to make spontaneous food purchases due to promotions, and value-seeking behavior, which measures the importance of added value, such as economic pricing, in restaurant choices; both were also measured on a 5-point Likert scale. The dependent variable, consumer food waste reduction behavior, assesses the degree to which consumers' actions contribute to minimizing food waste in restaurants through preferences for appropriate portion sizes, effective waste management, and personal responsibility, using a similar 5-point Likert scale.

3.3.1. Measurement Model (Outer Model)

This measurement model (Tables 5 and 6), estimated by the PLS program, looked for dominant indicators as direct representatives of the latent variables by analyzing their loading or weight factors. Because this research study utilized descriptive statistics and confirmatory research with the use of census or population data, meaning and usual criteria of inference were insignificant. Interest lay in confirming well-established theories using population data, where re-estimation did not need to be emphasized, but, rather, the most influential loading factors or weight estimates did.

Table 5. Summary of measurement model evaluation/outer model of Study A.

Latent Variable	Observed Variable	Convergent Validity				Composite Reliability (CR > 0.7)	
		(LF > 0.5 = Valid)		(AVE > 0.5 = Valid)			
		Loading Factor	Result	AVE	Result	CR	Result
Bundling Discount	- The accumulated purchase amount to qualify for a discount.	0.820	Valid	0.644	Valid	0.900	Reliable
	- Purchase frequency by members.	0.865	Valid				

Table 5. *Cont.*

Latent Variable	Observed Variable	Convergent Validity				Composite Reliability (CR > 0.7)	
		(LF > 0.5 = Valid)		(AVE > 0.5 = Valid)			
		Loading Factor	Result	AVE	Result	CR	Result
Bundling Discount	- The percentage of discount for members.	0.895	Valid	0.644	Valid	0.900	Reliable
	- The consumer loyalty level towards the program.	0.872	Valid				
	- Consumer satisfaction with the loyalty program.	0.751	Valid				
	- The frequency of price comparison to seek greater value.	0.685	Valid				
Impulsive Buying	- Satisfaction with lower prices.	0.867	Valid	0.683	Valid	0.914	Reliable
	- The behavior of seeking better discounts.	0.886	Valid				
	- Increased shopping frequency for greater value.	0.856	Valid				
	- Preference for promotions that offer more value.	0.823	Valid				
Consumer Food Waste Reduction Behavior	- Reducing portion sizes to avoid leftovers.	0.606	Valid	0.621	Valid	0.891	Reliable
	- The frequency of finishing meals completely.	0.807	Valid				
	- Efforts to take leftover food home (takeaway).	0.852	Valid				
	- Storing leftover food for later consumption.	0.817	Valid				
	- The frequency of discarding unfinished food.	0.856	Valid				

Based on Table 5, the measurement model results indicate that loadings for all variables are higher than 0.5, which confirms the appropriateness of the indicators for further analysis. The AVE values are greater than 0.5, which shows the satisfactory convergent validity of the measures, while the CR values are above 0.7; hence, the constructs are reliable. In particular, the AVE related to the bundling discount variable is 0.644, and the CR is 0.900, showing adequate validity and strong reliability. The impulsive buying variable has an AVE of 0.683 and a CR of 0.914, which means that this construct is reliable and appropriate. In the case of the consumer food waste reduction behavior variable, its AVE is 0.621 and its CR is 0.891, reflecting good validity and reliability. These results confirm the good fit of the overall outer model, rendering it suitable for further analysis.

Table 6. Summary of measurement model evaluation/outer model of Study B.

Latent Variable	Observed Variable	Convergent Validity				Composite Reliability (CR > 0.7)	
		(LF > 0.5 = Valid)		(AVE > 0.5 = Valid)			
		Loading Factor	Result	AVE	Result	CR	Result
Loyalty Program Discount	- No specific policy regarding waste management.	0.756	Valid	0.709	Valid	0.924	Reliable
	- The use of plastic or single-use packaging.	0.732	Valid				
	- No initiative for using local ingredients.	0.700	Valid				
	- A standard menu without a focus on sustainability or health.	0.786	Valid				
	- Few to no recycling or waste management policies.	0.756	Valid				

Table 6. *Cont.*

Latent Variable	Observed Variable	Convergent Validity				Composite Reliability (CR > 0.7)	
		(LF > 0.5 = Valid)		(AVE > 0.5 = Valid)			
		Loading Factor	Result	AVE	Result	CR	Result
Value-Seeking Behavior	- Food selection based on price and value factors.	0.875	Valid	0.683	Valid	0.914	Reliable
	- The comparison level between price and food quality.	0.775	Valid				
	- Efforts to avoid food waste.	0.832	Valid				
	- Preference for portion sizes that match needs.	0.701	Valid				
	- Time efficiency in choosing a dining place.	0.682	Valid				
Consumer Food Waste Reduction Behavior	- Reducing portion sizes to avoid leftovers.	0.774	Valid	0.629	Valid	0.893	Reliable
	- The frequency of finishing meals completely.	0.875	Valid				
	- Efforts to take leftover food home (takeaway).	0.741	Valid				
	- Storing leftover food for later consumption.	0.815	Valid				
	- The frequency of discarding unfinished food.	0.694	Valid				

Based on Table 6, the measurement model results show that all variables have loading factors greater than 0.5, hence confirming the appropriateness of the set of indicators for further analysis. The AVE values are above 0.5, indicating that the convergent validity is satisfactory, while the CR values are above 0.7, which shows that the constructs are reliable. In particular, the AVE for loyalty program discounts corresponds to 0.709, and the CR corresponds to 0.924, so its validity and reliability are appropriate. Thus, the AVE for value-seeking behavior is 0.683 and the CR is 0.914, showing that the reliability is strong. Similarly, for the variable of consumer food waste reduction behavior, the AVE is 0.629 and the CR is 0.893; hence, it is very reliable and appropriate for further analysis. These findings confirm that the overall outer model fits well and therefore justify moving into the next steps of analysis.

3.3.2. Structural Model Evaluation (Model Fit Test)

After the estimated model met the criteria for convergent and discriminant validity, the next step was to test the structural model (inner model). Evaluating the inner model involved assessing the relationships between latent constructs by analyzing the estimated path coefficient parameters and their levels of significance. This section presents the results of the structural model test (inner model) for the coefficient of determination (R^2). The R-Square (R^2) value ranges from 0 to 1 and is categorized into three evaluation criteria according to Chin in 1998: 0.67 (substantial), 0.33 (moderate), and 0.19 (weak). In this study, the adjusted R-Square (adjusted R^2) value is used because there are more than two independent variables. In addition to examining the R-Square values, the PLS model was evaluated by calculating the Q-Square Predictive Relevance, which measures how well the model and its parameter estimates reproduce the observed values. A $Q2 > 0$ value indicates that the model has predictive relevance, while a $Q2 < 0$ value indicates a lack of predictive relevance. The goodness of fit of the model can be determined from the Q-Square value. The Q-Square value has a similar interpretation to the coefficient of determination

(R-Square) in regression analysis, where a higher Q-Square indicates that the model fits the data better. The formula for calculating Q-Square is as follows (Table 7):

$$\mathbf{Q2 = 1 - [(1 - R12) \times (1 - R22)]} \quad (1)$$

Table 7. Results of R-Square and Q-Square values.

Variable	R-Square	R-Square Adjusted	Q-Square
Bundling Discounts	0.725	0.721	0.915
Impulsive Buying	0.694	0.685	0.928
Consumer Food Waste Reduction Behavior	0.740	0.733	0.920
Loyalty Program Member	0.617	0.611	0.841
Value-Seeking Behavior	0.586	0.576	0.855
Consumer Food Waste Reduction Behavior	0.622	0.610	0.843

Based on Table 7, the structural model analysis reveals that bundling discounts, impulsive buying, and consumer food waste reduction behavior are significant with high effect strengths and have the following adjusted R^2: 0.721, 0.685, and 0.733, respectively. The high Q^2 values confirm the strong predictive relevance of the models, such as the above 0.9 for bundling discounts and the above 0.8 for loyalty program discounts. Food waste is significantly influenced by bundling discounts and impulsive buying, while loyalty program discounts and value-seeking behavior are strong in ensuring sustainable practices. Hypothesis testing showed all hypotheses to be significant, considering that the t-statistic is greater than 1.96 and the *p*-value is less than 0.05, thus providing meaningful insights into consumer behavior and eco-friendly practices.

Testing Hypotheses: Several hypotheses were tested in this study; their acceptance criteria are based on the direction and significance of the relationships between variables. A hypothesis can be regarded as accepted if, from the original sample, the value is positive (same directional influence) or negative (opposite directional influence), with the t-statistic being greater than 1.96 (one-tailed) and the *p*-value less than 0.05 [34]. All three tested hypotheses meet the criteria for acceptance, as confirmed by bootstrapping analysis using SmartPLS. The following are the results of the hypothesis test (Tables 8 and 9).

Table 8. Bootstraping path coefficient of Study A.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-Statistic (|O/STDEV|)	*p*-Value
Consumer Food Waste Reduction Behavior <-> Bundling Discounts	0.416	0.415	0.073	5717	0.000
Impulsive Buying × Bundling Discounts <-> Consumer Food Waste Reduction Behavior	0.292	0.255	0.112	2612	0.010

Table 9. Bootstraping path coefficient of Study B.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-Statistic (|O/STDEV|)	*p*-Value
Loyalty Member Discounts <-> Consumer Food Waste Reduction Behavior	0.425	0.449	0.148	2880	0.005
Value-Seeking × Loyalty Member Discounts <-> Consumer Food Waste Reduction Behavior	0.057	0.060	0.040	1415	0.160

This study developed several hypotheses. The criterion for the original sample value is as follows: if the value is positive, the effect of one variable on the dependent variable is in the same direction. Conversely, if the original sample value is negative, the effect of one variable on the other is in the opposite direction. A hypothesis in this study is accepted if the coefficient or direction of the relationship indicated by the original sample value aligns with the hypothesis and if the t-statistic value is greater than 1.96 (one-tailed) and the probability value (*p*-value) is less than 0.05 or 5%. Based on Table 8, the results obtained from the bootstrapping analysis using the Smart PLS application show that out of the two hypotheses tested, both hypotheses are accepted.

This study developed several hypotheses. The criterion for the original sample value is as follows: if the value is positive, the effect of one variable on the dependent variable is in the same direction. Conversely, if the original sample value is negative, the effect of one variable on the other is in the opposite direction. A hypothesis in this study is accepted if the coefficient or direction of the relationship indicated by the original sample value aligns with the hypothesis and if the t-statistic value is greater than 1.96 (one-tailed) and the probability value (*p*-value) is less than 0.05 or 5%. Based on Table 9, the results obtained from the bootstrapping analysis using the Smart PLS application show that out of the two hypotheses tested, one hypothesis is accepted and one hypothesis is rejected (Table 10).

Table 10. Hypothesis testing results of Study A.

No.	Hypothesis	Relationship	Original Sample	t-Statistic	*p*-Value	Results
1.	H1	X1 → Y1	0.416	5717	0.000	Accepted
2.	H2	X1 → M1 → Y1	0.292	2612	0.010	Accepted

The hypothesis testing results confirm that eco-friendly restaurants, X1, significantly influence consumer food waste reduction behavior, Y2, with an original sample value of 0.826, a t-statistic of 14.860 (>1.96), and a *p*-value of 0.000, which support H1. Hedonic values (Y1) also significantly affect consumer food waste reduction behavior (Y2) since the original sample value is 0.803, the t-statistic is 13.997 (>1.96), and the *p*-value is 0.000, hence supporting H2. Furthermore, hedonic values (Y1) have a significant effect on eco-friendly restaurants (X1) since the original sample value is 0.860, the t-statistic is 19.219 (>1.96), and the *p*-value is 0.000, hence supporting H3. All the hypotheses are, therefore, accepted (Table 11).

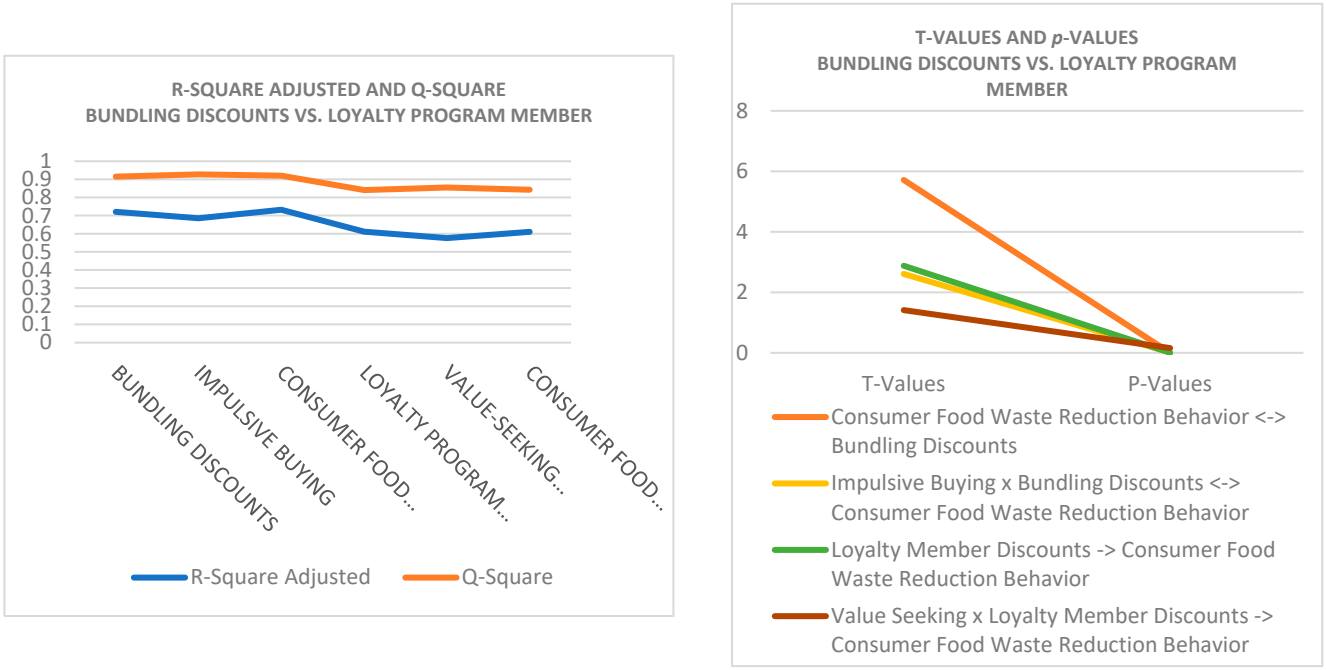
Table 11. Hypothesis testing results of Study B.

No.	Hypothesis	Relationship	Original Sample	t-Statistic	*p*-Value	Results
1.	H1	X1 → Y1	0.425	2880	0.005	Accepted
2.	H2	Y1 → M1 → Y1	0.057	1415	0.160	Rejected

The hypothesis testing results verify that loyalty program discounts significantly influence consumer food waste reduction behavior judgment, with the value of the original sample being 0.425, the t-statistic being 2.880 (>1.96), and the *p*-value being 0.005; hence, this supports H1. However, the influence of consumer food waste reduction behavior judgment (Y1) on consumer food waste reduction behavior (Y2) is not significant, as mediated by value-seeking behavior (M1), with an original sample value of 0.057, a t-statistic of 1.415 (<1.96), and a *p*-value of 0.160 (>0.05). Thus, H2 is unsupported.

3.3.3. Study A (SHORT-TERM) vs. Study B (LONG-TERM)

Based on Figure 2a,b, a comparison between Study A (SHORT-TERM) and Study B (LONG-TERM) underlines important differences concerning predictive relevance and statistical significance.



(**a**) (**b**)

Figure 2. (**a**) Diagram of comparison of results of R-Square and Q-Square analysis. (**b**) Diagram of comparison of results of t-value and *p*-value analysis.

Study A shows higher predictive power, since bundling discounts have an adjusted R-Square of 0.721 and Q-Square of 0.915, while impulsive buying as a moderator reaches an adjusted R-Square of 0.685 and Q-Square of 0.928. On the other hand, Study B presents lower predictive relevance, with loyalty program member and value-seeking behavior having adjusted R-Square values of 0.611 and 0.576 and Q-Square values of 0.841 and 0.855, respectively. The statistical analysis in Study A shows significant results for both hypotheses; bundling discounts strongly influence consumer food waste reduction behavior, with a t-value of 5.717 and a *p*-value of 0.000, while impulsive buying as a moderator is also significant, with a t-value of 2.612 and a *p*-value of 0.010. Meanwhile, in Study B, loyalty member discounts significantly affect consumer food waste reduction behavior, with a t-value of 2.880 and a *p*-value of 0.005; the second hypothesis involving value-seeking behavior as a moderator is not supported, having a t-value of 1.415 and a *p*-value of 0.160. This therefore means that the variables in Study A have greater predictive relevance and statistical significance than those in Study B.

4. Results

This section presents the results of the data analysis, addressing the research objectives and testing the proposed hypotheses. Key findings and their implications are outlined based on the relationships between the variables.

4.1. Study A

The findings of this study reveal that both hypotheses H1 and H2 are supported, demonstrating the significant influence of bundling discounts on consumer food waste re-

duction behavior. Hypothesis H1 highlights that bundling discounts directly and positively impact food waste reduction, as evidenced by a strong statistical relationship (original sample value = 0.416; t-statistic = 5.717; p-value < 0.05). This suggests that bundling discounts provide consumers with perceived value, encouraging more thoughtful purchase decisions and potentially reducing food waste. Hypothesis H2 confirms that impulsive buying moderates this relationship, with impulsive behavior amplifying the positive effects of bundling discounts on food waste reduction (original sample value = 0.292; t-statistic = 2.612; p-value < 0.05). This indicates that when impulsive buying tendencies are high, consumers are more likely to leverage bundling discounts to align their consumption with their needs, thereby reducing waste. These results underscore the efficacy of bundling discounts as a promotional strategy for fostering sustainable consumption behaviors.

This Study A aligns with perceived value theory [32], demonstrating that bundling discounts enhance consumers' perception of purchase benefits, thereby motivating more responsible consumption behaviors. While bundling discounts are effective in increasing sales, their role in food waste reduction depends heavily on design and consumer characteristics. Properly implemented, such discounts can encourage consumers to order based on actual needs, reducing waste. Strategies like discounts for portion-controlled menus, such as "Eco-Friendly Portions" or a "Waste-Free Menu", in addition to consumer education, have shown a significant correlation with reduced food waste ($p < 0.05$). This also falls in line with the theory of nudging [6], where subtle prompts, portion-based discounts in this case, can be highly effective toward encouraging sustainable consumption without curtailing consumer freedom.

Impulsive buying, therefore, plays a critical moderating role in how bundling discounts influence the propensity to waste food. Habitual impulsive consumers overconsume, hence decreasing the chances of bundling discounts reducing waste [35]. Consumers with better self-control use such discounts responsibly and attach purchases to actual needs. This supports self-control theory [36], which shows a significant relationship ($p < 0.05$) between self-regulation and the success of waste-reducing bundling strategies. Study A addresses a gap in the literature, where bundling discounts have been primarily studied for their impact on sales and satisfaction, with limited exploration of their role in food waste management, particularly in relation to impulsive buying [4,37]. It provides a meaningful contribution because it underlines how bundling discounts, designed with an understanding of consumer impulsivity, can be a dual-purpose tool for promoting sales and sustainability in Indonesia. This is a holistic strategy for responsible consumption and reducing food waste, and especially in the restaurant industry, it calls for adjusting bundling discount programs according to the characteristics of consumer impulsiveness.

4.2. Study B

The results suggest that loyalty member discounts have a significant and positive effect on consumer food waste reduction behavior, as indicated in Hypothesis H1. The statistical relation from the analysis of this hypothesis appears quite strong: original sample value = 0.425; t-statistic = 2.880; p-value = 0.005. This supports the fact that loyalty discounts encourage more mindful consumption and waste reduction. However, H2, which states that value-seeking behavior moderates this relationship, is not supported because the original sample value is 0.057, the t-statistic is 1.415, and the p-value is 0.160, hence implying that value-seeking does not enrich the impact of loyalty discounts on less waste. From these results, the direct efficacy of loyalty discounts emerges in the entrenchment of responsible consumption behaviors but at the same time points to the necessity of further strategies to integrate value-seeking elements. Loyalty programs strengthen emotional bonds between consumers and brands, in line with customer–brand relationship theory [38], by offering

ongoing rewards that encourage repeated purchases. According to the revised reciprocity theory [39], loyalty discounts can develop a sense of responsibility among consumers, prompting them to order food more consciously to avoid waste. Loyalty programs can do more when combined with approaches that encourage portion-conscious choices or reward sustainable behaviors. All in all, loyalty discounts remain an important tool in aligning consumer behaviors for sustainability with strong brand relationships.

According to the motivated consumer behavior framework from [40], loyalty programs with tailored incentives that align with consumers' actual needs would work in the reduction in food waste. Statistically significant correlations, at $p < 0.05$, between loyalty-based incentives and measured consumption behaviors hint at the potential of such programs not only to provide financial benefits but also to foster mindful and environmentally sensitive modes of consumption. Strategies such as offering double loyalty points for "Eco-Friendly Portions" or "Waste-Free Menu" items increase consumers' consciousness of food quantities to encourage responsible consumption [41]. Behavioral loyalty reinforcement theory supports this by stating that the availability of incentives provided continuously leads to a sustainable consumption habit, while goal-framing theory [21] suggests that strategies like offering appropriate incentives could increase a customer's tendency to choose portion-conscious options. Value-seeking behavior is crucial in moderating the effectiveness of loyalty discounts to reduce food waste.

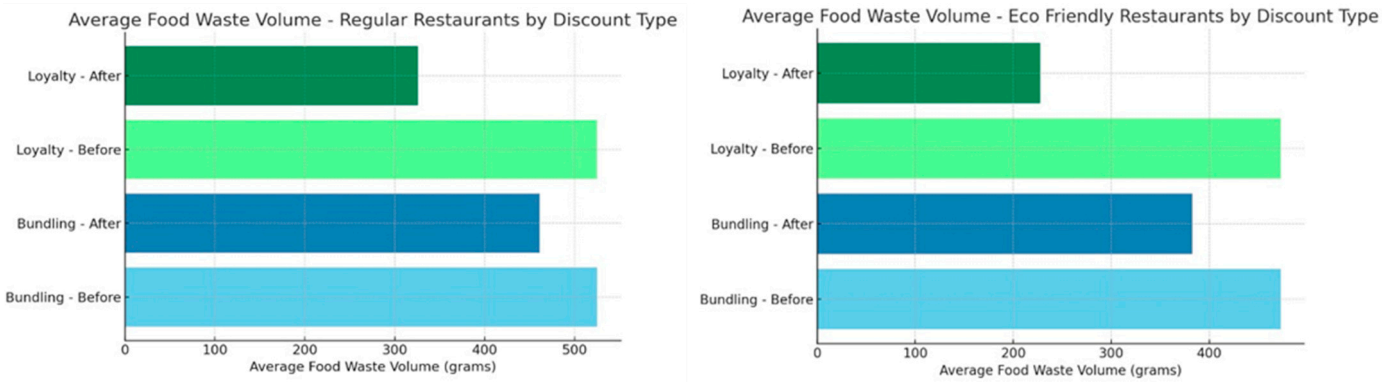
According to [42], consumers with a high value-seeking orientation are more likely to use loyalty discounts responsibly by matching the food portions to their needs and minimizing waste. On the other hand, low-value-seekers might exploit loyalty discounts for short-term financial gain and may overpurchase, culminating in food waste. This dichotomy emphasizes the importance of loyalty programs being designed for value-seeking behavior and supporting sustainable consumption patterns. This research bridges a critical gap that has characterized much of the scholarship on the influence of loyalty discounts on customer satisfaction and retention, as documented by [31,43], that does not consider their potential as a tool for sustainability. Linking loyalty programs to food waste reduction, this research highlights how such programs could be socially fitted as tools for education in fostering responsible consumption and achieving sustainability goals in Indonesia. The results of the correlation analysis ($p < 0.05$) prove that loyalty discounts can lead to thoughtful consumption if they are well designed, reducing food waste significantly, and these programs can be an important force in furthering environmental responsibility among consumers.

5. Discussion

The findings of this study compare the relative effectiveness of two discount strategies: bundling discounts moderated by impulsive buying and loyalty member discounts moderated by value-seeking in reducing consumer food waste. Study A reveals the short-term efficacy of bundling discounts in leveraging impulsive buying to decrease food waste, but these reductions are less substantial than those observed in Study B, where value-seeking-moderated loyalty discounts yield more significant and sustained reductions. Specifically, loyalty discounts reduce food waste from 500 g to 300 g in regular restaurants and from 450 g to 200 g in eco-friendly restaurants in Indonesia. These results underscore that value-seeking behavior, aligned with rational decision-making and sustainability goals, enhances the effectiveness of loyalty discounts by fostering deliberate, need-based consumption. In contrast, impulsive buying undermines the potential of bundling discounts, as emotional and unplanned consumption often leads to greater food waste.

This study highlights the mechanisms behind discount strategies, showing that loyalty discounts, which use portion control and point-based incentives, promote long-term

responsible consumption and stronger consumer relationships. Conversely, bundling discounts rely on emotional triggers, limiting their ability to sustain food waste reduction. By introducing impulsive buying and value-seeking as psychological moderators, this research provides a novel framework for evaluating discount strategies' effectiveness in promoting sustainability. Furthermore, these findings are deeply shaped by Indonesia's cultural, historical, and socio-economic context. Indonesia's collective culture, marked by strong social norms and communal values, drives consumer responses to discounts. Loyalty programs resonate with Indonesian consumers through their emphasis on symbolic rewards, reflecting high social and emotional value, while the cultural tradition of communal dining supports the appeal of bundling discounts. From a socio-economic perspective, Indonesia's rising middle class demands loyalty programs that balance practical savings with social prestige. These cultural and socio-economic factors explain the superior effectiveness of loyalty discounts over bundling strategies in reducing food waste, emphasizing the need for marketing strategies that align with local values and behaviors to support sustainability (Figure 3).



(**a**) (**b**)

Figure 3. (**a**) Diagram of comparison of food waste volumes in regular restaurants with bundling and loyalty discount strategies. (**b**) Diagram of comparison of food waste volumes in eco-friendly restaurants with bundling and loyalty discount strategies.

Based on Figure 3a,b, these results highlight that value-seeking behavior, in line with rational choice and sustainability considerations, amplifies the effectiveness of loyalty discounts by encouraging consumers to make more deliberate, need-oriented purchases. The preponderance of impulsive buying, however, tends to weaken any bundling discounts because such buying often precipitates unplanned and emotionally driven consumption, possibly contributing to growing levels of food waste. The present study provides insight into the different inner mechanisms of discount strategies. Loyalty discounts, which are characterized by portion control and point-based incentive systems, build long-term consumer relationships with the consumer and at the same time may push responsible consumption. In contrast, bundling discounts are much more sales-oriented, relying on emotional triggers that might reduce their ability to reduce food waste. Filling the gap in the literature, this research introduces impulsive buying and value-seeking as psychological moderators, thus providing a new framework for assessing the effectiveness of discount strategies in managing food waste. The results highlight that the integration of value-seeking behavior in discount strategies is paramount for promoting sustainability and encouraging consumer interaction with eco-friendly practices.

The research findings of Study A reveal that bundling discounts and loyalty member discounts have a positive and significant impact on consumer food waste reduction. The moderation of impulsive buying is also significant, strengthening the relationship between

bundling discounts and food waste reduction. In contrast, the moderation of value-seeking in the relationship between loyalty member discounts is not significant. The insignificance of value-seeking occurs because consumers tend to focus more on the emotional rewards they experience from loyalty memberships rather than rational considerations of the economic benefits of the discounts [44]. Consumers with a value-seeking orientation tend to be critical and demand clear and measurable economic benefits [45]. When these benefits are perceived as minor or symbolic, their decisions are not entirely influenced by the discount, rendering value-seeking moderation insignificant [46].

Emotional rewards carry more weight than rational calculations within the context of Indonesia's collective culture, particularly when the economic benefits are considered insubstantial or merely symbolic [47,48]. Food waste reduction behavior is driven more by emotional attachment to restaurants and social responsibility arising from these symbolic rewards [48]. Insufficiently substantial economic benefits limit the influence of value-seeking in motivating consumers to consciously manage food consumption, resulting in suboptimal pro-environmental behavior from this mechanism [47–51]. The difference in the effectiveness of value-seeking in loyalty member discounts and impulsive buying in bundling discounts reflects how consumer preferences are shaped by a combination of emotional and rational incentives. Bundling discounts promote food waste reduction by leveraging rational calculations, where consumers choose meal packages designed to proportionally and efficiently meet group needs [52]. Loyalty member discounts are more effective in fostering emotional attachment among consumers, which motivates them to order more mindful portions and consistently support pro-environmental behavior [53]. Consumer preferences for these two types of discounts demonstrate that the success of marketing strategies in supporting food waste reduction depends on integrating emotional and rational aspects aligned with cultural contexts and social values.

Pricing theory explains how the perceived value of bundling discounts enhances direct savings, while loyalty member discounts create emotional attachment [54]. The theory of planned behavior (TPB) complements this framework by highlighting how attitudes, social norms, and behavioral control influence food waste reduction [55]. Social norms in Indonesia encourage impulsive behavior in bundling discounts while reinforcing sustainability in loyalty member discounts through rational evaluation [54,55]. This research contributes to the existing literature by exploring the impact of discount strategies on food waste reduction, which remains under-researched in a collective cultural context. Previous studies have predominantly focused on bundling and loyalty member discounts within the framework of marketing strategies [56–58]. This study extends the understanding of the roles of impulsive buying and value-seeking in shaping pro-environmental behavior and offers practical approaches to integrating marketing strategies with environmental sustainability.

The research findings of Study B indicate that loyalty member discounts, moderated by value-seeking, have a more significant and sustainable impact on reducing food waste compared to bundling discounts moderated by impulsive buying. Loyalty member discounts encourage consumers to order portions that match their needs through an incentive-based point system, while bundling discounts provide instant effects but lack sustainability due to triggering impulsive purchases. The "Clean Plate Challenge" program is designed to attract group customers through emotional incentives, such as rewards after completing bundled meals. In Indonesia, bundling discounts appeal to consumers, especially from the lower–middle economic class, who tend to take advantage of discounts to buy in large quantities for group needs [59]. In contrast, the "Portion Control Package" loyalty program uses a rational approach by encouraging customers to order smaller portions through an incentive-based point system. In Indonesia's collective culture, the symbolic rewards from

loyalty programs offer high social value, strengthening consumers' emotional attachment to restaurants [60].

Intervention results show that loyalty member discounts reduce food waste more significantly than bundling discounts. Loyalty member discounts decrease waste volume from 500 g to 300 g in regular restaurants and to 200 g in eco-friendly restaurants, while bundling discounts only reduce waste to 450 g in regular restaurants and 400 g in eco-friendly restaurants. The effectiveness of loyalty discounts is supported by a combination of rational and emotional incentives that promote wiser consumption aligned with actual needs [61]. Bundling discounts, on the other hand, often increase the risk of waste due to impulsive and unplanned decisions. The theory of planned behavior (TPB) and dual-process theory explain these phenomena. The TPB highlights how attitudes toward sustainability, social norms, and perceived behavioral control influence consumer decisions [55]. Social norms in Indonesia's collective culture encourage impulsive behavior in bundling discounts, while rational attitudes toward sustainability enhance the effectiveness of loyalty member discounts. Dual-process theory complements the TPB by showing that emotional mechanisms drive bundling discounts, whereas rational mechanisms support loyalty discounts, leading to more significant and sustainable food waste reduction behavior [62].

Previous studies have shown that Indonesian consumers are increasingly aware of environmental issues, but their behavior is often influenced by social and emotional factors. Research has explored various aspects of discount strategies, such as the effects of promotions on customer loyalty, bundling strategies in green supply chains [57], and the influence of consumption planning on food waste reduction [63]. This highlights the potential for further research to examine how specific cultural and socio-economic drivers in Indonesia shape pro-environmental attitudes and behaviors, providing deeper insights into effective strategies for promoting sustainability. These studies have not directly compared bundling and loyalty member discount strategies in the context of their impact on food waste reduction behavior. The current study fills this gap by evaluating the moderation of impulsive buying and value-seeking while integrating the TPB and dual-process theory to explain consumer behavior dynamics that support sustainability.

5.1. Limitations of Research

There are several aspects in which this study has its limitations, which may hamper the generalization and comprehensiveness of its findings. First, the geographic scope is confined to major cities in Indonesia alone, which might not fully capture regional or international variations in consumer behavior and food waste management practices. Secondly, this study investigates only two psychological moderators of impulsive buying and value-seeking and may well overlook other influential factors such as cultural attitudes, income levels, or concern for the environment. The cross-sectional design limits the tracking of long-term behavioral changes in the effects of discount strategies on food waste reduction. Finally, the reliance on self-reported questionnaires introduces potential biases in the form of social desirability and recall errors, affecting the accuracy and reliability of the data collected.

5.2. Practical Contribution

These findings present clear actionable insights for restaurant managers and policymakers seeking to align economic incentives with the imperatives of sustainability. Bundling discounts can indeed drive sales and, when combined with educational interventions and portion-controlled offerings, can also help to minimize food wastage. Loyalty member discounts build up long-term consumer relationships and potentially encourage more deliberate and need-based consumption. Practical recommendations would involve

the design of loyalty programs to encourage responsible behavior, such as portion control or taking leftovers home, and incorporating discount strategies with eco-friendly initiatives like "Waste-Free Menus". This research helps businesses frame promotional tools in a way that their use can be optimized from the dual perspective of profitability and sustainability.

5.3. Theoritical Contribution

The study contributes to the existing literature by integrating the theory of planned behavior (TPB) and dual-process theory to understand the impact of discount strategies on food waste reduction behavior. Nishio and Hoshino (2024) highlight the effects of promotional incentives on customer loyalty in retail contexts but do not examine their implications for sustainability [64]. This study expands this scope by exploring the effects of bundling and loyalty member discounts on food waste reduction, including psychological roles such as impulsive buying and value-seeking. Mondal and Giri (2024) analyze bundling strategies in green supply chains but do not consider their impact on consumer behavior [57]. This study addresses this gap by evaluating bundling in the context of restaurants and its effects on pro-environmental behavior. Furinto (2013) discusses value-seeking in decision-making but does not link it to sustainability behavior or discount strategies [61]. This study demonstrates that value-seeking in loyalty member discounts can significantly moderate food waste reduction. Veselá et al. (2023) emphasize the importance of consumption planning to reduce food waste but do not address the influence of marketing strategies [65]. This study provides further insights by evaluating discounts as sustainability interventions and specifically linking emotional mechanisms (impulsive buying), rational mechanisms (value-seeking), and pro-environmental behavior (food waste reduction), offering new perspectives on how discount-based marketing strategies can create significant and sustainable impacts on sustainability.

6. Conclusions

This study provides a comprehensive comparison of the effectiveness of two discount strategies, namely bundling discounts moderated by impulsive buying and loyalty member discounts moderated by value-seeking, in reducing food waste. The findings from Study A indicate that bundling discounts can leverage impulsive buying behavior to achieve short-term reductions in food waste. However, the results also reveal that the reduction achieved through this strategy is less significant compared to the outcomes observed in Study B. In Study B, loyalty member discounts, moderated by value-seeking behavior, demonstrate a more substantial and sustainable impact on food waste reduction. Specifically, loyalty discounts reduce food waste volumes from 500 g to 300 g in regular restaurants and from 450 g to 200 g in eco-friendly restaurants.

These findings highlight the pivotal role of value-seeking behavior in fostering sustainable consumption practices. Loyalty member discounts, which incorporate rational incentives such as portion control and point-based rewards, promote long-term consumer relationships and encourage mindful dining habits. Conversely, bundling discounts, while effective in boosting short-term sales, rely heavily on emotional triggers associated with impulsive buying. This reliance may undermine their potential to achieve significant and lasting food waste reductions, as impulsive purchases often lead to overconsumption and unplanned waste. This study contributes to the literature by introducing impulsive buying and value-seeking as psychological moderators that influence the effectiveness of discount strategies. It also provides a new framework for assessing how these strategies can align with sustainability goals. The findings suggest that integrating value-seeking behavior into discount strategies is essential for encouraging sustainable practices and engaging consumers with eco-friendly initiatives.

From a practical standpoint, this study offers actionable insights for restaurant managers and policymakers. Bundling discounts can be enhanced by incorporating educational interventions and portion-controlled offerings to mitigate impulsive behaviors. Loyalty member discounts should be designed to foster responsible consumption, such as encouraging smaller portions or promoting the "take leftovers home" approach. Additionally, combining these strategies with eco-friendly initiatives, such as "Waste-Free Menus", can further reinforce pro-environmental behaviors. In conclusion, this research underscores the importance of balancing emotional and rational incentives in discount strategies to achieve both economic and environmental sustainability. By aligning marketing strategies with sustainability objectives, restaurants and policymakers can effectively address the issue of food waste and promote more responsible consumer behavior.

Author Contributions: In this article, A.B.L. reports that writing assistance was provided by Huazhong University of Science and Technology. He also reports a relationship with Huazhong University of Science and Technology that includes non-financial support. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article. A.B.L. and Y.H. are listed as authors, both affiliated with the Business Administration program at the School of Management, Huazhong University of Science and Technology, Wuhan, Hubei, China. A.B.L. serves as the corresponding author, which means he is responsible for communi-cating with the journal and handling administrative processes during the submission, review, and publication of the article. Additionally, Agung acts as the representative to receive feedback or responses from readers. Y.H., in addition to being a co-author, is also the academic supervisor of A.B.L. in the Business Administration program. As a co-author, she contributed to the research but is not directly involved in the correspondence with the journal. Yuanqiong's role focuses on supporting the research, guiding Agung academically, and co-writing the article with him. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding. This research was funded by [Agung Budi Leksono] and The APC was funded by [Agung Budi Leksono].

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of The Research and Community Service In-stitute of Universitas Negeri Malang (protocol code: 23.07.2/UN32.14/PB/2024 and date of approval: 23 July 2024).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is contained within the article. The original contributions pre-sented in this study are included in the article. Further inquiries can be directed to the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest. The authors have identified and disclosed all personal circumstances or interests that could be perceived as inappropriately influencing the representation or interpretation of the reported research results. The funders had a role in the design of the study; in the collection, analyses, and interpretation of data; in the writing of the manuscript; and in the decision to publish the results.

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