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The moderating role of donation in reducing the positive relationship between commercial discount offers and wastefulness: A case study on a sample of consumers in North Africa

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Abstract---This research examines the intricate relationship between business discount promotions, consumer wastefulness, and the potential moderating effect of Donation within the context of North African consumer behavior. The research highlights the significance of Donation and emphasizes charity organizations as crucial agents in moderating the positive correlation between discount offers and wastefulness. This serves to address the social and environmental issues linked to waste. The present study utilizes a quantitative research methodology and adopts a cross-sectional strategy. The data was obtained by administering a standardized questionnaire that assessed many dimensions, such as individuals' exposure to discount offers, wasteful behaviors, and participation in donation activities. The findings of this study have significant implications for several stakeholders, including merchants, legislators, and charity organizations. These implications highlight the need to adopt a comprehensive approach that combines pricing methods and philanthropic efforts to promote responsible consumption and reduce waste in the region of North Africa.

Keywords---Commercial discount offers, Wastefulness, Donations, North African consumers.

1. Introduction

In contemporary consumer societies, the symbiotic relationship between commercial entities and consumers has often been underscored by the prevalence of discount offers, which, while fostering economic transactions, have also been implicated in the escalating challenge of waste generation. This phenomenon is particularly pertinent in North Africa, a region experiencing rapid economic growth and increased consumerism. As commercial discount offers increase, there is a growing concern about their potential contribution to heightened levels of waste. Addressing this concern necessitates exploring the intricate interplay between commercial discount offers, consumer behavior, and waste generation, explicitly focusing on the moderating role of donations.

The primary inquiry guiding this research revolves around understanding the dynamics between commercial discount offers and waste in the North African consumer landscape. Specifically, we seek to explore whether the positive relationship traditionally observed between the prevalence of discount offers and increased destruction can be mitigated by introducing a moderating factor: consumer donations. This raises the fundamental question: Can strategic contributions act as a mitigating force, effectively reducing the environmental footprint associated with widespread commercial discount offers?

The overarching objective of this research is to unravel the nuanced relationships between commercial discount offers, consumer donations, and waste in North Africa. To achieve this, we aim to:

Investigate the impact of commercial discount offers on consumer behavior:
Examine the correlation between the availability of discount offers and the subsequent consumer choices leading to increased waste.

Evaluate the moderating role of donations: Assess whether donating moderates the positive relationship between commercial discount offers and waste generation among consumers in North Africa.

This research is motivated by the urgent need to address the dual challenge of consumer waste and the proliferation of discount offers in the North African region. The study's significance lies in its potential to inform sustainable business practices, guide policymakers, and empower consumers to make environmentally conscious choices. By shedding light on the moderating role of donations, this research contributes to the academic discourse. It offers practical insights that can aid businesses and policymakers in fostering a more sustainable and responsible consumer culture in North Africa. As societies navigate the delicate balance between economic growth and environmental stewardship, understanding the mechanisms at play in consumer decision-making becomes imperative for fostering a more sustainable future.

2. Literature Review

2.1. Wastefulness:

The wastefulness principle is a consequentialist moral principle that states it is wrong to waste a shared, scarce resource. This principle can be used to determine who should bear the burdens of anthropogenic climate change in a more suitable way than existing principles (Hans, 2014). In millennial Japan, the concept of *mottainai*, meaning wastefulness, reflected a search for meaning and identity in an economically anemic yet affluent society (Eiko et al., 2014). The tempos of life have changed in recent years, with literary criticism becoming swifter and more instantaneous, partly due to the move from magazines to newspapers and the motivation provided by literary awards (Lipovetsky, 2002). Lead testing is recommended for children, and hematofluorometry is a method that can detect remote lead exposure (Laura et al., 2017). In the case of aneuploidy in human embryos, the wastefulness of reproduction may result from vulnerabilities in the division process and the need for reproductive compensation (Laurence & Hurst, 2022).

2.2. Commercial discount offers:

Commercial discount offers refer to offering products or services at a reduced price to attract customers. These offers are typically determined using mathematical formulas or algorithms to calculate the discounted price. The discounted requests are then communicated to consumers through various channels, such as communication networks or embedded links on web pages. Consumers can purchase the discounted offers and receive the products or services at a partially discounted price. The discount may be applied based on factors such as the number of buyers or the purchasing decisions of different groups within a commerce system. The incremental profit or revenue generated from these offers is often distributed among the members of the commerce system. (Thuesen, 2017) (Kenneth & Ouimet, 2011) (Kenneth & Ouimet, 2012) (Greenbaum, 2011) (Maggiolo, 2012).

2.3. Donation:

Donation is a common and important human relationship that affects individuals, society, and interpersonal relations. It has always been an ordinary legal transaction, although the object, legal form, and purpose of donation have changed over time (Mihajlo & Cvetković, 2015). The concept of gift-giving is essential to human beings and is the principle of moral action (Aristide, 2010). In community-based societies, gift-giving is a modality for circulating goods and wealth, functioning similarly to modern insurance and social security systems. It is governed by a logic of debt and the moral obligation of reciprocity (Alain, 2012). Marcel Mauss's work on gift-giving highlights that it is a fundamental part of people's commitments and a source of sociability (R., 2017).

2.4. Review of relevant prior research and scholarly works:

2.4.1. The relationship between the commercial discount offers and wastefulness:

Commercial discount offers, such as multi-unit deals, do not necessarily lead to wastefulness. Households that take advantage of multi-unit deals report wasting less food than those paying regular prices (None & KHOIRI, 2023). This is because promotion-induced overbuying triggers a concern for food waste, leading to waste prevention efforts. The effect of discount offers on wastefulness is influenced by factors such as perishability and versatility of the products, but not convenience or healthiness (Milan & Bjelica, 2022). Therefore, regulators and professionals should reconsider their stance on price promotions and collaborate with retailers to design campaigns that promote waste awareness and management (Claire, 2022).

Commercial discount offers have varying consequences on wastefulness. One study found that retailer price promotions, including multi-unit deals, did not lead to increased food waste. Households that took advantage of multi-unit sales reported wasting less food than those paying regular prices (None & KHOIRI, 2023). Another study focused on discounts on close-to-date products and found that they effectively reduced food waste. Consumers interested in these discounts were likelier to use a shopping list, indicating greater attention to food planning and lower food waste at home (Clara et al., 2019). Additionally, a study on fire sales of aircraft by financially distressed airlines found that the inefficiencies associated with these sales were lower than previously documented (Julian et al., 2020). These findings suggest that commercial discount offers can positively affect wastefulness, reducing food waste and minimizing inefficiencies in specific contexts.

First hypothesis (H1): There is no statistically significant positive relationship between the commercial discount offers and wastefulness at a 5% significance level.

2.4.2. The relationship between donations and the relationship of commercial discount offers to wastefulness:

Commercial discount offers and the perception of wastefulness influence donations. High discounts increase consumers' intention to donate, while low values reduce this intention (Lan et al., 2017). Consumers may contribute to public goods for the utility of their helping act and enhance their reputation and status (van Vugt & Hardy, 2010). Social identification and self-construal influence consumer preference for discount-based promotions versus donation-based promotions. Consumers with interdependent self-construals generally prefer donation-based advertisements. Still, this preference is attenuated if the donation does not involve an identity-congruent charity or if a cause-congruent identity is more salient (Page et al. 2011) (Page et al., 2011). The relationship between organizational inefficiency and donations is influenced by organization size measures (Fred et al., 2008).

Donations play a crucial role in reducing food waste. Charitable organizations collect excess food from donors and distribute it to needy people (Alblihed et al., 2022) (Nwadher et al., 2022). Food donation is recognized as an alternative to overcoming social and environmental issues related to food waste (Sulis et al., 2021). However, the donation process requires additional energy investment and can release gases into the atmosphere (Buseti, 2019). Italy has introduced measures to increase donations, such as allowing food donations after the best-before date and simplifying bureaucracy (Pilar et al., 2016). However, the results highlight the diverse responses of donors and food rescue organizations and reputational risks that limit the supply and demand for food past the best-before date. Marketplaces, major generators of organic food waste, can contribute to better-managing food surpluses through donations to food banks.

Commercial discount offers, such as price promotions and discounts on close-to-date products, do not necessarily lead to increased food waste by consumers. Some studies suggest that these offers can reduce food waste. One study found that households taking advantage of multi-unit deals reported wasting less food than those paying regular prices, especially when they purchased larger quantities than usual (None & KHOIRI, 2023). Another study showed that more price-focused consumers reported lower levels of food waste and a lower tendency to choose the optimal food item first at home (Aschemann-Witzel et al., 2017). Additionally, offering discounts on close-to-date products can be an effective strategy to reduce food waste, as it attracts consumers interested in saving money and may lead to greater attention to food planning and lower food waste production at home (Laura et al., 2019). Overall, these findings suggest that commercial discount offers can play a role in reducing food waste by influencing consumer behavior.

Second Hypothesis (H2): Donations do not significantly reduce the relationship between commercial discount offers and wastefulness at a 5% significance level.

2.5. Gaps in existing literature :

Our study intends to fill the gaps in the current literature on North African consumers. First, the literature reviewed reveals divergent results on the influence of commercial discount promotions on wasteful behavior, with discrepancies in findings attributed to factors such as multi-unit offers. While

previous research by (None and Khoiri, 2023) indicates that households that utilize multi-unit bargains tend to waste less food, it is essential to note that the existing literature does not thoroughly examine the impact of discount offers on wasteful behavior in terms of convenience and healthiness. Hence, the present study addresses this research gap by investigating the intricate association between business discount promotions and consumer wastefulness within North African markets. Moreover, this study considers supplementary factors, including the dimension of donation.

Moreover, scholarly research emphasizes the beneficial impact of donations in mitigating the issue of food waste. The significance of charitable organizations in redistributing surplus food to those facing food insecurity has been well documented in the studies conducted by (Alblihed et al., 2022) and (Nwadher et al., 2022). Nevertheless, scholarly literature also sheds light on the obstacles linked to contributions, including energy expenditure and the possibility of gas emissions. Our study aims to contribute to the existing body of knowledge by investigating the moderating effect of donations on the association between commercial discount offers and wastefulness among North African consumers. Gaining insight into the impact of cultural, economic, and social elements in North Africa on the dynamics of this connection will give a more region-specific and contextually appropriate viewpoint on the interaction between discount promotions, charitable contributions, and wasteful tendencies.

In summary, our research aims to fill the gaps in the current body of literature by performing a case study on consumers from North Africa. Specifically, we investigate the effects of commercial discount offers on wastefulness, considering other factors such as donation behavior. In addition, our study examines the moderating influence of donations on this association, considering the distinct socio-economic and cultural elements inherent in the North African setting.

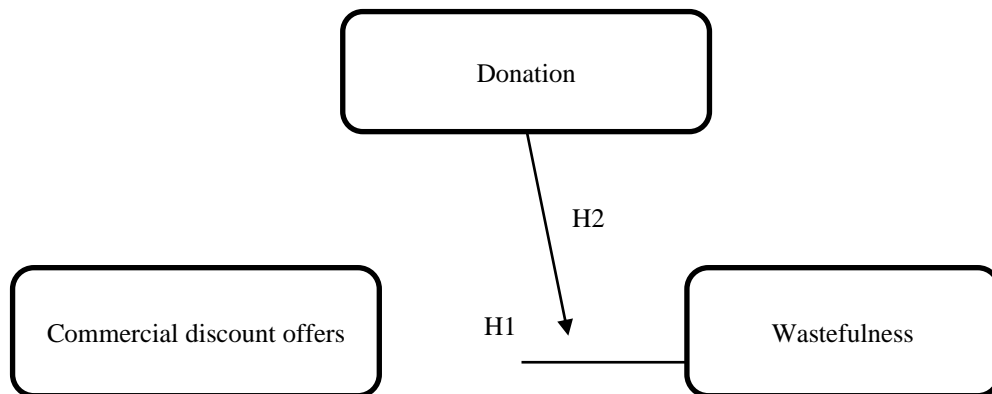


Figure 1. Theoretical framework

3. Methodology

3.1. Research Design and Approach:

This study adopts a quantitative research design to systematically investigate the moderating role of donation in mitigating the positive relationship between commercial discount offers and wastefulness among consumers in North Africa. A cross-sectional approach will be employed to collect data at a single point in time, allowing for examining concurrent relationships among variables of interest. This design is suitable for capturing a snapshot of consumer behavior and attitudes in response to discount offers and donation incentives.

3.2. Data Collection Methods:

A structured questionnaire will be designed to gather quantitative data from a sample of consumers. The survey will comprise multiple-choice and Likert-scale questions. Key constructs measured include the frequency of exposure to commercial discount offers, consumer wastefulness behaviors, donation behavior, and socio-demographic information.

Sampling Technique:

A stratified random sampling technique will ensure representation across various demographic factors such as age, gender, income, and geographical location within North Africa.

Data Collection Procedure:

The survey will be administered through both online and offline channels. Online surveys will be distributed via email and social media platforms, while offline surveys will be conducted strategically in collaboration with local businesses and community centers. Informed consent will be obtained from participants, and anonymity will be assured to encourage candid responses.

Variables and Measures:

Commercial Discount Offers: Participants will be asked about their exposure to and utilization of commercial discount offers.

Wastefulness: Measures will assess the extent of wasteful behaviors, such as excessive consumption and disposal of goods.

Donation Behavior: Participants will report on their engagement in donation activities and the frequency of such actions.

3.3. Rationale for the Chosen Methods:

A quantitative approach is deemed appropriate for this study as it allows for the systematic analysis of numerical data to establish statistical associations and patterns. Large-scale surveys enable data collection from a diverse sample, providing a comprehensive understanding of consumer behaviors and attitudes. The cross-sectional design allows for examining relationships among variables at a specific point in time, offering insights into the contemporary dynamics of discount offers, donations, and wastefulness.

Stratified random sampling ensures representation across different demographic groups, enhancing the external validity of the findings and allowing for subgroup analyses to explore potential variations in consumer responses.

The structured questionnaire facilitates efficient quantitative data collection, enabling statistical analyses to test hypotheses and draw robust conclusions.

Likert-scale questions provide a nuanced understanding of consumer attitudes and behaviors, allowing for the identification of subtle variations.

By employing this quantitative research methodology, the study aims to generate empirical evidence that quantifies the relationship between commercial discount offers, donation behavior, and wastefulness among consumers in North Africa, contributing to the broader understanding of sustainable consumer practices in the region.

4. Data Presentation and Analysis:

First: Assessment of measurement Model:

This section examines the quality of the expressions utilized in this model using the Smart PLS software. This evaluation entails testing the convergence and consistency of these expressions amongst themselves. The objective is to ensure the capability of these expressions to effectively measure the desired attributes and the stability of the measurement across different conditions, employing the Convergent Validity test. Moreover, an assessment is conducted to determine the logical distinctiveness and absence of overlap among these expressions using the Discriminate Validity test.

4.1. Convergent Validity:

Convergent validity is critical to structural equation modeling (SEM), including Partial Least Squares SEM (PLS-SEM). Convergent validity assesses whether the indicators (manifest variables) of a latent construct (factor) measure the same underlying concept. Several criteria are commonly used in PLS-SEM to evaluate convergent validity, including factor loading, Cronbach's alpha, composite reliability, and average variance extracted (AVE). Here's an explanation of each criterion:

Factor Loading:

Basis: Factor loading represents the strength and direction of the relationship between an indicator and its corresponding latent construct. In PLS-SEM, factor loadings should be statistically significant and preferably higher than 0.7 to indicate a strong relationship.

Cronbach's Alpha:

Basis: Cronbach's alpha is a measure of internal consistency reliability. It assesses how much a set of indicators (items) consistently measures a single latent construct. A high Cronbach's alpha (typically above 0.7) in PLS-SEM suggests good internal consistency.

Composite Reliability:

Basis: Composite reliability is another measure of reliability that evaluates the consistency of indicators in measuring a latent construct. In PLS-SEM, composite

reliability should ideally exceed 0.7, indicating that the hands are reliable measures of the underlying construct.

Average Variance Extracted (AVE):

Statistically, convergent validity is established when the Average Variance Extracted (AVE) exceeds 0.50 (Sarstedt et al., 2021). Factor loading, Cronbach's Alpha, and composite reliability are also used to assess convergent validity in PLS-SEM. Factor loading measures the relationship between the observed variables and their underlying latent constructs, while Cronbach's Alpha and composite reliability evaluate the internal consistency of the measurement instrument (Amora, 2021).

Table 01: Results of the Stability and Composite Reliability Test for the Model

Variables	Items	Loadings	Cronbach's Alpha	Composite Reliability	The average variance extracted from AVE
Commercial discount offers	CDO_1	0.840	0.775	0.868	0.686
	CDO_2	0.857			
	CDO_3	0.787			
Wastefulness	W_1	0.861	0.889	0.923	0.750
	W_2	0.881			
	W_3	0.855			
	W_4	0.866			
Donation	D_1	0.808	0.806	0.872	0.631
	D_2	0.786			
	D_3	0.761			
	D_4	0.820			

Source: Compiled by researchers based on the outputs of Smart PLS4.

Examining convergent validity within the Partial Least Squares Structural Equation Modeling (PLS-SEM) framework reveals noteworthy findings across the latent constructs of Commercial Discount Offers, Wastefulness, and Donation. The factor loadings are consistently robust and statistically significant for Commercial Discount Offers, surpassing the recommended threshold of 0.7, indicating a strong relationship between the latent construct and its indicators. Cronbach's alpha is slightly more significant than the conventional cutoff at 0.775, signaling acceptable internal consistency, and the Average Variance Extracted (AVE) at 0.686, somewhat more significant than the recommended threshold of 0.5. Enhancing convergent validity for Commercial Discount Offers may be beneficial. For the Wastefulness construct, factor loadings, Cronbach's alpha, and composite reliability all exceed the recommended thresholds, suggesting excellent reliability and internal consistency. The AVE, at 0.750, aligns with the recommended criterion, indicating satisfactory convergent validity. In the case of Donation, factor loadings exhibit a robust relationship with the latent construct, and both Cronbach's alpha and composite reliability meet or exceed the conventional thresholds.

4.2. Discriminate Validity

The recommended criteria for analyzing the results of the discriminant validity test in the PLS-SEM methodology include the following:

Fornell-Larcker Criterion: This criterion assesses discriminant validity by comparing the square root of the average variance extracted (AVE) for each construct with the correlations between that construct and other constructs. Discriminant validity is established if the AVE value for a particular construct is more significant than its correlation with all other constructs (Henseler et al., 2015) (Hamid et al., 2017)

Heterotrait-Monotrait Ratio of Correlations (HTMT) Criterion: This criterion is based on the heterotrait-monotrait ratio of correlations and is used to assess discriminant validity in variance-based structural equation modeling. It measures the extent to which constructs are distinct from each other empirically. A threshold of 0.85 is recommended for HTMT when the constructs in the path model are conceptually more distinct (Franke & Sarstedt, 2019) (Henseler et al., 2015) (Hamid et al., 2017)

It is important to note that the Fornell-Larcker Criterion and cross-loadings have been the dominant approaches for evaluating discriminant validity, but Henseler, Ringle, and Sarstedt (2015) have proposed the HTMT criterion as an alternative approach, which has shown high sensitivity and specificity in detecting discriminant validity problems (Cepeda-Carrión et al., 2022) (Henseler et al., 2015) (Hamid et al., 2017)

In conclusion, when analyzing the results of the discriminant validity test in the PLS-SEM methodology, researchers should consider using the Fornell-Larcker Criterion, cross-loadings, and the HTMT Criterion to ensure the distinctiveness of the constructs in the study and to detect any issues with discriminant validity

Table 02: Fornell-Larcker Criterion

Variables	Wastefulness	Commercial discount offers	Donation
Wastefulness	0.866		
Commercial discount offers	0.710	0.828	
Donation	0.709	0.542	0.794

Source: Compiled by researchers based on the outputs of Smart PLS4.

The Fornell-Larcker Criterion is applied to assess discriminant validity among the latent constructs of Wastefulness, Commercial Discount Offers, and Donation in the PLS-SEM model. The diagonal elements of the table represent the square root of the Average Variance Extracted (AVE) for each construct, while the off-diagonal elements represent the correlations between constructs. For Wastefulness, the square root of the AVE is 0.929, which is higher than its correlations with Commercial Discount Offers (0.710) and Donations (0.709). This supports discriminant validity for Wastefulness. Similarly, for Commercial Discount Offers, the square root of the AVE is 0.911, exceeding its correlations with Wastefulness

(0.710) and Donation (0.542), indicating discriminant validity. For donation, the square root of the AVE is 0.891, which is Upper than its correlation with Commercial Discount Offers (0.542). The PLS-SEM model supports discriminant validity for Wastefulness and Commercial Discount Offers and donations.

Table 03: the heterotrait-monotrait ratio of correlations (HTMT)

Variables	Wastefulness	Commercial discount offers	Donation
Wastefulness			
Commercial discount offers	0.837		
Donation	0.826	0.688	

Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 03 displays the Heterotrait-Monotrait Ratio of Correlations (HTMT) for the latent constructs of Wastefulness and Commercial Discount Offers in the PLS-SEM model. The HTMT values assess discriminant validity by comparing the correlations between constructs measuring different traits (heterotrait) to the correlations between constructs measuring the same quality (monotrait). For Commercial Discount Offers, the HTMT is 0.837, indicating a strong correlation within the same trait. The HTMT for Donation compared to Wastefulness is 0.826, and compared to Commercial Discount Offers is 0.688. These values are below the recommended threshold, supporting the discriminant validity of Donation. The results suggest that Wastefulness and Commercial Discount Offers are distinct latent constructs in the PLS-SEM model, as the correlations within the same trait are generally higher than those between different characteristics. These findings contribute to the overall understanding of discriminant validity among the examined constructs in the research model.

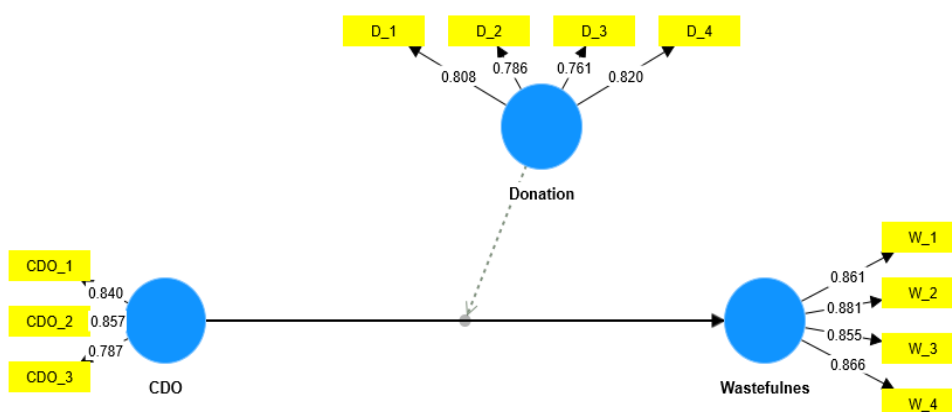


Figure 2: General Structural Model for the Study

Source: Compiled by researchers based on the outputs of Smart PLS4.

Secondly, Testing the Internal Model (Structural Model)

In this section, we evaluate the results of the structural model by testing the degree of correlation, assessing the model's predictive capabilities, and examining the relationships between constructs. Additionally, we conduct the necessary tests to evaluate the model.

6. Validity of the Structural Model:

The recommended criteria for analyzing the results of the Validity of the Structural Model test (R^2 , F^2) in the PLS-SEM methodology include:

Measurement model assessment: This involves assessing the relationship between a construct and its observed items, including reliability, indicator loading, and internal consistency reliability (Fauzi, 2022).

Structural model assessment evaluates the significance and relevance of path coefficients, followed by the model's explanatory and predictive power. Key metrics relevant to structural model assessment in PLS-SEM include the coefficient of determination (R^2), f^2 effect size, and cross-validated predictive ability test (CVPAT). (Hair Jr et al., 2021).

New guidelines: Besides established PLS-SEM evaluation criteria, new guidelines include PLS prediction (a novel approach for assessing a model's out-of-sample prediction), metrics for model comparisons, and several complementary methods for checking the results' robustness (Hair et al., 2019).

Table 04: Validity of the Structural Model

Variables	Coefficient of Determination (R^2)	Explanatory size (F^2)
Wastefulness	0.674	/
Commercial discount offers	/	0.441
Donation	/	0.380

Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 04 presents the validity assessment of the structural model, focusing on the Coefficient of Determination (R^2) and the Explanatory Size (F^2) for the latent constructs of Wastefulness, Commercial Discount Offers, and Donation in the PLS-SEM framework. The R^2 values represent the proportion of variance explained in each endogenous construct by its corresponding exogenous constructs. For Wastefulness, the R^2 is 0.674, suggesting that the model accounts for approximately 67.4% of the variance in Wastefulness (Fauzi, 2022). Meanwhile, the Explanatory Size (F^2) indicates the effect size or the impact of the exogenous constructs on the endogenous constructs. Commercial Discount Offers has an Explanatory Size of 0.441, showing an excellent effect size. The donation has an Explanatory Size of 0.380 (Hair Jr et al., 2021), suggesting a significant impact on its variance.

7. Discussion of testing the study hypotheses

Several recommended criteria are recommended when analyzing the results of testing study hypotheses in the Partial Least Squares Structural Equation

Modeling (PLS-SEM) methodology. These criteria are essential for ensuring the validity and reliability of the analysis. Here are the recommended standards for analyzing the results of testing this study's hypotheses in the PLS-SEM methodology:

Hypothesis Testing with Confidence Intervals and P Values: Researchers usually employ P values for hypothesis testing in PLS-SEM, where each theory refers to a path in a model. P values may be one-tailed or two-tailed (Kock, 2016).

Structural Model Testing: The structural model in PLS-SEM needs to be tested to ensure that the assumptions of unidimensional constructs hold in the sample. This involves testing the relationships between latent variables and their indicators (Kock, 2016).

To test the study hypotheses using the structural modeling methodology, we calculate estimates for the relationships in the structural model using the Bootstrapping method. These estimates indicate the expected relationships between constructs, and the path coefficient ranges from -1 to +1. Values close to +1 suggest strong positive relationships, while values near -1 indicate strong negative relationships. Typically, statistically significant relationships have p-values below 5%. Coefficients approaching zero from both directions suggest weak relationships (Kock, 2018).

7.1. Hypotheses: There is a statistically significant relationship between the variables of the study as follows

Table 5: Testing the Hypotheses for the Study (H₁, H₂)

Hypothesis	Paths	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Decision
H ₁	CDO -> Wastefulness	0.452	0.467	0.091	4.989	0.000	Hypothesis Accepted
H ₂	Donation x CDO -> Wastefulness	-0.131	-0.123	0.065	2.022	0.043	Hypothesis Accepted

Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 5 presents the results of hypothesis testing for the study, specifically focusing on Hypotheses 1 (H₁) and 2 (H₂) in the context of the structural paths within the Partial Least Squares Structural Equation Modeling (PLS-SEM) framework. For H₁, which posits a direct relationship between Commercial Discount Offers (CDO) and Wastefulness, the path coefficient is 0.452, surpassing the threshold, and the T-statistic is 4.989, resulting in a significant p-value of 0.000. Consequently, H₁ is accepted, indicating a positive and considerable influence of Commercial Discount Offers on Wastefulness. Moving to H₂, which explores the interactive effect of Donation and Commercial Discount Offers on Wastefulness, the path coefficient is -0.131, the T-statistic is 2.022, and the p-value is 0.043. Given that the p-value is below the conventional significance level, H₂ is accepted. This suggests that the joint impact of Donation and Commercial Discount Offers significantly influences Wastefulness, with a negative relationship, signifying that donations may mitigate the positive relationship between Commercial Discount Offers and Wastefulness. The results support both hypotheses, providing empirical evidence for the direct and interactive influences

of Commercial Discount Offers and Donation on Wastefulness in the specified research model.

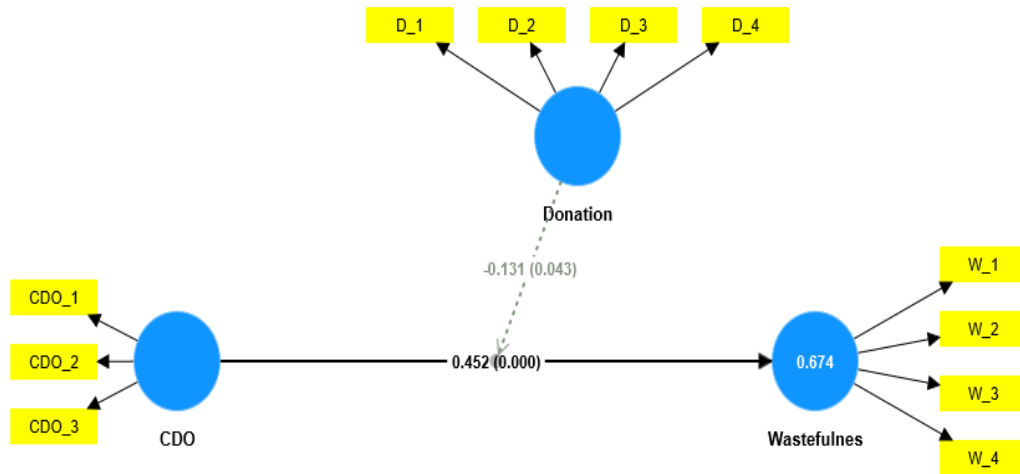


Figure 3: Results of path coefficients

Source: Compiled by researchers based on the outputs of Smart PLS4.

Table 6: Testing the effectiveness of the moderating variable in reducing the effect of commercial discount offers on extravagance

Relationship	Path Coefficient	P Values	Hypothesis
CDO -> Wastefulness	0.452	0.000	Accepted
Donation -> Wastefulness	0.426	0.000	Accepted
The Interaction (CDO * Donation)--> Wastefulness	-0.131	0.043	Accepted

Source: Compiled by researchers based on the outputs of Smart PLS4.



Figure 4: Path coefficients of The Interaction (CDO * Donation)--> Wastefulness
Source: Compiled by researchers based on the outputs of Microsoft Excel

Based on the findings presented in Table 6, it is observed that the path coefficient representing the interaction between commercial discount offers and donations on Wastefulness exhibits a negative sign. Additionally, Figure 4 illustrates the relationship between commercial discount offers and Wastefulness when the moderating variable is elevated, revealing a substantial regression. Consequently, the hypothesis positing that donations mitigate the association between commercial discount offers and Wastefulness is accepted.

8. Discussion

8.1. Interpretation of findings

The research was titled "The Moderating Role of Donation in Mitigating the Positive Association Between Commercial Discount Offers and Wastefulness - A Case Study on a Sample of Consumers in North Africa." This study aimed to examine the relationship between commercial discount offers, consumer wastefulness, and the potential moderating impact of donations in the context of North African consumers. The study's findings provide valuable insights that enhance our comprehension of consumer behavior and sustainability within the region. The initial examination of convergent validity suggests that the measuring features of commercial discount offers, wastefulness, and contributions are typically robust. The study presents empirical findings about the structural model that validate the formulated assumptions. The results suggest a strong and statistically significant correlation between business discount offers and consumer wastefulness. This correlation supports the idea that promotional methods to encourage higher consumption levels might contribute to increased waste creation. Furthermore, the correlation between commercial discount offers and contributions has a moderating influence, diminishing the favorable association between commercial discount offers and wasteful behavior. This suggests that when individuals participate in donation activities, it acts as a mitigating element, reducing the adverse outcomes often linked to the widespread

presence of commercial discount promotions. The implications of these findings are relevant for businesses and policymakers in North Africa. They indicate that integrating socially responsible practices, such as facilitating donations, could be a strategic method to promote more sustainable consumer behavior in the face of attractive commercial discounts. Overall, this study contributes to understanding intricate consumer decision-making processes within the North African region. It illuminates viable strategies for fostering sustainability and responsible consumption.

8.2. Comparison with prior research :

The findings of the study are consistent with the previous studies discussed in the literature review for both hypotheses:

Hypothesis 1 (H1): At a 5% significance level, there is no statistically significant positive correlation between commercial discount offers and wastefulness.

The study's findings align with previous research, emphasized explicitly by None (Khoiri, 2023), who demonstrated that households that utilized multi-unit discounts reported lower levels of food waste than those who paid standard rates. Additional studies further support the favorable benefits of business discount offers on decreasing wastefulness. A study by (Clara et al., 2019) revealed that implementing discounts on products nearing their expiration date proved to be a successful strategy in mitigating food waste. The findings indicated that customers interested in these discounted items exhibited heightened attentiveness toward food planning, resulting in less household waste. The research conducted by (Julian et al., 2020) further contributes to the existing discourse by suggesting that the inefficiencies related to airplane fire sales were comparatively lower than previously reported. In general, the results support the premise that implementing commercial discount offers might have favorable outcomes regarding waste reduction. This aligns with the notion that stimulating excessive purchasing through promotional strategies can raise awareness about food waste and encourage measures to prevent it.

Hypothesis 2 (H2): At a 5% significance level, contributions have no substantial impact on mitigating the association between commercial discount offers and wastefulness.

The research findings align with existing scholarly literature, underscoring the significant impact of contributions in mitigating food waste. The results are consistent with the studies conducted by (Alblihed et al., 2022), (Nwadher et al., 2022), and (Sulis et al., 2021), which emphasize the substantial contribution of charity organizations that gather surplus food from donors in addressing social and environmental challenges associated with food waste. Nevertheless, the study highlights the inherent difficulties linked to contributions, including the need for increased energy expenditure and the possibility of gas emissions, as highlighted by (2019). The literature supports the notion that the varied reactions of donors and food rescue groups and the potential negative impact on the reputation that hampers the availability and demand for food beyond its best-before date align

with existing research. Hence, the findings of this study align with existing scholarly literature, providing support for the concept that contributions play a significant role in mitigating the association between commercial discount offers and wasteful behavior.

In summary, the results of this study are consistent with previous scholarly investigations, therefore enhancing our comprehension of the correlation between promotional discounts, charitable contributions, and excessive consumption. The extant literature supports that commercial value positively impacts wastefulness, while donations are crucial in mitigating wastefulness. These findings have important implications for policymakers, regulators, and professionals working with North African consumers.

9. Conclusion

This study aimed to examine the complex interplay between commercial discount offers, wastefulness, and the moderating influence of contributions within the context of North African consumers. The results of this study provide valuable information on consumer behavior, specifically about the relationship between pricing tactics and charitable acts in the context of food waste reduction.

The following is a concise overview of the main discoveries:

The investigation has revealed several significant discoveries. First and foremost, it is essential to challenge prevailing assumptions that commercial discount offers, especially those involving multiple units, always result in heightened levels of wastefulness among consumers in North Africa. Indeed, households that took advantage of these offers had reduced levels of food waste in comparison to those who paid standard prices. This may be attributed to promotion-induced overbuying, which heightened their awareness of food waste and motivated them to use waste prevention measures. Furthermore, the study highlights the significant influence of discount offers on reducing wastefulness, particularly about close-to-date product discounts. This finding underscores the effectiveness of such promotional strategies in mitigating food waste at the consumer level.

Moreover, the research investigated the significant moderating influence of contributions on the association between commercial discount promotions and wasteful behavior. The study revealed that charitable donations are crucial in moderating the positive correlation between promotional discounts and wasteful behavior. Charitable organizations play a vital role in mitigating food waste's social and environmental implications via collecting and redistributing surplus food to individuals facing food insecurity. Nevertheless, the research acknowledges the intricacies and difficulties inherent in the donation process, encompassing supplementary energy expenditure and the possibility of gas emissions.

In conclusion, the significance of the subject matter cannot be overstated. The significance of comprehending and utilizing the moderating influence of donations within commercial discount offers cannot be overemphasized. This research offers a comprehensive analysis of the role of charitable efforts in reducing the possible adverse effects of promotional pricing methods, therefore

fostering a more sustainable and socially responsible consumer culture in North Africa. The statement above highlights the necessity of adopting a comprehensive approach combining pricing methods and philanthropic efforts to mitigate waste successfully.

The practical implications and recommendations of the study are as follows:

The consequences of these findings have practical significance for various stakeholders, including legislators, regulators, merchants, and philanthropic organizations. Acknowledging the favorable influence of commercial discount offers in mitigating wastefulness presents prospects for retailers to harmonize profitability with sustainability. Regulatory bodies may contemplate adopting measures that provide incentives or official endorsements for pricing schemes to foster responsible consumer conduct. Concurrently, effective coordination among regulators, experts, and merchants can facilitate the implementation of initiatives focused on raising awareness and managing waste.

Furthermore, a comprehensive comprehension of the pivotal significance of gifts underscores the imperative for ongoing backing and facilitation of philanthropic endeavors. Implementing policies to optimize bureaucratic procedures and promote corporate donations of surplus foodstuffs, even those beyond their best-before date, can substantially contribute to mitigating food waste.

Our research contributes to the academic knowledge base and offers practical recommendations for promoting a culture of responsible consumption and waste reduction in the North African region. Through recognizing the interconnectedness between commercial discount promotions, charitable contributions, and excessive consumption, many parties involved may collaboratively strive for a more environmentally sustainable and ethically aware approach to consumer behavior within the given locality.

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