VOL 7(2), 160-179
Copyright © Madda Walabu University
ISSN: 2523-1901 (Online)
URL: http://jessd.mwu.edu.et/
Email: JESSDeditorials@mwu.edu.et

JESSD
Journal of Equity in Sciences & Sustainable Development

DOI: https: //doi.org/10.20372/mwu.jessd.2024.1560

Full Length Research Paper

Environmental Marketing as a Tool for Environmental Sustainability: A Case Study of Selected Water Bottling Factories in Ethiopia

Eliyas Ebrahim Aman[a,d], Gazahagn Sime Jifar[b], Mohammedhussen Mama Irbo[c], Árpád Ferenc Papp-Váry[e,f]

[a]*István Széchenyi Economics and Management Doctoral School, Alexandre Lamfalussy Faculty of Economics, University of Sopron, Hungary.*

[b]*Department of Management, School of Business and Economics, Madda Walabu University, Bale Robe, Ethiopia.*

[c]*Department of Management, School of Business and Economics, Madda Walabu University, Bale Robe, Ethiopia.*

[d]*Department of Marketing, School of Business and Economics, Madda Walabu University, Bale Robe, Ethiopia.*

[e]*Lamfalussy Research Center, Alexandre Lamfalussy Faculty of Economics, University of Sopron, Hungary.*

[f]*Department of Marketing, Faculty of International Management and Business, Budapest Business University, Hungary.*

Article Info

Article History

Received: 12 Mar 2024

Accepted: 12 April 2024

Abstract

Environmental deterioration is an urgent issue that has garnered global attention and has been debated in various settings. The main intent of this study was to objectively assess how the elements of environmental marketing effect environmental sustainability. The study employed an explanatory-descriptive research design and a quantitative approach to analyze and interpret the data. In the study, 238 people completed five-point Likert-scale questionnaires, enabling firsthand observation of the original data. The structural equation model analysis was conducted using SmartPLS software. The study revealed moderate links between green prices and environmental sustainability measures in the study area. Place, product, and promotion demonstrated a modest influence on environmental sustainability. The PLS path analysis indicated that green price was the most significant variable, followed by product, promotion, and place in the 4P marketing mix. Overall, the findings of the recent study suggest a significant relationship between environmental marketing and environmental sustainability, with environmental marketing accounting for approximately 37.9% of the variance in environmental sustainability. Therefore, the government should pay attention and establish a policy and regarding how companies can use green product, green pricing, green placing, and green promotion to minimize environmental damage.

Keywords:

Environmental sustainability, green products, green price, green place.

JEL: M31, Q01

* *Corresponding Email*: eliyas.ebrahim.aman@phd.uni-sopron.hu
ORCID ID: - https://orcid.org/0000-0002-4825-4734

1 INTRODUCTION

Nowadays, the production and disposal of plastic water bottles have substantially increased worldwide (Orset et al. 2017). The towns have been confronted with a variety of problems relating to solid waste (Kumar–Agrawal 2020). Industries started flooding the market with more and more plastic water bottle products to meet consumer demand and boost profits at the expense of the environment as a whole (Farooq et al. 2022). This can cause and contribute to emissions of greenhouse gases, climate change, depletion of natural resources, environmental pollution, increasing carbon emissions, deforestation in tropical areas, acid rain, global climate change, hazardous waste, and extinct animals (Chen et al. 2021), which may result in detrimental effects on both human health and the environment.

Particularly in developing countries huge amounts of plastic bottles are end up as litter in sewerage pipes, framing land and rivers and clogging many towns with plastic waste at every corner, in both large and small towns, where they can be harmful to humans and animals (Alabi et al. 2019). Ethiopia is among the developing nations that have faced this challenge because most of the manufacturers in the country are not concerned about environmental and social consciousness in this issue (Hussein et al. 2020). Predominantly, the situation and awareness concerning waste plastic bottles that could damage the environment are devastating (Legesse–Diriba 2011).

To address these challenges, environmental marketing strategically encourages sustainable environmental conservation, sustainable consumption, and sustainable production patterns. Additionally, it determines the method and techniques through which marketing practices exploit and utilizes limited resources while delighting customers, organizations, or industries' needs and wants (Astuti et al. 2021). However, many environmental marketing strategies fail spectacularly because organizations use the environment as an extra element of promotion without trying to improve or investigate the core product or how it affects the environment (Román et al. 2022). This is emanate from the premise that "environmental marketing" is merely the advertising of products having environmental attributes (Jamal et al. 2022). Consumers also have minimal awareness of environmental marketing (Yang–Chai 2022).

Furthermore, there are numerous scientific papers conducted on environmental marketing's influence on purchasing decisions, consumer behaviour, and the perception of customers. However, no research has been published in the study area on the current topic, to the best of the researcher's knowledge. Thus, given the current trend towards conserving nature from environmental deterioration, it is crucial to examine how environmental marketing affects environmental sustainability. More specifically, the present paper aims to assess and analyze how eco-friendly products, green pricing, green places, and green promotion impact environmental sustainability in selected water bottling factories in Ethiopia. Based on this premise, researchers believe that the outcomes of this research could have a vital impact on solving environmental problems and the development of environmental marketing practices.

2 OVERVIEW OF THE LITERATURE

2.1 Highlights of Environmental Marketing

The origin of environmental marketing can be traced to the late 1960s and early 1970s (Polonsky 1994), when it was realized that pollution, natural resource depletion, and the environmental repercussions of human activity were damaging to the planet (Saleem et al. 2021). In the late 1980s, companies began to recognize the potential advantages of promoting their environmentally friendly products (Limaho et al. 2022) and lessening their harmful effects on the planet (Chitra 2007).

Environmental marketing is a comprehensive marketing strategy where products are manufactured, priced, advertised, distributed, and recycled in a sustainable manner, in light of growing consciousness of the impacts of climate change, non-biodegradable waste products, and emissions (Mishra–Sharma 2014). Environmental marketing aims to ensure ecological safety and involves a range of corporate operations, including modifying the product, adjusting the production process, making wrapping alterations, and implementing promotional adjustments (Ghoshal 2011). Van Dam–Apeldoorn (1996) also explained it as a firm's attempts to develop, advertise, and disseminate goods without having harmful impacts on the natural environment.

2.2 Four Ps of Environmental marketing

2.2.1 Green Product

Environmental marketing often requires eco-friendly products for resource conservation, hazardous substitution, recyclability, and reusability (Dangelico 2016). Green products also have enthusiastic (social and mechanical), coherent (eco-label-authorized information), and direct personal benefits (Goldsmith et al. 2016). Likewise, green products offer non-product benefits, like an advertising incentive for customers who participate in the product recovery process (Liao et al. 2020). Ideally, eco-friendly products are resilient, uncontaminated, recycled, or effortlessly wrapped (Stralia–Zarotiadis 2019). This variable is measured by recycling, packaging reduction, dematerialization, using viable materials, designing recycled products, ensuring safe disposal, promoting rapid decomposition, and creating safer or more enjoyable products (Astuti et al. 2021; García Salirrosas–Rondon Eusebio 2022). Hence, based on this literature, the first hypothesis was designed:

Hypothesis 1: Green products have a significant influence on environmental sustainability.

2.2.2 Green pricing:

Pricing is a critical element of environmental marketing (Govender–Govender 2016;

Shrikanth–Raju 2012). Most people are interested in paying a premium for goods they believe to be of superior value (Aschemann-Witzel–Zielke 2017). Therefore, it will be measured in terms of value, which may be improved quality, function, performance, design, aesthetic appeal, flavor, or ecological benefits (Sinambela et al. 2022). When product life cycle costs are considered, environmentally friendly products are frequently cheaper than environmentally unfriendly ones (Gupta et al. 2016; Sana 2020). For instance, fuel-efficient automobiles, water-efficient printers, and non-hazardous goods are good examples of environmentally friendly products. Hence, based on this literature, the second hypothesis was constructed:

Hypothesis 2: Green prices have a significant impact on environmental sustainability.

2.2.3 Green Placing:

A "green place or channel of distribution" is a supply chain or distribution network that prioritizes green products, processes, and practices (Swami–Shah 2013). This may include using eco-friendly products, reducing pollutants and emissions, and using sustainable logistics and transportation (Sinambela et al. 2022). The goal of green distribution is to reduce the harmful effects of distributed products and encourage sustainability throughout the entire supply chain (Davari–Strutton 2014). Moreover, the decision of when and where to distribute a good or service has an immense effect on the environment (Melović et al. 2020). The place has to be compatible with the company's desired image and distinguish it from its rivals (Nolega et al. 2015). This can be accomplished via in-store advertising, visually pleasing exhibits, or the use of recyclable materials to highlight the ecological and other advantages (Syaekhoni et al. 2017). Thus, depending on this literature, the third hypothesis was developed as follows:

Hypothesis 3: Green place has a significant impact on environmental sustainability.

2.2.4 Green promotion

"Green promotion" involve promoting green products and services to specific audiences through public relations, paid advertising, direct marketing, sales promotion, and on-site promotions (Dangelico–Vocalelli 2017). The goal of green promotion is to create understanding about the impact of consumer choices on the environment, promote sustainable materials, encourage energy-efficient appliances, encourage recycling, reduce waste, and encourage more sustainable behavior (Boztepe 2012). By employing sustainable promotion techniques, savvy marketers can enhance their company's environmental credibility (Singh–Pandey, 2012). For instance, e-marketing is gradually substituting more conventional marketing approaches, and printed goods can be made utilizing recyclable items and economical procedures (e.g., waterless printing) (Shrikanth– Raju 2012). Consequently, the next hypothesis was devised:

Hypothesis 4: Green promotion has a significant impact on environmental sustainability.

3. RESEARCH METHODS

Description of study area

Arsi is situated in the Oromia region, in the south-eastern part of Ethiopia. Geographically, Arsi encompasses a diverse landscape characterized by highlands, valleys, and forests. The region is traversed by numerous rivers and streams, which contribute to its agricultural fertility. It has a latitude and longitude of 7°7′N, 40°0′E, and an elevation of 2,492 meters (8,176 ft.) above sea level. The region is divided into two zones: West Arsi and East Arsi. The town of Shashemane is a notable urban center and serves as a hub for trade and transportation in West Arsi, while the city of Asella serves as the administrative center of East Arsi and an important urban hub in the region.

3.1 Research design

This paper utilized an explanatory and descriptive design to achieve the intended objectives. The researchers employed an explanatory design to explain how environmentally responsible marketing impacts environmental sustainability and a descriptive design to analyze and explain the respondent profiles and average study variable scores. Moreover, the researchers utilized a quantitative research approach to analyze and interpret the data to generalize the research findings to the entire population. The researchers also used both primary and secondary sources.

3.2 Population, Sample Size Determination, and Sampling Technique

The researchers choose the study areas due to easy access for researchers in terms of transportation and logistics as well as to contribute new insights. To address consumers in this research, the researchers intended to consider the employees of three water bottling companies themselves, as they are the water users in the study area and know how the companies operate concerning environmental sustainability. The company has 621 employees. Thus, the sample was drawn from a population of 621 employees employed by the companies. The number of samples was calculated using Kothari's (2004) formula for determining the sample size for a finite population:

$$“n = \frac{z^2.p.q.N}{e^2(N-1)+z^2.p.q}” \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where: n=sample size; z=1.96; q=1-p; p= sample proportion; N=population; and e=error term. In cases where p is undetermined, Kothari proposes using a value of 0.5 to maximize the sample size that meets or exceeds the specified precision. Hence, the sample was as follows:

$$= \frac{(1.96)^2 \times 0.5 \times 0.5 \times 621}{(0.05)^2(621-1) + (1.96)^2 \times 0.5 \times 0.5}$$

$$\approx \mathbf{238}$$

Finally, appropriate sample sizes were selected in proportion to the population size of each company (See table 1).

Table 1: The sample size of each company.

No	Name of company	Population	Sample size
1	Selam	227	$n = \frac{227 \times 238}{621} \approx 87$
2	Gada	206	$n = \frac{206 \times 238}{621} \approx 79$
3	Bokoji	188	$n = \frac{188 \times 238}{621} \approx 72$
	Total	***621***	***238***

Therefore, 238 respondents were selected for this study using simple random sampling to select samples from the employee population at companies.

3.3 Data analysis

After collecting, documenting, reviewing, and coding the data using the proper techniques, the researchers utilized descriptive statistics such as means, frequencies, percentages, and standard deviations to examine the demographic characteristics of the respondents. Moreover, with the help of SmartPLS version 4, tests of internal consistency, convergent validity, discriminant validity, correlation matrix, exploratory factor analysis, path coefficient, and the structural equation model (SEM) have been performed.

3.4 Model specification.

The specification of the multiple regression model is illustrated below in detail.

$$\mathrm{Yi} = \mathrm{Ao} + \mathrm{Bi}(\mathrm{Xi}) + \mathrm{e} \text{.................(2)}$$

Where: Yi is "environmental sustainability (a dependent variable)", Ao is "the intercept term", Bi is "the coefficient of Xi', Xi is "the independent variables", and e is "the error term". Therefore, following the research's hypotheses, the following regression model was presented:

EnvS= ao+b1(Gpro)+b2(Gpri)+b3(Gpla)+b4(Gprom)........(3)

Where: EnvS is environmental sustainablity, Gpro:- “green Product”, Gpri:-“green Pricing”, Gpla:- “green placing”, and Gprom:- “green promotion”.

Finally, the Kaiser-Meyer-Olkin, Bartlett's Test of Sphericity, Cronbach's alpha, average variance extracted, composite reliability, and factor loading assessments were employed to evaluate the model's measurement. P-value and T-value allowed the significance of the model to be estimated at a 95% confidence interval level.

4 RESULTS AND DISCUSSION

4.1 Data screening and respondent profiles

The complete research population was represented by 238 individuals. Of the 238 questionnaires provided, 220 were completed and 18 were not. Ten respondents are excluded due to excessive missing and outlier data at data screening, leaving 210 for analysis. Among the 210 questionnaire respondents, 131 (62.9%) were male and 78 (37.1%) females. The detail summary of respondent profles is given in Table 2.

Table 2: Demography of the survey participants

Variables	Type	Frequency	(%)
	Male	132	62.9
Gender	Female	78	37.10
	Total	210	100
	18- 29	3	1.40
Age	30-39	131	62.4
	40-49	60	28.6
	Fifty and above	16	7.60
	Total	210	100.0
	Diploma (Vocational)	38	18.10
Education	First degree (BA/BSc)	144	68.60
level	Master's & above	28	13.30
	Total	210	100.0

Source: SPSS(Survey data, 2023)

4.2 Measurement of model

4.2.1 Internal consistency test

As Hair et al. (2020) mentioned, the specified variable's internal consistency must be greater than or equal to 0.7. Table 4 displays that Cronbach's alpha scores in this study are all higher than the threshold, which means that the internal consistency is excellent. To verify whether the data were appropriate to perform factor analysis, Bartlett's test and KMO were executed. According to Kaiser and Rice (1974), Kaiser-Meyer-Olkin scores above 0.5 are acceptable. The results of this research recorded a chi-square of 1606.987 with 120 degrees of freedom and a KMO score of 0.80 at the 0.000 level of significance (see Table 3).

Table 3:- Bartlett's and KMO test.

KMO Adequacy Measure.	0.806
Bartlett's Test: Approx. Chi-Square	1606.987

Degree of freedom	120
Significance	0.000

4.2.2 Convergent validity

According to Hair et al. (2020), factor loading above 0.7, average variance extracted greater than 0.5, and composite reliability above 0.5 are adequate for this test. Therefore, two questionnaire items, namely, Gpro6 and Gprom3, were eliminated from the analysis because their factor loadings were below the recommended limit. As shown in Table 4, the remaining variables had above-recommended loadings, confirming the convergent validity assumption was fulfilled. Moreover, a variance of inflation below 3.0 indicates no collinearity issue. Figure 1 illustrates the path coefficients and factor loadings obtained from the structural equation modeling results.

Table 4: Exploratory factor analysis results in summary

Construct	Measurement	Factor loading (λ)
Green product (Gpro)	*CR= 0.892, AVE= 0.619, α = 0.853, VIF= 1.397*	
Gpro1	The bottles of water are recyclable.	0.834
Gpro2	The bottles of water are safe for disposal.	0.779
Gpro3	The bottles of water have clear labels.	0.724
Gpro4	The design of bottled water is well-made.	0.742
Gpro5	The bottled water brand is environmentally friendly.	0.847
Green price (Gpri)	*CR= 0.902, AVE= 0.730, α = 0.878, VIF= 1.189*	
Gpri1	Bottled water is reasonably priced.	0.881
Gpri2	Consumers are willing to pay for bottled water.	0.827
Gpri3	The price of bottled water is proportional to their quality.	0.843
Gpri4	Bottled water is economical.	0.865
Green promotion (Gprom).	*CR= 0.795, AVE= 0.768, α = 0.704, VIF= 1.176*	
Gprom1	Companies use eco-friendly content in promotion.	0.914
Gprom2	Encourage customers to make more eco-friendly choices.	0.838
Green Place (Gpla)	*CR= 0.802, AVE= 0.784, α = 0.732, VIF= 1.299*	
Gpla1	Companies distribute bottled water in an eco-friendly way.	0.845

Gpla2	The companies are keen to collaborate with eco-friendly agents.	0.925
Environmental sustainability (EnvS)	*CR= 0.799, AVE= 0.714, α = 0.801, VIF= 1.743*	
EnvS1	Companies have environmental management policies.	0.853
EnvS2	Companies have the means to collect used plastic bottles.	0.878
EnvS3	The companies dedicate a special day to environmental sustainability.	0.802

CR: composite reliability; AVE: average variance extracted; α: Cronbach's alpha; VIF: Variance Inflation Factor; λ: factor loading.

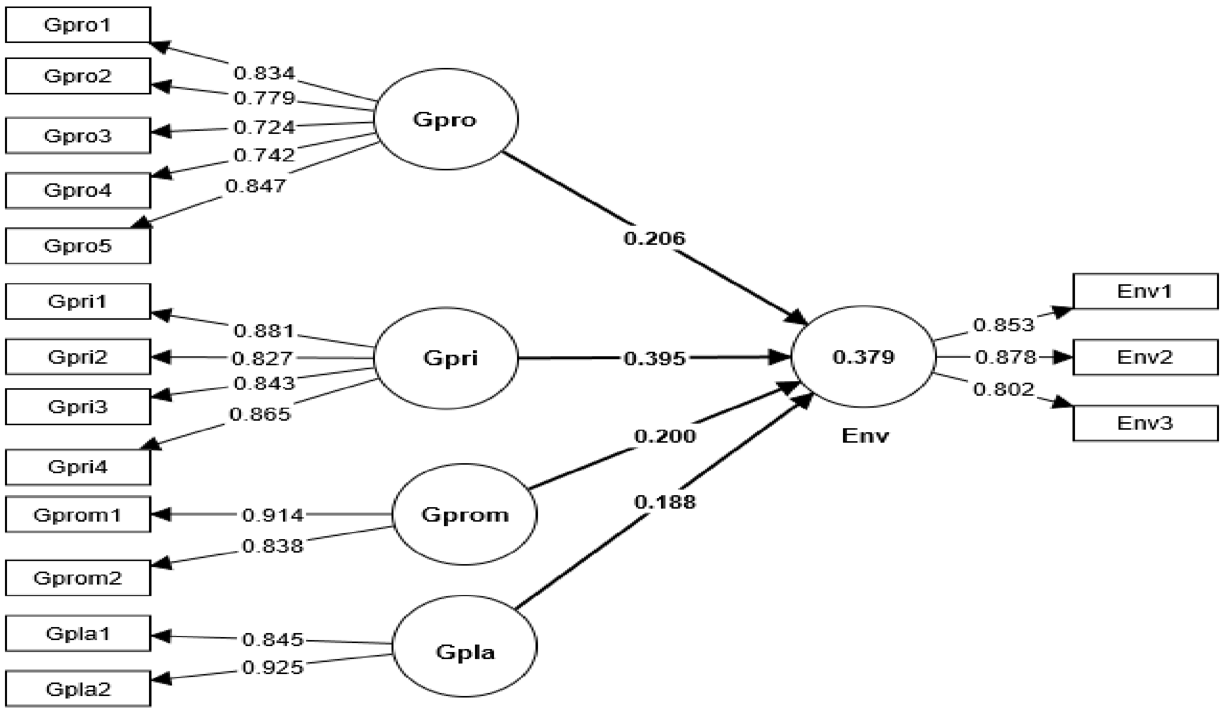

Figure 1: Path coefficients and factor loading.

4.2.3 Discriminant validity

Discriminant validity checks construct substantial links to ensure that hypothesized relationships are not supported. As shown in Table 5, the square root of average variance (highlighted in bold font) is greater than correlation scores, indicating the "discriminant validity" premise was met.

Table 5: correlation matrix.

Construct	CR	AVE	Gpro	Gpri	Gprom	Gpla	EnvS
Gpro	0.892	0.619	**0.574**				
Gpri	0.902	0.730	0.266	**0.730**			
Gprom	0.795	0.768	-0.364	0.28	**0.574**		
Gpla	0.802	0.784	0.497	0.19	-0.231	**0.818**	
EnvS	0.799	0.714	0.332	0.496	0.234	.375	**0.684**

4.3 Assessment of model

At this stage, multicollinearity, size of the path coefficient, the predictive capacity (R^2), blindfolding (Q2), and the effect size (f^2) were assessed. Fox and Monette (1992) suggested that collinearity occurs when highly connected variables, making coefficient estimation inaccurate. Benitez et al. (2020) asserted that the data has no collinearity issues if the VIF is below three. In this research, all VIF scores were below 3.0, which means that the constructs used in this analysis did not have a problem with collinearity (see table 6). As a general rule, the closer a path coefficient is to 0, the less predictive power it has over its dependent construct, and the closer it is to 1, the more predictive power it has over its dependent construct. Hence, the path coefficient values of all construct variables are positive and significant at P values less than 0.05 (see table 8).

The predictive capacity (R^2) value is the quantity of variance in the endogenous variable that can be explained by the exogenous variables. As a general rule, Cohn (1988) said that the coefficient of determination values for dependent variables should be between 0.26 and 0.02. The value of R^2 in Table 5 for all endogenous is over 0.26, indicating that green products, prices, promotions, and places substantially explain 37.9 percent of the environmental sustainability.

The result in Table 5 reveals that the effect size (f^2) ranged from 0.044 to 0.055 (green place, green promotion, and green product), which is a small effect size. However, the green price has a medium effect size of 0.212. The third structural model assessment is model predictive accuracy (Q^2), also known as blindfolding (Geisser 1974). The PLS-SEM model's ability to predict outcomes is deemed medium when Q^2 is greater than 0.25 and substantial when Q^2 is greater than 0.50. Hence, the value of Q^2 is above 0.25, and the predictive relevance of the model is moderate (see table 6).

Table 6: The Summary of the Structural Model Assessment

Predictors	Outcome	VIF	R^2	F^2	Q^2
Gpro	EnvS	1.299	0.379	0.049	0.341
Gpri		1.189		0.212	
Gpla		1.397		0.044	
Gprom		1.176		0.055	

R^2:coefficient determination; F^2: effect size; Q^2: model predictive accuracy or blindfolding.

4.4 Model fit.

Confirmatory factor analysis determined whether the model matched the data. Thus, the standardised root mean square residual, degree of unweighted least squares, modified goodness-of-fit index, and Normed fit index were investigated. Hair et al. (2020) recommended that SRMR and d_ULS values less than 0.08 are acceptable. Thus, the model has a good fit, as SRMR and d_ULS values are less than 0.08. The d_G value between 0 and 1 are acceptable, with larger values implying a better fit (Hair et al. 2017). Therefore, the d_G values is also within an acceptable range. The NFI value of 0.7 confirms a moderately good fit for the estimated model. This index has values between 0 and 1, with values nearer to 1 showing an excellent fit. Therefore, it's possible to claim that the sample data collected fit the measurement model(see Table 7).

Table 7: Model fit.

Fit indices	Suggested threshold	Structural Equation Model Values	Remark
SRMR	<=0.08	0.075	Good fit.
d_ULS	<=0.08	0.774	Good fit.
d_G	0 -1	0.384	Good fit.
NFI	>=0.90	0.700	moderate fit.

SRMR: standardised root mean square residual; d_ULS: degree of unweighted least squares; d_G: goodness-of-fit index; NFI: Normed fit index.

4.5 Structural equation modeling

This section addresses the research hypotheses and discusses the conclusions of the tested hypotheses. The path coefficients were evaluated using the non-parametric partial least-squares bootstrapping techniques of structural equation modeling. Figure 2 displays the estimated path coefficients, t-value, and p-values for the model, as determined by a path analysis technique for structural equation modeling (SEM). Hair et al. (2020) stated that the values of t-statistics above or equivalent to 1.99 are adequate. As shown in Figure 3, the t-values are above the recommended threshold.

Hypothesis one evaluates whether green

products have a substantial influence on environmental sustainability. The finding showed that products have a substantial influence on environmental sustainability, with a betta value of 0.206, t-test value of 3.693 and P-value of less than 0.05. Consequently, the alternative hypothesis that green products have a substantial influence on environmental sustainability is accepted. The structural path and the p-value indicated that green products have significant impact on environmental sustainability in the study area. Although green products are widely regarded as an important component to environmental advancement, Previous research demonstrates that green products act as mediators after the introduction of environmental rules and regulations (Chan et al., 2016). Moreover, Vachon & Klassen, (2008) found that green products are predictors of performance. However, this study vividly reveals that the attribute of green products directly impacts environmental sustainability.

Hypothesis two measures whether green prices have a substantial impact on environmental sustainability. The findings revealed that green prices have a substantial impact on environmental sustainability ($B = 0.395$, $T = 6.278$, $P<0.05$). Therefore, the findings support the alternative hypothesis that green prices have a substantial impact on environmental sustainability. The value of the betta coefficient (0.395) and the p-value less than 0.01 indicated that green pricing significantly impacts environmental sustainability in the study area. This study supports the findings of Gupta et al. (2016); Sana (2020), who revealed that eco-friendly products are often reasonably priced and have a low impact on environmental degradation. In other words, green prices help to protect the environment by encouraging the reusability and recyclability of plastic bottles, which have lower environmental degradation and reduce carbon emissions.

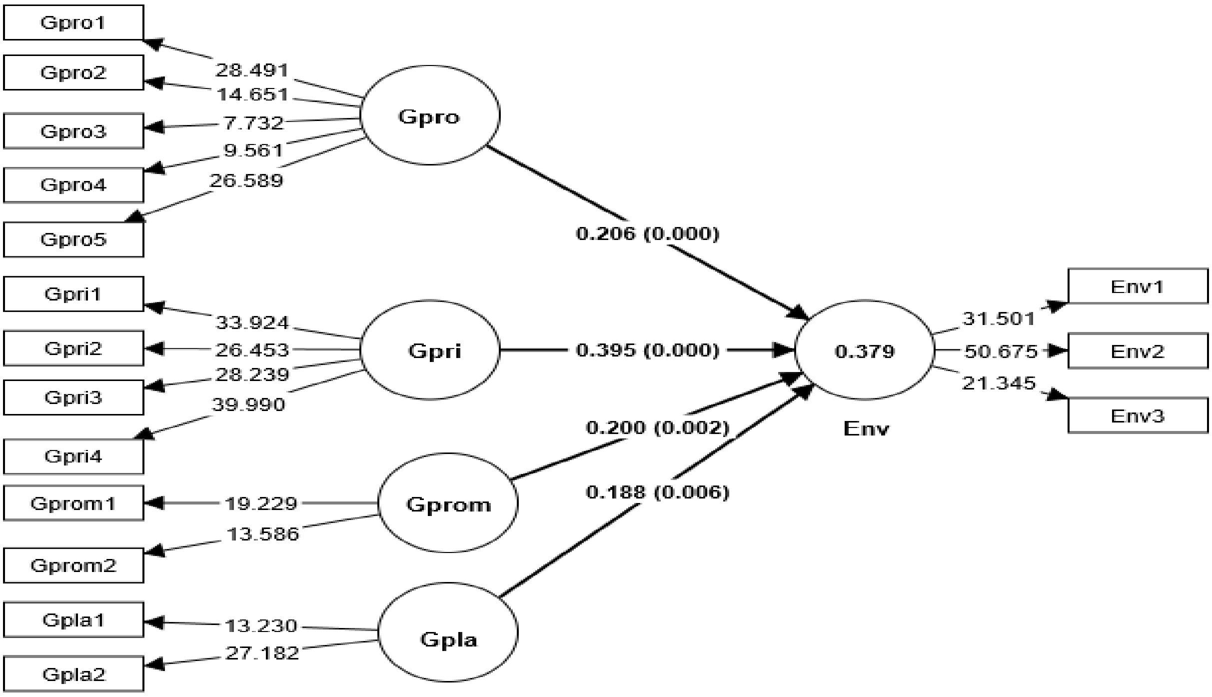

Figure 2:- Structural model estimation displaying the level of significance (P and T-values)

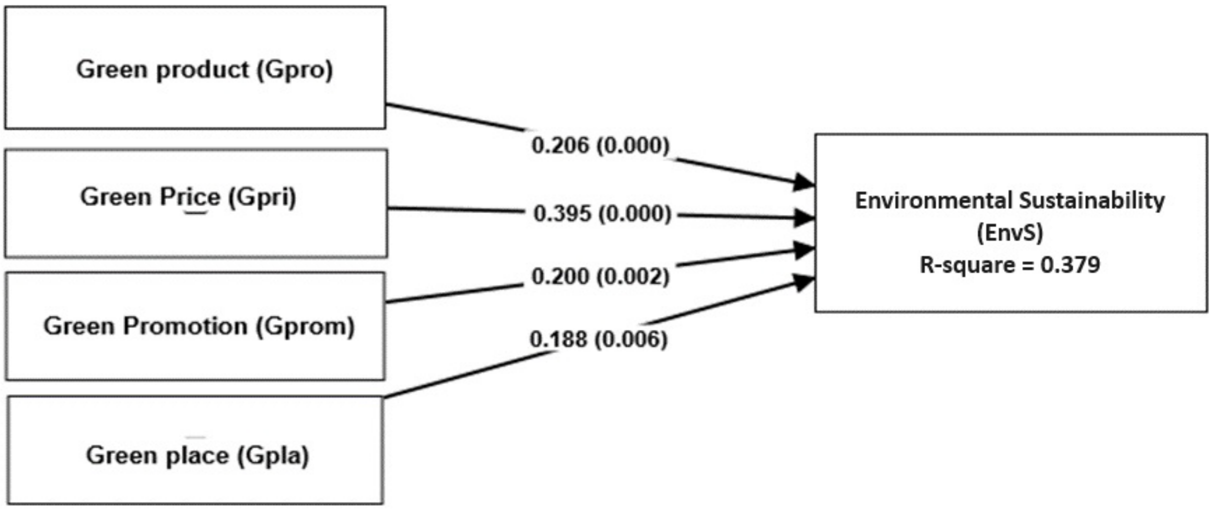

Figure 3: The estimation of conceptual research models.

Hypothesis three assesses whether green places or green channels of distribution significantly and positively affect environmental sustainability. The results disclosed that green placing positively impacts environmental sustainability (B=0.188, T=2.752, P<0.05). Consequently, the data set accepted the alternative hypothesis that green places have a substantial impact on environmental sustainability and rejected the null hypothesis. Moreover, the structural path (0.188) and the p-value less than 0.01 indicated that green placing has a significant impact on environmental sustainability of the study area. This implies that firms must make certain that green products are distributed safely and in an eco-friendly way. This research supports the findings of Eltayeb & Zailani, (2014) who found that green distribution can play crucial role in achieving the triple bottom-line of environmental, social, and economic benefits.

Hypothesis four evaluates whether green promotion substantially influences environmental sustainability. The findings indicated that green promotion positively impacts environmental sustainability (B= 0.20, T= 3.168, P<0.05). Thus, the study concluded that the data set supported the alternative hypothesis that green promotion has a substantial impact on environmental sustainability, and the null hypothesis was rejected. The structural path of 0.200 and a p-value less than 0.01 indicated that green promotion positively and significantly impacts environmental sustainability in the study area. This implies that companies' use of eco-friendly content in the promotion and encouraging customers to make more eco-friendly choices are metrics for measuring green promotion. This research supports the findings of Wahyuningtiyas & Novianto, (2023) who revealed that green promotion directly affect environmental sustainability.

Overall, the findings demonstrated a positive and substantial correlation between green marketing and environmental sustainability, with a 95% confidence level, a t-statistic greater than 1.96, and a value of p less than 0.05. Accordingly, all the alternative hypotheses are accepted, and the null hypothesis is rejected (see table 8).

Table 8: Hypothesis testing and model path summary.

Structural relation	Hypothesis(H)	B	SE	T-Values	P-values	Remark
Gpro -> EnvP	H1	0.206	0.068	3.693	0.000	Accepted
Gpri -> EnvP	H2	0.395	0.063	6.278	0.000	Accepted
Gpla -> EnvP	H3	0.188	0.056	2.752	0.006	Accepted
Gprom -> EnvP	H4	0.200	0.063	3.168	0.002	Accepted

B = "Path coefficient," SE = "standard error."

Consequently, the subsequent model has employed to illustrate the number of predictions for the predicting factor:

$$EnvS= a_o+ B1(Gpro)+ B2(Gpri)+ B3(Gpla)+ B4 (Gprom)+ \varepsilon….(4)$$

Where: EnvP is "environmental sustainability," a_o is "intercept term," and "B_1, B_2, B_3, and

B_4 are the beta coefficients of independent variables. Consequently, the researchers derived β-values as follows:

EnvS= ao+ 0.206 (Gpro)+ 0.395 (Gpri)+ 0.188 (Gpla)+ 0.200 (Gprom)+ Ɛ….(5)

In this equation assuming all other independent variables are constant, a one-percent increment in the green product will result in a 0.206 percent improvement in environmental sustainability; a one-percent increment in the green price will lead to an upsurge in the environmental sustainability of the study area by 0.395 percent; a unit increase in the green place or channel of distribution will result to an increase in the environmental sustainability of the study area by 0.188 percent; and a percent increase in a promotion can result to an improvement in the environmental sustainability of the study area by 0.200 units.

5 CONCLUSIONS AND RECOMENDATIONS

The aim of this research is to find out the impact environmental marketing on environmental sustainability. The study examined the effect of green marketing on environmental sustainability using four environmental marketing elements. The relationship between green prices and environmental sustainability in the study area was strong, but product, promotion, and place had a moderate effect on environmental sustainability. Also, the coefficient path results showed that green price was the most significant variable, followed by product, promotion, and place. In general, the study shows that environmental marketing could explain 37.9% of environmental sustainability. This proved that environmental marketing has a substantial effect on environmental sustainability. Hence, the following suggestions are expected to significantly influence enhancing environmental sustainability.

Primarily, green products offer numerous benefits, such as minimizing environmental impact, improving air and water quality, conserving natural resources, supporting local economies, healthier living, longer product life cycles, and a positive brand image. According to ISO and other international agreements, the company is responsible for ensuring that its product packaging does not contaminate the environment. However, firms are concerned with production and pay no attention to reusing and recycling plastic bottles for themselves or their suppliers. Moreover, the companies do not have a formal policy document on how to dispose of used plastic bottles, which leads to environmental degradation. Therefore, the government should pay attention and establish a policy regarding how companies can collect, recycle, and reuse plastic bottles without causing environmental damage.

Secondly, green pricing allows consumers to support environmental degradation and help create a cleaner, more sustainable environment. By paying for green products, consumers can help reduce environmental damage, support the growth of green product sources, and contribute to the fight against climate change. Hence, firms should apply a different pricing strategy and offer reasonably priced green products that have a minimal impact on environmental deterioration by considering the product life cycle costs.

Thirdly, green distribution channels often require less energy and resources, which can result in cost savings for the company. Many countries have regulations that encourage or require companies to adopt environmentally friendly practices. Using a green distribution channel can help companies comply with these regulations and avoid potential penalties. Moreover, companies that adopt green distribution channels are perceived as environmentally responsible and conscious.

Finally, green promotion can help reduce the adverse environmental impact that business practices may cause. By promoting environmentally responsible products, companies can help encourage sustainable consumption patterns, ultimately leading to a more sustainable future. Many consumers today are becoming more ecologically mindful and more willing to encourage companies to prioritize sustainability. Using green promotion, companies can build a positive reputation with their customers, increasing customer loyalty and brand recognition.

.

Acknowledgements: We express our utmost gratitude to the almighty God for endowing us with the courage and strength to successfully complete this research work. Madda Walabu University supported this research through grant number RMU 14/94/1146. The writers would like to express their sincere gratitude to Madda Walabu University and the numerous individuals who assisted in its completion. We would like to extend our sincere appreciation to the study contributors for their invaluable contributions, which included sharing vital information about the investigated topic and demonstrating enthusiasm and excitement.

REFERENCES

ALABI, O. A.– OLOGBONJAYE, K. I.–AWOSOLU, O.– ALADE, O. E. (2019): Public and environmental health effects of plastic waste disposal: A review. Journal of toxicology and risk assessment, 5 (021), 1–13. https://doi.org/10.23937/2572-4061.1510021.

ASCHEMANN-WITZEL. J.–ZIELKE. S. (2017): Cannot buy me green? A review of consumer perceptions and behavior toward the price of organic food. Journal of consumer affairs, 51(1), 211–251. https://doi.org/10.1111/joca.12092.

ASTUTI, R.–DEORANTO, P.–WICAKSONO, M. L. A.–NAZZAL, A. (2021): Green marketing mix: An example of its influences on purchasing decision. Earth and environmental science, 733(1), 012064. https://doi.org/10.1088/1755-1315/733/1/012064.

BENITEZ, J. F.–HENSELER, J.–CASTILLO, A.–SCHUBERTH, F. (2020): How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory is research. information & management, 57(2), 103168. https://doi.org/10.1016/j.im.2019.05.003.

BOZTEPE, A. (2016): Green marketing and its impact on consumer buying behavior. European journal of economic and political studies, 5(1), 5–21. http://www.ejeps.com/index.php/ejeps/article/download/83/83.

CHAN, H. K.–YEE, R. W. Y.– DAI, J.– LIM, M. K. (2016): The moderating effect of environmental dynamism on green product innovation and performance. International journal of production economics, 181, 384–391. https://doi.org/10.1016/j.ijpe.2015.12.006.

CHEN, Y.–AWASTHI, A. K.–WEI, F.–TAN, Q.– LI, J. (2021): Single-use plastics: Production, usage, disposal, and adverse impacts. Science of the total environment, 752, 141772. https://doi.org/10.1016/j.scitotenv.2020.141772.

CHITRA, K. (2007): In search of the green consumers: A perceptual study. Journal of services research, 7(1).

COHEN, J. (1988): Statistical power analysis for the behavioral sciences (2nd ed.). Routledge

DANGELICO, R. M. (2016): Green product innovation: Where we are and where we are going. Business strategy and the environment, 25(8), 560–576. https://doi.org/10.1002/bse.1886.

DANGELICO, R. M.– VOCALELLI, D. (2017): "Green marketing": An analysis of definitions, strategy steps, and tools through a systematic review of the literature. Journal of cleaner production, 165, 1263–1279. https://doi.org/10.1016/j.jclepro.2017.07.184.

DAVARI, A.–STRUTTON, D. (2014): Marketing mix strategies for closing the gap between green consumers' pro-environmental beliefs and behaviors. Journal of strategic marketing, 22(7), 563–586. https://doi.org/10.1080/0965254x.2014.914059.

Eltayeb, T., & Zailani, S. (2014). Going Green through Green Supply Chain Initiatives Toward Environmental Sustainability. Operations and Supply Chain Management: An International Journal, 2(2), 93–110. https://doi.org/10.31387/oscm040019

FAROOQ, M.–CHENG, J.–KHAN, N. U.–SAUFI, R. A.–KANWAL, N.– BAZKIAEI, H. A. (2022): Sustainable waste management companies with innovative smart solutions: A systematic review and conceptual model. Sustainability (Switzerland), 14(20). https://doi.org/10.3390/su142013146.

FOX, J.–MONETTE, G. (1992): Generalized collinearity diagnostics. Journal of the American statistical association, 87(417), 178–183. https://doi.org/10.1080/01621459.1992.10475190.

GARCÍA-SALIRROSAS, E. E.–RONDON-EUSEBIO, R. F. (2022): Green marketing practices related to key variables of consumer purchasing behavior. Sustainability (SWITZERLAND), 14(14). https://doi.org/10.3390/su14148499.

GEISSER, S. (1974): A predictive approach to the random effect model. Biometrika, 61(1), 101–107. https://doi.org/10.1093/biomet/61.1.101.

GHOSHAL, M. (2011): Green Marketing-A changing concept in changing time. BVIMR Management Edge, 4(1), 82–92.

GOLDSMITH, K.–NEWMAN, G. E.–DHAR, R. (2016): Mental representation changes the evaluation of green product benefits. Nature Climate Change, 6(9), 847–850. https://doi.org/10.1038/nclimate3019.

GOVENDER, J. P.– GOVENDER, T. L. (2016): The influence of green marketing on consumer purchase behavior. Environmental Economics, 7, Iss. 2, 77–85. https://doi.org/10.21511/ee.07(2).2016.8.

GUPTA, D. K.–BHATIA, A.–KUMAR, A.–DAS, T. K.–JAIN, N.–TOMER, R.–MALYAN, S. K.–FAGODIYA, R. K.–DUBEY, R.– PATHAK, H. (2016): Mitigation of greenhouse gas emission from rice–wheat system of the Indo-Gangetic plains: Through tillage, irrigation, and fertilizer management. Agriculture, Ecosystems & Environment, 230, 1–9. https://doi.org/10.1016/j.agee.2016.05.023.

HAIR, J. F.–HOWARD, M. A.–NITZL, C. (2020): Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. Journal of Business Research, 109, 101–110. https://doi.org/10.1016/j.jbusres.2019.11.069.

HAIR, J. F. –JR – SARSTEDT, M.– RINGLE, C. M.–GUDERGAN, S. P. (2017): Advanced Issues in Partial Least Squares Structural Equation Modeling. SAGE Publications.

HUSSEIN, B. A.–TSEGAYE, A. A.–ABDULAHI, A., (2020): Assessment of the environmental and health impacts of disposal of plastics in Gode town, Somali regional state, Eastern Ethiopia, master's thesis.

Jamal, F. N., Othman, N. A., Nizam, N. Z., Jelita, A., Rohmah, W., & Dzakiyullah, N. R. (2022). Green Marketing: Reviewing Aspect of Communication Tools. International Journal of Sustainable Development and Planning, 17(4), 1085–1092. https://doi.org/10.18280/ijsdp.170405

KAISER, H. F.– RICE, J. P. (1974): Little Jiffy, Mark Iv. Educational and psychological Measurement, 34(1), 111–117. https://doi.org/10.1177/001316447403400115.

KOTHARI, C.R. (2004): Sample size determination. Research methodology. New age International publications, VOL. 1, 74-81.

KUMAR, A.–AGRAWAL, A. (2020): Recent trends in solid waste management status, challenges, and potential for the future Indian cities – A review. Current research in environmental sustainability, 2, 100011. https://doi.org/10.1016/j.crsust.2020.100011.

LEGESSE, A.–DIRIBA, M. (2011): Survey on the usage of plastic bags, their disposal, and adverse impacts on the environment: A case study in Jimma City, Southwestern Ethiopia. Journal of Toxicology and Environmental Health Sciences, 3(8), 234–248. https://doi.org/10.5897/jtehs.9000067.

LIAO, Y.K.–WU, W.Y.–PHAM, T.T. (2020): Examining the moderating effects of green marketing and green psychological benefits on customers' green attitude, value, and purchase intention. Sustainability, 12(18), 7461. https://doi.org/10.3390/su12187461.

LIMAHO, H.–SUGIARTO, PRAMONO, R.–CHRISTIAWAN, R. (2022): The Need for Global Green Marketing for the Palm Oil Industry in Indonesia. Sustainability (Switzerland), 14(14). https://doi.org/10.3390/su14148621.

MELOVIĆ, B.–CIROVIĆ, D.–BACKOVIC-VULIĆ, T.–DUDIĆ, B.–GUBINIOVA, K. (2020): Attracting green consumers as a basis for creating sustainable marketing strategy on the organic market—Relevance for sustainable agriculture business development. Foods, 9(11), 1552. https://doi.org/10.3390/foods9111552.

MISHRA, P.–SHARMA, P. (2014): Green marketing: Challenges and opportunities for business. BVIMR Management Edge, 7(1).

NOLEGA, K.–OLOKO, M.–WILLIAM, S.–OTEKI, E. B. (2015): Effects of Product Differentiation Strategies on Firm Product Performance: A Case of Kenya Seed Company (KSC), Kitale. International Journal of Novel Research in Marketing Management and Economics, 2(3), 100–110.

ORSET, C.– BARRET, N.– LEMAIRE, A. (2017): How are consumers of plastic water bottles responding to environmental policies? Waste Management, 61, 13–27. https://doi.org/10.1016/j.wasman.2016.12.034.

POLONSKY, M. J. (1994): Introduction to Green Marketing. Electronic Green Journal, 1(2). https://doi.org/10.5070/G31210177.

ROMÁN AUGUSTO, J. A.–GARRIDO LECCA VERA, C.– LODEIROS-ZUBIRIA, M. L.– MAURICIO-ANDIA, M. (2022): Green Marketing: Drivers in the process of buying green products—The role of green satisfaction, green trust, green WOM and green perceived alue. Sustainability (Switzerland), 14(17). https://doi.org/10.3390/su141710580.

SALEEM, F.–KHATTAK, A.–UR REHMAN, S.–ASHIQ, M. (2021): Bibliometric Analysis of Green Marketing Research from 1977 to 2020. Publications, 9(1), 1. https://doi.org/10.3390/publications9010001.

SANA, S. S. (2020): Price competition between green and nongreen products under corporate social responsibility firm. Journal of Retailing and Consumer Services, 55, 102118.

STRALIA, E.–ZAROTIADIS, G. (2019): A comprehensive review for green product term: From definition to evaluation. Journal of Economic Surveys, 33(1), 150–178.

https://doi.org/10.1111/joes.12268

Shrikanth, R.–Raju, D. S. N. (2012): Contemporary green marketing–a brief reference to the Indian scenario. International Journal of Social Sciences & Interdisciplinary Research, 1(1), 26–39.

Shukla, P.–Paul, D.–Malik, S.–Mishra, D. K. (2020): The role of green marketing in energy conservation in the domestic sector. International Journal of Energy Economics and Policy, 11(1), 263–269. https://doi.org/10.32479/ijeep.10567.

Sinambela, E. A.–Azizah, E. I.– Putra, A. R. (2022): The Effect of Green Product, Green Price, and Distribution Channel on The Intention to Repurchasing Simple Face Wash. Journal of Business and Economics Research (JBE), 3(2), 156–162.

Singh, P. B.–Pandey, K. K. (2012): Green marketing: Policies and practices for sustainable development. Integral Review, 5(1), 22–30.

Swami, S.–Shah, J. (2013): Channel coordination in green supply chain management. Journal of the Operational Research Society, 64(3), 336–351. https://doi.org/10.1057/jors.2012.44

Syaekhoni, M. A.–Alfian, G.–Kwon, Y. S. (2017): Customer purchasing behavior analysis as an alternative for supporting in-store green marketing decision-making. Sustainability, 9(11), 2008. https://doi.org/10.3390/su9112008.

Vachon, S.–Klassen, R. D. (2008): Environmental management and manufacturing performance: The role of collaboration in the supply chain. International Journal of Production Economics, 111(2), 299–315. https://doi.org/10.1016/j.ijpe.2006.11.030.

Van Dam, Y. K.–Apeldoorn, P. A. (1996): Sustainable marketing. Journal of Micromarketing, 16(2), 45–56. https://doi.org/10.1177/027614679601600204.

Yang, S.–Chai, J. (2022): The Influence of Enterprises' Green marketing behavior on consumers' green consumption intention—mediating role and moderating Role. Sustainability (Switzerland), 14(22). https://doi.org/10.3390/su142215478

Wahyuningtiyas, N., & Novianto, A. S. (2023). The The Impact of Green Price, Green Promotion, and Green Place on the Economy of Communities in Tourism Areas through Environmental Sustainability Entering the New Normal. Quantitative Economics and Management Studies, 4(1), 128–138.