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Smoothing Spline Nonparametric Path: Application for Green Product and Green Marketing Strategy towards Green Product Purchasing Intention

Adji Achmad Rinaldo Fernandes^{1,4}, Darmanto^{1,4}, Ani Budi Astuti^{1,4}, Solimun^{1,4}, Luthfatul Amaliana^{1,4}, Nurjannah^{1,4}, Indah Yanti^{2,4}, Endang Arisoesilaningih³, Riyanti Isaskar⁴

¹Statistics Department, Faculty of Mathematics and Natural Sciences, University of Brawijaya

²Mathematics Department, Faculty of Mathematics and Natural Sciences, University of Brawijaya

³Biology Department, Faculty of Mathematics and Natural Sciences, University of Brawijaya

³Social Economic Department, Faculty of Agriculture, University of Brawijaya

⁴Kelompok Kajian Pemodelan Statistika Aplikasi di Bidang Manajemen, Faculty of Mathematics and Natural Sciences, University of Brawijaya

*Corresponding author: fernandes@ub.ac.id

Abstract. Objective of the study is to analyze how much influence Green Product has towards Green Marketing Strategy and influence of Green Product & Green Marketing Strategy towards Purchasing Intention of The Body Shop in Malang. The analysis method was smoothing spline non-parametric path analysis. Path analysis is one of the multivariate techniques observing cause and effect correlation between exogenous and endogenous variables in order to find the most efficient path. However, when linearity assumption has not been identified yet or regression curve is unknown, the model cannot accommodate an unidentified regression function. Therefore, non-parametric path analysis is developed since the analysis is derived from the non-parametric regression analysis. Based on the findings, it can be concluded that (1) Green Product (X1) has influence towards purchasing decision (Y), (2) Green Product and Green Marketing Strategy has influence towards purchasing decision and (3) Green Marketing Strategy (X2) has influence towards purchasing decision (Y).

Keywords: Smoothing Spline; Nonparametric Path; Green Product; Green Management

1. Introduction

Regression analysis is associated to analysis on correlation between variables in order to make estimation or prediction [1]. Regression analysis is one of the statistical methods used to describe influence between endogenous and exogenous variable [2]. Regression analysis is used to describe functional correlation between one endogenous variable and several exogenous variables in one regression model. This study described correlation between two endogenous variables that have cause-effect correlation and as the result, path analysis is required.



Path analysis takes into account existence of intervening variable, namely variable affecting correlation between exogenous and endogenous variables turning this correlation into indirect correlation that cannot be observed or measured. This intervening variable is link between exogenous and endogen variables and as the effect, the exogenous variable cannot influence change in or existence of endogenous variable directly.

Derived from regression analysis, path analysis has more than one equation in which the equation consists of at least one endogenous variable, one exogenous variable and one intervening variable. Solimun [1] stated that the major assumption in path analysis is that correlation between variables is linear or called linearity assumption.

One of the methods used in an analysis involving linearity assumption is Regression Specification Error Test (RESET). When the linearity assumption cannot be accepted or non-linear form is unidentified, one of the alternatives is non-parametric regression model. Nonparametric regression-based path analysis is path or regression approach that matches pattern of correlation between exogenous and endogenous variables when the correlation has not been identified yet or there is very limited information about the correlation [4]. In non-parametric regression path, correlation model is determined based on pattern of available data. The unidentified correlation between endogenous and exogenous variable can be estimated using spline approach [5]. Spline approach is suitable for non-parametric regression because it has high flexibility and has ability to take care of pattern of data which changes at certain interval. Types of approach used in spline estimation are truncated spline and smoothing spline method. Smoothing spline approach discusses the whole part of regression path while truncated spline emphasis on sub-part of the regression path. Basis of the truncated spline is knot and therefore, researcher does not have to find smoothing parameter; however, researcher should find numerous matching knots. Thus, in this study, the researchers applied smoothing spline non-parametric regression that has high flexibility for types of data that do not have any boundary in each region. However, the researchers should find an optimum smoothing parameter to use for the model.

Previous related study conducted by Fernandes [6] discussed implementation of Non-parametric Path Analysis with truncated spline approach for linear and quadratic order. This study, on the other hand, applied the smoothing spline approach. In general, the smoothing spline approach used Penalized Least Square (PLS). However, due to autocorrelation, PLS cannot be implemented. Penalized Weighted Least Square (PWLS) is selected to accommodate the autocorrelation. Non-parametric regression with PWLS yang approach is developed based on Ordinary Least Square (OLS) with 1) Penalty, which controls smoothing parameter in the smoothing spline. 2) Weighting, which is used for accommodating correlation between responses [6].

Growth of technology forces business entity to improve their creativity and innovation and use these two as solutions to grow their business. Business is getting more competitive due to rapid growth of technology. Technology boosts online sales through social media. To survive the fierce competition, business entity provides excellent service in order to improve green strategy management. Customers assumed that offline shopping is safer than online shopping. Therefore, it is important to develop trust and maintain internet security for online transaction as these two aspects help increasing sales. Trust affects Purchasing Intention and results in satisfaction. Purchasing Intention is the major element in developing and managing satisfied-customer bases.

The global era has resulted in a change of lifestyle to the modernization and massive utilization of advanced technology. Practical and instant ways are rather preferred by the community in any aspect [7]. One issue that remains the talk among the community is global warming issue. It is considered necessary to conduct environmental identification to determine the biggest contributor of the environment and to design preventive actions and environmental protection through the implementation of the green concept. Green consumerism is a follow up program of global consumerism action which was initiated from consumers' awareness of their rights to receive decent and safe products. This awareness can be formed by behaviors that regard the responsibility toward the environment and respect to other beings in this earth. This awareness also relates with the quality and the protection over natural resources that will guarantee the balance and the sustainability of the environment.

In the field of business, companies expect to make profit from their business activities. However, the profit should not overcome the limit and should not violate the regulations that apply. In addition, business activities should regard the sustainability of the environment by not excessively exploring the natural resources that neglects the efficiency and by not triggering noise pollution, water pollution and air pollution. Therefore, a set of ethics should be respected in running various business activities.

To conform with business ethics, ones need to have broad social knowledge and awareness that an organization is required to analyze the market expectation and interests in order to provide consumers with satisfaction in the most effective and efficient ways compared to the competitors while at the same time also maintain and improve the community welfare [8].

Go Green action is an attempt to use degradable materials for product packaging. There are mainly four principles of Go Green action which are Reduce, Reuse, Recycle and Replace [9]. One of producers that apply those principles is The Body Shop. The Body Shop is a brand of body care and beauty products such as toiletries, face products, skin care and hair care. Objective of the study is to analyze how much influence Green Product (X) has relationship Green Marketing Strategy (Y1) and influence of Green Product (X) & Green Marketing Strategy (Y1) towards Purchasing Intention (Y2) of The Body Shop in Malang.

2. Literature Review

2.1. Green Product

Green product refers to any eco-friendly products which production process does not excessively exploit the natural resources and which products can be recycled. Green products save more energy, preserve and improve the quality of natural resources as they use less toxic substances, create less pollution and produce less waste [10]. Ottman [11] stated that green products are usually long lasting, are not dangerous for health and are packaged with recycled materials. Hence, green products are safe for consumers and they do not pollute the environment.

2.2. Green Marketing

Kotler & Keller [8] defined marketing as an organizational function and a set of process to create, communicate and disseminate certain values for the consumers and improvement of relationship with the consumers which generate benefits or profits for the organization and the stakeholders. Tjiptono [12] defined marketing as a function that has the closest contact with the external environment, in which a company often has limited and weak control upon this external environment. Based on the above definition, it can be concluded that marketing refers to any activities to market certain product as a part of business activity to fulfill the market demand by offering certain product or service, determining proper pricing, distributing and promoting the products and service which satisfy the consumer and fulfill consumers' expectations.

Kotler & Keller [8] defined marketing management as the art and knowledge to determine the target market and obtain, maintain and attract more consumers by creating, offering and communicating excellent product values. Marketing management also refers to any activities to analyze, plan, coordinate, and control any other relevant activities related to product development and product release, communication, promotion, product distribution, pricing and transaction in order to satisfy the consumers and to achieve the long-term goals of the company [13]. Referring to those definitions, it can be concluded that marketing management is the art and knowledge of product development, release, distribution, promotion and pricing to fulfill consumers' expectations and to achieve the corporate goals.

American Marketing Association in [11] defined green marketing as the marketing of eco-friendly products. Green marketing integrates broad activities including various modifications in the product, production process, packaging and promotion. Green marketing show the consistence of all activities to design services and facilities that fulfill consumers' needs and expectation without damaging the environment [11]. It can be inferred from the definition that green marketing refers to marketing

activities that consistently provide services and facilities to satisfy and fulfill the needs and expectations of consumers without damaging the environment.

2.3. Purchase Decision

Kotler & Keller [8] defined purchase decisions as the identification of all possible choices to solve the certain problem by systematically and objectively assessing the choices to determine the advantages and disadvantages of each option. Nugroho [14] stated that consumer purchase decision is a process of integration that employs various knowledge to evaluate two or more alternative behaviors in order to choose the most appropriate one. Hence, it can be concluded that purchase decision is the seeking of information, identifying products and deciding to buy regarding to the after-sales risks.

2.4. Previous Research

Haryadi [15] conducted a research entitled The Effect of Green Marketing Strategies on Consumer Choice Through a Marketing Mix Approach which aimed to determine the factors influencing respondents' process of making choices on The Body Shop products in relation to the use of the Green Marketing strategy. This research also analyzed respondents' behaviors in choosing The Body Shop products within the scope of green marketing strategies and formulated green marketing strategies for The Body Shop for cosmetic products. This research employed a Multivariate research method using Logistic Regression. Previous research shared some similarities with this research including the use of the green marketing strategy variable and the object of the research; The Body Shop. This research had several differences in the green product variables, the location of this study at The Body Shop Manado Town Square and the use of both quantitative and qualitative data and the use of Multiple Linear Regression analysis.

Balawera [16] conducted a research entitled Green Marketing and Corporate Social Responsibility Influence on Consumer Purchase Decisions through Interest in Buying Organic Products in Manado City Fresmart. The research investigated how Green Marketing and Corporate Social Responsibility influenced consumers' purchase interest and purchase decision in buying organic products. Balawera's research shares several similarities with this research in the use of Green Marketing variable and the use of quantitative and qualitative methods. Yet, this research is different in terms of the green product variable and data analysis in which previous researchers employed path analysis for data analysis, while in this research, research data were analyzed using Multiple Linear Regression.

3. Methodology

The data used in the study were primary data obtained from questionnaire distributed to The Body Shop Malang customers. The samples were 100 customers visiting The Body Shop Malang between July and August, 2018. The analysis method was smoothing spline non-parametric path analysis. Path analysis is one of the multivariate techniques observing cause and effect correlation between exogenous and endogenous variables in order to find the most efficient path. However, when linearity assumption has not been identified yet or regression curve is unknown, the model cannot accommodate an unidentified regression function. Therefore, non-parametric path analysis is developed since the analysis is derived from the non-parametric regression analysis.

Nonparametric regression-based path analysis model is basically the development of non-parametric regression analysis. Simple parametric path analysis-based nonparametric path analysis function can be formulated as follows:

$$\begin{aligned} y_{1i} &= f_{1.1}(x_{1i}) + \varepsilon_{1i}; \\ y_{2i} &= f_{1.2}(x_{1i}) + f_{2.2}(y_{1i}) + \varepsilon_{2i}; \quad i = 1, 2, \dots, n \end{aligned} \quad (2.1)$$

Equations (2.1) can be stated into the following matrix in Equation (2.2):

$$\begin{bmatrix} y_{11} \\ y_{12} \\ \vdots \\ y_{1n} \\ y_{21} \\ y_{22} \\ \vdots \\ y_{2n} \end{bmatrix} = \begin{bmatrix} f_{1.1}(x_{11}) \\ f_{1.1}(x_{12}) \\ \vdots \\ f_{1.1}(x_{1n}) \\ f_{1.2}(x_{11}) + f_{2.2}(y_{11}) \\ f_{1.2}(x_{12}) + f_{2.2}(y_{12}) \\ \vdots \\ f_{1.2}(x_{1n}) + f_{2.2}(y_{1n}) \end{bmatrix} + \begin{bmatrix} \varepsilon_{11} \\ \varepsilon_{12} \\ \vdots \\ \varepsilon_{1n} \\ \varepsilon_{21} \\ \varepsilon_{22} \\ \vdots \\ \varepsilon_{2n} \end{bmatrix} \quad (2.2)$$

or

$$y_{ki} = f_k(x_i) + \varepsilon_{ki}; \quad k = 1, 2 \quad i = 1, 2, \dots, N$$

in which:

x_i : i^{th} predictor

y_{ki} : k^{th} response in the i^{th} observation

f_k : regression function in the k^{th} response

ε_{ki} : k^{th} response in the i^{th} observation error

Parameter estimation can be used for function estimation in non-parametric path analysis. Method applied for parameter estimation is PWLS (Penalized Weighted Least Square) [6].

4. Findings and Discussion

The questionnaire provided data in the form of scores that did not have any significant meaning. The scores showed the respondents' attitude towards items in the questionnaire (statement or question). The questionnaire used 5-point Likert scale in which 1 means strongly disagree (*Sangat Tidak Setuju/STS*), 2 means disagree (*Tidak Setuju/TS*), 3 means neutral (*Netral/N*), 4 means agree (*Setuju/S*) and 5 means strongly agree (*Sangat Setuju/SS*). The scores, from the questionnaire, had to be transformed into scale for statistical analysis and in order to provide meaning towards measured object. This study used Summated Rating Scale (SRS) to transform the scores into scale. Table 1 described implementation of SRS to transform scores into scale for questionnaire item 1.

Table 1. Scale Calculation for Item 1

Category	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Frequency	1	29	74	82	14
Proportion	0.005	0.145	0.370	0.410	0.070
Cumulative Prop.	0.005	0.150	0.520	0.930	1
MPK	0.003	0.078	0.335	0.725	0.965
Z	-2.807	-1.422	-0.426	0.598	1.812
Scale	0	1.385	2.381	3.405	4.619

Based on the table 1, it can be seen that scale data were different from the score data. The scale showed that gap scores between responses for each item was different or did not equal to 1. For item 1, when the lowest score was transformed into 0 (scale), then 2 (score) changed into 1.385 (scale), 3 (score) changed into 2.381 (scale), 4 (score) changed into 3.405 (scale) and 5 (score) changed into 4.619 (scale).

4.1. Linearity Testing

Linearity testing aims to identify non-linear correlation between more than 2 variables. Non-linear correlation is one of the requirements in non-parametric regression. One of the methods to conduct non-linearity testing is Ramsey Reset Test. Table 2 summarized result of the non-linearity testing.

Table 2. Ramsey Reset Test (Nonlinearity Testing)

Relationship	F_{value}	$p-value$	Correlation
Green Product (X) on Green Strategy (Y1)	5.355	0.0052	Not Linear
Green Product (X) on Purchasing Intention (Y2)	0.699	0.4949	Linear
Green Strategy (Y1) on Purchasing Intention (Y2)	0.186	0.4918	Linear

Based on the Table 2, it can be concluded that one of the models has non-linear relationship. As the result, there is not enough evidence for linear relationship pattern but enough evidence to conduct non-parametric path analysis.

4.2. Estimation with Smoothing Spline Approach

The Figure 1 showed estimation result based on the smoothing spline approach.

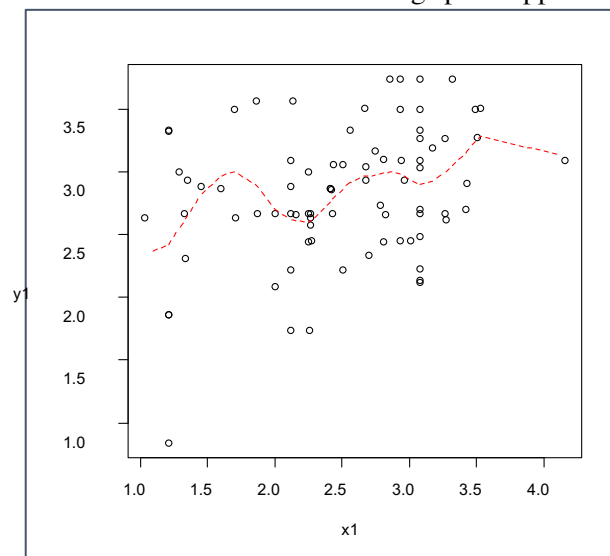


Figure 1. Prediction Score Plot between Green Products towards Purchasing Intention

The Figure 1 showed relationship between green product (x_1) towards Purchasing Intention (y_2). The actual data showed fluctuating period. Customers who gave very low score for the green product (between 0 and 1.385) gave very low to very high score for the Purchasing Intention (between 3.405 and 4.619) and a very low to low prediction scores. Furthermore, customers who gave low score for the green product (between 1.385 and 2.381) gave a low to very high responses for the Purchasing Intention but very low and low prediction scores. Customers who gave high and very high scores for the green product (between 2.381 and 3.405) gave a high and very high response for the Purchasing Intention and a high prediction score.

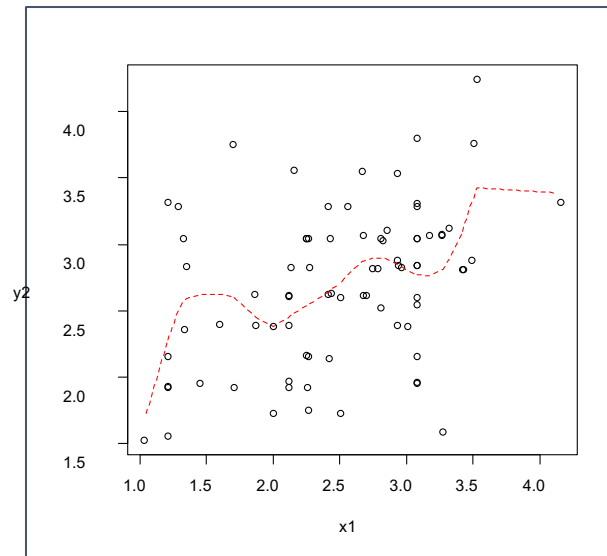


Figure 2. Prediction Score Plot between Green Products towards Green Strategy Management.

The diagram above showed relationship between the green product (x_1) towards the green strategy management (y_2). The actual data showed fluctuating period. Customers who gave very low for the green product gave very low to high scores for the green strategy management and fairly similar prediction scores. Customers who gave low score for the green product gave low to very high responses for the green strategy management and fairly similar prediction score. Customers who gave high and very high scores for the green product gave high and very high responses for the green strategy management and high prediction score.

The figure above also showed plot between the exogenous variable and each of the endogenous variables based on the PLS and PWLS approaches. Based on the six figures, non-parametric regression estimation was flexible. R^2_{Y1} of non-parametric model obtained based on the PLS approach was 72.14% means all four of the exogenous variables can explain 72.14% of the customers' Purchasing Intention; R^2_{Y2} of the model was 87.67% which means that the green product was able to explain 87.67% of the green strategy management while the remaining was explained by other variables outside the model. R^2_{Y1} of non-parametric model obtained based on the PWLS approach was 95.21% which means that all four of the exogenous variable can explain 95.21% of the customers' perceived variable. R^2_{Y2} of the model was 99.96% which means that the exogenous variables can explain 99.96% of the green strategy management, while the rest was explained by other variables outside the model.

4.3. Selecting Optimum Smoothing Parameter (λ)

Smoothing parameter controls balance between curves suitability and data as well as smoothness of curve. Method used to select an optimum smoothing parameter is Generalized Cross Validation (GCV) method. The following diagram showed smoothing parameter and GCV score of the green strategy management (Y1) and purchasing intention (Y2).

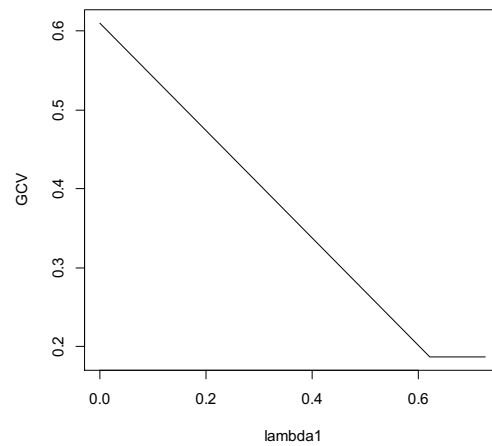


Figure 3. Lambda Score Plot for the Purchasing Intention

Based on Figure 3, minimum GCV score of the Purchasing Intention was 0.1870; based on the minimum GCV score, optimum lambda score of the smoothing spline function for the Purchasing Intention was 0.7269.

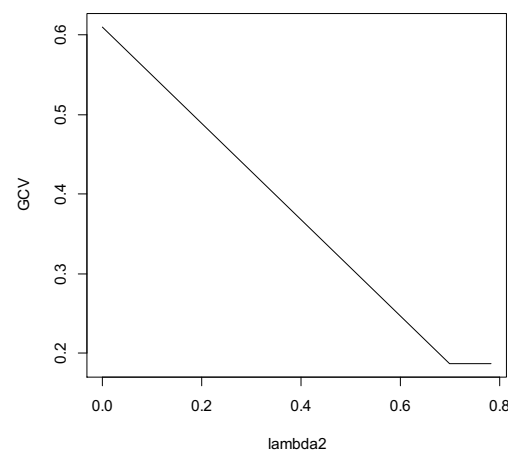


Figure 4. Lambda Score Plot for the Green Strategy Management

Table 3. Minimum GCV and Optimum Lambda

Exogenous Variables	Lambda	GCV
Green Strategy (Y1)	0.6997	0.1870
Purchasing Intention (Y2)	0.7269	0.1870

Table 3 showed lambda score to get minimum GCV score. Based on Figure 4 and Table 3, minimum GCV score of the customer satisfaction was 0.1870; based on the minimum GCV score, optimum lambda score of the smoothing spline function for the customer satisfaction was 0.6997, and purchasing intention was 0.7269. In spline non-parametric regression, when smoothing parameter was very low, regression curve estimator was very rough or in other words, pure parameter when lambda score is zero. At the opposite, when smoothing parameter was very high, regression curve estimator was very smooth. Therefore, optimum smoothing parameter is the requirement for the most suitable non-parametric path function estimation. As the effect, researchers should decide optimum smoothing parameter in spline estimator to get estimator that matches data the most.

4.4. Nonparametric Model Development

Table 4 showed \hat{d} and \hat{c} obtained based on the output of Penalized Least Square (PLS).

Table 4. \hat{d} and \hat{c} of PLS

	Number	y_1	y_2
\hat{d}	1	0.062	0.077
	2	0.171	0.215
\hat{c}	1	-2.04e-18	-2.36e-18
	2	-1.78e-18	-2.06e-18
	\vdots	\vdots	\vdots
	80	-1.13e-18	-1.57e-18

The following is non-parametric regression function based on the \hat{d} and \hat{c} scores (Table 4):

when $x \in [0, 1]$, $\langle \xi_i, \xi_s \rangle = x_i x_s - \frac{1}{2}(x_i + x_s) + \frac{1}{3}$

The equation resulted in one function for each endogenous variable and distributed x to obtain endogenous variable estimation.

Green Strategy Variable show in equation (4.1)

$$\hat{f}_{11} = \hat{d}_{11} + \hat{d}_{12}x_1 + c_{11} \left[x_1x_1 - \frac{1}{2}(x_1 + x_1) + \frac{1}{3} \right]$$

$$\hat{f}_{12} = \hat{d}_{11} + \hat{d}_{12}x_2 + c_{11} \left[x_2x_1 - \frac{1}{2}(x_2 + x_1) + \frac{1}{3} \right]$$

$$+ c_{12} \left[x_3x_2 - \frac{1}{2}(x_3 + x_2) + \frac{1}{3} \right]$$

$$\hat{f}_{13} = \hat{d}_{11} + \hat{d}_{12}x_3 + c_{11} \left[x_3x_1 - \frac{1}{2}(x_3 + x_1) + \frac{1}{3} \right]$$

$$+ c_{12} \left[x_3x_2 - \frac{1}{2}(x_3 + x_2) + \frac{1}{3} \right]$$

$$+ c_{13} \left[x_3x_3 - \frac{1}{2}(x_3 + x_3) + \frac{1}{3} \right]$$

\vdots

$$\hat{f}_{1N} = \hat{d}_{11} + \hat{d}_{12}x_n + c_{11} \left[x_nx_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right]$$

$$+ c_{12} \left[x_nx_2 - \frac{1}{2}(x_n + x_2) + \frac{1}{3} \right]$$

$$\vdots$$

$$+ c_{1n} \left[x_nx_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right]$$

$$\hat{f}_{1N} = 0.062 + 0.171x_n - 2.04e^{-18} \left[x_nx_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] + \dots - 1.13e^{-18} \left[x_nx_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right] \quad (4.1)$$

Green strategy management variable show in Equation (4.2)

$$\begin{aligned}
 \hat{f}_{21} &= \hat{d}_{21} + \hat{d}_{22}x_1 + c_{21} \left[x_1x_1 - \frac{1}{2}(x_1 + x_1) + \frac{1}{3} \right] \\
 \hat{f}_{22} &= \hat{d}_{21} + \hat{d}_{22}x_2 + c_{21} \left[x_2x_1 - \frac{1}{2}(x_2 + x_1) + \frac{1}{3} \right] \\
 &\quad + c_{22} \left[x_2x_2 - \frac{1}{2}(x_2 + x_2) + \frac{1}{3} \right] \\
 \hat{f}_{23} &= \hat{d}_{21} + \hat{d}_{22}x_3 + c_{21} \left[x_3x_1 - \frac{1}{2}(x_3 + x_1) + \frac{1}{3} \right] \\
 &\quad + c_{22} \left[x_3x_2 - \frac{1}{2}(x_3 + x_2) + \frac{1}{3} \right] \\
 &\quad + c_{23} \left[x_3x_3 - \frac{1}{2}(x_3 + x_3) + \frac{1}{3} \right] \\
 &\vdots \\
 \hat{f}_{2N} &= \hat{d}_{21} + \hat{d}_{22}x_n + c_{21} \left[x_nx_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] \\
 &\quad + c_{22} \left[x_nx_2 - \frac{1}{2}(x_n + x_2) + \frac{1}{3} \right] \\
 &\quad \vdots \\
 &\quad + c_{2n} \left[x_nx_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right] \\
 \hat{f}_{2N} &= 0.077 + 0.215x_n - 2.36e^{-18} \left[x_nx_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] + \dots - 1.57e^{-18} \left[x_nx_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right]
 \end{aligned} \tag{4.2}$$

Table 5 showed \hat{d} and \hat{c} obtained based on the output of Penalized Weighted Least Square (PWLS).

Table 5. \hat{d} and \hat{c} of PWLS

	Number	y_1	y_2
\hat{d}	1	0.336	0.177
	2	0.136	0.118
\hat{c}	1	-0.071	0.074
	2	-0.002	0.005
	\vdots	\vdots	\vdots
	80	-0.046	0.057

The following is non-parametric regression function obtained from the \hat{d} and \hat{c} score (Table 5):
Green Strategy Variable show in Equation (4.3)

$$\begin{aligned}
 \hat{f}_{11} &= \hat{d}_{11} + \hat{d}_{12}x_1 + c_{11} \left[x_1x_1 - \frac{1}{2}(x_1 + x_1) + \frac{1}{3} \right] \\
 \hat{f}_{12} &= \hat{d}_{11} + \hat{d}_{12}x_2 + c_{11} \left[x_2x_1 - \frac{1}{2}(x_2 + x_1) + \frac{1}{3} \right]
 \end{aligned}$$

$$\begin{aligned}
& +c_{12} \left[x_3 x_2 - \frac{1}{2}(x_3 + x_2) + \frac{1}{3} \right] \\
\hat{f}_{13} = \hat{d}_{11} + \hat{d}_{12} x_3 + c_{11} & \left[x_3 x_1 - \frac{1}{2}(x_3 + x_1) + \frac{1}{3} \right] \\
& +c_{12} \left[x_3 x_2 - \frac{1}{2}(x_3 + x_2) + \frac{1}{3} \right] \\
& +c_{13} \left[x_3 x_3 - \frac{1}{2}(x_3 + x_3) + \frac{1}{3} \right] \\
& \vdots \\
\hat{f}_{1N} = \hat{d}_{11} + \hat{d}_{12} x_n + c_{11} & \left[x_n x_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] \\
& +c_{12} \left[x_n x_2 - \frac{1}{2}(x_n + x_2) + \frac{1}{3} \right] \\
& \vdots \\
& +c_{1n} \left[x_n x_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right] \\
\hat{f}_{1N} = 0.336 + 0.136x_n - 0.071 & \left[x_n x_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] + \dots - 0.046 \left[x_n x_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right]
\end{aligned} \tag{4.3}$$

Purchasing Intention variable show in Equation (4.4)

$$\begin{aligned}
\hat{f}_{21} = \hat{d}_{21} + \hat{d}_{22} x_1 + c_{21} & \left[x_1 x_1 - \frac{1}{2}(x_1 + x_1) + \frac{1}{3} \right] \\
\hat{f}_{22} = \hat{d}_{21} + \hat{d}_{22} x_2 + c_{21} & \left[x_2 x_1 - \frac{1}{2}(x_2 + x_1) + \frac{1}{3} \right] \\
& +c_{22} \left[x_2 x_2 - \frac{1}{2}(x_2 + x_2) + \frac{1}{3} \right] \\
\hat{f}_{23} = \hat{d}_{21} + \hat{d}_{22} x_3 + c_{21} & \left[x_3 x_1 - \frac{1}{2}(x_3 + x_1) + \frac{1}{3} \right] \\
& +c_{22} \left[x_3 x_2 - \frac{1}{2}(x_3 + x_2) + \frac{1}{3} \right] \\
& +c_{23} \left[x_3 x_3 - \frac{1}{2}(x_3 + x_3) + \frac{1}{3} \right] \\
& \vdots \\
\hat{f}_{2N} = \hat{d}_{21} + \hat{d}_{22} x_n + c_{21} & \left[x_n x_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] \\
& +c_{22} \left[x_n x_2 - \frac{1}{2}(x_n + x_2) + \frac{1}{3} \right] \\
& \vdots \\
& +c_{2n} \left[x_n x_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right]
\end{aligned}$$

$$\hat{f}_{2N} = 0.177 + 0.118x_n + 0.074 \left[x_n x_1 - \frac{1}{2}(x_n + x_1) + \frac{1}{3} \right] + \dots + 0.057 \left[x_n x_n - \frac{1}{2}(x_n + x_n) + \frac{1}{3} \right] \quad (4.4)$$

4.5. Discussion

Anita Roddick established the first The Body Shop store on March 26, 1976 in Brighton, South-East of England. Roddick believe that beauty comes from within and thus, creates balance between human and nature. Findings of the study showed that the Green Product (X1) has influence towards Purchasing Decision (Y). It means Green Product has significant influence towards purchasing intention. Customer's purchasing intention is one of the concepts in purchasing attitude in which customer takes an action to use certain goods or service. Green Product a company has influences purchasing decision. It happens because customers are attracted to this type of products and effectiveness of these products. Therefore, in general, customers of these green products are well-educated and have steady income. Findings of this study are in accordance to Haryadi [15] that green product effect has positive and significant influence towards The Body Shop sales.

Influence of Green Product and Green Marketing Strategy towards Purchasing Decision. Findings of the study stated that Green Marketing Strategy (X2) has influence towards Purchasing Decision (Y). In other words, the Green Marketing Strategy has influence towards The Body Shop's customers purchasing decision. The strategy the company implemented did not increase sales; even though marketing strategy plays pivotal role in business, customers prefer products a company offers to its marketing strategy. Customers do not really focus on type of marketing strategy The Body Shop apply but quality and effectiveness of The Body Shop products. The findings are in line with Balawera [16] that green marketing did not have significant influence towards customer's purchasing decision due to high pricing and lack of information about healthy living and environmentally-friendly organic products.

5. Conclusion and Recommendation

Based on the findings, it can be concluded that (1) Green Product (X1) has influence towards purchasing decision (Y), (2) Green Product and Green Marketing Strategy has influence towards purchasing decision and (3) Green Marketing Strategy (X2) has influence towards purchasing decision (Y).

Based on the conclusion, it is recommended that (1) the primary data were obtained from the questionnaire without any follow-up interview and consequently, the respondents may not read the questionnaire items carefully and thoroughly. Therefore, further researchers should conduct interview as one of the data collection techniques; (2) future researchers should involve more than two responses to estimate non-parametric path function; (3) this study did not accommodate existence of ties, similar exogenous variable score in different endogenous variable score and (4) this study is limited to discussing non-parametric path function estimation. It did not discuss non-linear path function estimation.

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