



## CONSUMERS IMPACT TOWARDS BUYING GREEN PRODUCTS

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### **Abstract**

Getting consumers to embrace green product attributes or even include the environmental cost of owning/operating products in their purchasing process is something that will be difficult to achieve and may require long-term multiparty communication – business organisations, governments and non-governmental bodies. This paper suggests assessing the impact of consumers towards buying green products. Based on the past literature conceptual framework was developed.

### **Introduction**

In India, environmental protection is the major matter of concern for both the public and the government. In the International market, our poor environmental performance on our goods and services has weighed down our export market. The total environmental burden of human activity is based on population, abundance of resources and advance technology. In the present scenario, many companies have incorporated environmental strategy which focuses on controlling pollution. The ecological behaviour of an individual is based on the social context. The development of consumer awareness about the products with their origin and an international environmental awareness has given the marketer an opportunity to facilitate the customers about the green product. Presently, firms have developed eco-friendly products with innovation to reach the customers and the customer is willing to pay for the products that ensure environmental protection.

### **Need for the Study**

The concept of green consumption has come into existence in response to the development of eco-friendly products. Eco-friendly environment and eco-friendly consumption form the healthy side of life. The study focused to examine the level of adoptability and reach of green products among the consumers in the market. Hence, the researcher made an attempt to examine the impact of consumers to buy green products.

### **Hypotheses**

H<sub>0</sub> : There is no significant difference between the demographic variables of the consumers and the impact of consumers towards buying green products.

### **Objectives of the study**

1. To study the impact of consumers towards buying green products.

### **Research Methodology**

The area of study is confined to Coimbatore city. The data collected for the study covers a period of one year from 1-4-2014 to 31-3-2015. The study consists of both primary and secondary data. Stratified random sampling technique was adopted to determine the sample size. The data for the study were collected from 500 respondents. The Discriminant Function Analysis was used to analyse the data.

### **Data Analysis**

#### **Consumers Impact towards Buying Green Products - Discriminant Function Analysis**

Discriminant analysis (DA) was the traditional statistical technique used for differentiating groups (categorical dependent variable) when the independent variables were quantitative. Respondent's opinion about impact of buying green products. In the study area out of five hundred respondents were divided into two groups .ie., low level of opinion about impact of buying green products and the high level of opinion about impact of buying green products. The difference of opinion of the respondents in one group from the other is studied with the help of discriminant function analysis. For the purpose of the study, the following variables were selected like., Age, Gender, Marital Status, Educational Qualification, Occupational Status, Nature of Family, Size of the family, Residential area, Family monthly income, Family monthly savings, Family monthly expenditure, Number of earning member in the family, Type of purchase and How long you are using green products?. The discriminant function analysis attempts to construct a function with these and other variables so that the respondents belonging to these two groups are differentiated at the maximum. The linear combination of variables is known as discriminant function and its parameters are called discriminant function coefficients. In constructing this discriminant function all the variables which contribute to differentiate these two groups are examined. This method is based on the generalized squared Euclidean distance that adjusts for unequal variances in the variables. The major advantage



of this procedure is that it is computed in the original space of the predictor (independent) variables rather than as a collapsed version which is used in the other method. Generally, all the variables selected will not contribute to explain the maximum discriminatory power of the function. So a selection rule is applied based on certain criteria to include those variables which best discriminate. Stepwise selection method was applied in constructing discriminant function which selects one variable at a time to include in the function. Before entering into the function the variables are examined for inclusion in the function.

The variables which could have maximum  $D^2$  value, if entered into the function is selected for inclusion in the function. Once entered any variable already in the equation is again considered for removal based on certain removal criteria. Likewise, at each step the next best discriminating variable is selected and included in the function and any variable already included in the function is considered for removal based on the selection and removal criteria respectively.

### Discriminant Analysis for this study

Discriminant function analysis involved classification problem also to ascertain the efficiency of the discriminant function analysis all the variables which satisfy the entry and removal criteria were entered into the function. Normally the criteria used to select the variables for inclusion in the function is minimum F to enter into the equation (i.e) F statistic calculated for the qualified variable to enter into the function is fixed as 1. Similarly any variable entered in the equation will be removed from the function if F statistic for the variable calculated is  $< 1$ . The two groups are defined as

- Group 1 - Low level
- Group 2 - High level

The mean and standard deviation for these groups and for the entire samples are given for each variable considered in the analysis.

**Table – 1 - Group Means (Between Low and High groups)**

S.No.	Factor	Low		High		Total	
		Mean	SD	Mean	SD	Mean	SD
1	Age	2.61	1.006	2.83	1.107	2.70	1.054
2	Gender	1.61	.488	1.67	.473	1.64	.482
3	Marital Status	1.39	.549	1.44	.526	1.41	.539
4	Educational Qualification	2.50	.991	2.42	.843	2.47	.931
5	Occupational Status	2.65	1.900	2.66	1.961	2.65	1.924
6	Nature of Family	1.72	.450	1.64	.482	1.68	.465
7	Size of the family	2.99	1.138	3.38	.978	3.16	1.089
8	Residential area	1.66	.915	1.78	1.085	1.71	.991
9	Family monthly income	2.25	.922	2.24	1.032	2.25	.969
10	Family monthly savings	1.74	.747	1.89	.713	1.80	.736
11	Family monthly expenditure	2.12	.718	2.31	.707	2.20	.719
12	Number of earning member in the family	1.84	.740	2.07	.608	1.94	.696
13	Type of purchase	1.78	.959	1.82	.978	1.79	.966
14	How long you are using green products?	2.49	1.548	3.00	1.728	2.70	1.645

The overall stepwise D.F.A results after all significant discriminators have been included in the estimation of discriminated function is given in the following table

**Table -2 - Summary table between Low level and High level groups**

Step	Variables entered	Wilk's Lamda	F-value	Significance
1	Age	.990	4.928	.027**
2	Marital Status	.992	3.809	.050**
3	Size of the family	.970	15.652	.000**
4	Family monthly savings	.990	5.167	.023**
5	Family monthly expenditure	.982	8.962	.003**
6	Number of earning member in the family	.972	14.147	.000**
7	How long you are using green products?	.976	12.185	.001**

\*\*Significant at 5% level



The summary table indicates that variable age entered in step one. The variables such as age are significant at five per cent significance level and followed by other variables like Marital Status, Size of the family, Family monthly savings, Family monthly expenditure, Number of earning member in the family, and How long you are using green products. All the variables are significant discriminators based on their Wilk's lambda and F-value. The multivariate aspect of this model is given in the following table

**Table -3 - Canonical Discriminant Function  
 (Between Low and High groups)**

Canonical correlation	Wilks Lamda	Chi -square	D.F	p-value
0.342	.883	61.34	7	.000**

\*P<0.01

The canonical correlation in the discriminant group can be accounted for by this model, Wilks lamda and chi square value suggest that D.F is significant at one per cent level.

The variables given above are identified finally by the D.F.A as the eligible discriminating variables. Based on the selected variables the corresponding D.F coefficients are calculated. They are given in the following table.

**Table - 4 - Canonical Discriminant Function Coefficients  
 (between Low level and High level)**

Age	.695
Marital Status	1.188
Size of the family	.335
Residential area	.274
Family monthly expenditure	.491
Number of earning member in the family	.572
How long you are using green products?	.260
(Constant)	-7.972

Unstandardized coefficients

$Z = -7.972 = +1.595$  (Age)+ $1.188$  (Marital Status) + $0.335$  (Size of the family) + $0.274$  (Residential area) + $0.491$  (Family monthly expenditure) + $0.572$  (Number of earning member in the family) + $0.260$  (How long you are using green products)

Using this D.F coefficients and variables discriminating scores for two groups are found out and are called group centroids or group means

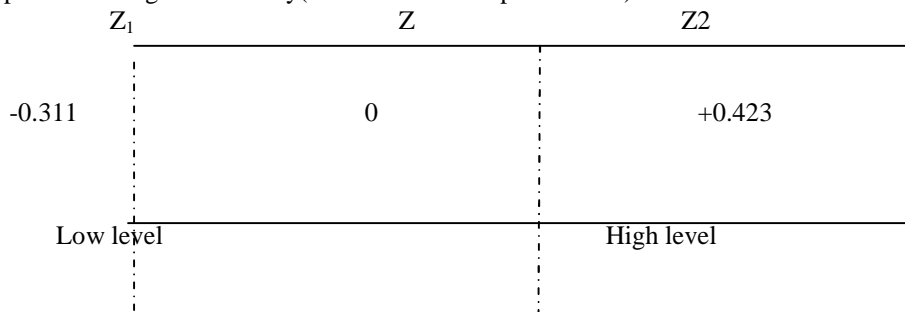
For low level user  $(Z_1) = 288$

For High level user  $(Z_2) = 212$

Discriminating factor is the weighted average of  $Z_1, Z_2$

$$(i.e) Z = \frac{288x Z_1 + 212 xZ_2}{288+212}$$

It is represented diagrammatically(Functions at Group Centroids)



Thus to classify any respondent as to low or high user the Z score for the respondent is found out by using the equation. If the score found out for any respondent is  $Z_0$  and if the value is  $> Z$  (i.e.  $Z_0 > Z$ ) then it is classified into high user and if  $Z_0 < Z$  then (i.e.  $Z_0 < Z$ ) it is classified into low user.



Now the questions remain to be answered are

1. How efficient are the discriminating variables in the D.F.A?
2. How efficient the D.F itself is?

The first equation cannot be answered directly however the discriminating power or the contribution of each variable to the function can sufficiently answer the question. For this consider the following table

**Table – 5 - Relative Discriminating Index  
 (between Low level group and High level group)**

Variables entered	Group I Mean $X_1$	Group II Mean $X_2$	Un standardized coefficient	$I_j = ABS(K_j)$ Mean ( $X_{j0} - X_{ji}$ )	$R_j = I_j / \text{sum } I_j * 100$
Age	2.61	2.83	.695	0.153	20.84
Marital Status	1.39	1.44	1.188	0.059	8.10
Size of the family	2.99	3.38	.335	0.131	17.82
Residential area	1.66	1.78	.274	0.033	4.48
Family monthly expenditure	2.12	2.31	.491	0.093	12.73
Number of earning member in the family	1.84	2.07	.572	0.132	17.95
How long you are using green products?	2.49	3.00	.260	0.133	18.08
<b>TOTAL</b>					100

#### Relative Discriminating Index

For each variable the respective D.F coefficient its mean for each group and  $R_j$  are given.  $R_j$  called relative discriminating index is calculated from the discriminant function coefficient and group means.  $R_j$  tells how much each variable is contributing (%) to the function. By looking at this column one education is the discriminating variable and the family income the least discriminating variable.

The second question is answered by reclassifying the already grouped individuals into low or high level using the D.F ( $Z$ ) defined in the equation.

This classification is called predictor group membership .In short the efficiency of the D.F is called predictor group membership. In short the efficiency of the D.F. is how correctly it predicts the respondents into distinct groups.

**Table -6 - Classification Results  
 (between Low level group and High level group)**

Actual group	No. of cases	Predicted group membership	
		Group I	Group II
Group I	253	184 63.9%	104 36.1%
Group II	247	78 36.8%	134 63.2%

Per cent of grouped case correctly classified: 63.6 per cent

#### Classification Results (a)

The above table gives the results of the re classification. The function using the variables selected in the analysis classified 63.6 per cent of the cases correctly in the respective groups. It is found that the Discriminant function analysis was applied to the respondents on low user and high user. The following factors significantly discriminate the two users. They are Age, Marital Status, Size of the family, Residential area, Family monthly expenditure, Number of earning member in the family and How long you are using green products (5 per cent level).

#### Conclusion

The study focuses on examining the impact of buying green products. Based on the results, the impact of buying green products supports highly that influence consumers using green products. However, if the manufacturer and concerned



authority should care more about the environment, automatically impact of consumers towards green products will improve high.

It will help the human beings to live in pollution-free environment in the near present and for the future generations.

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