

## Capturing the Imagination of Green Consumers: A Scientific Modelling and Approach on Sustainable Packaging of Food Products

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### Abstract:

This study intends to investigate the purchase intention of green food packaging among the consumers in Malaysia based on both demographic and psychographic factors. To achieve the objectives of the study three different models were tested to check the significant impact of the factors and their contribution towards the purchase intention of the consumers in Malaysia. The widely accepted model such as Theory of planned behaviour was used to capture the psychographic factors. Data was collected in 3 different areas within the Klang valley, Malaysia. Regression analysis was used in this study to analyse the data. The stepwise regression result shows that the factors having the substantial contribution to enhance the purchase intention among the consumers towards green food packaging. The most significant factor is attitude with contribution of 14%. The next important factor was race with contribution of 4.2%. The contribution of subjective norm and gender were 4.1% and 3.5% respectively. Based on the significance of the factors marketing practitioners can redefine their policies through prioritising on the issues that need to be addressed while attracting consumers in Malaysia towards sustainable green packaging practices in the near future.

### Introduction:

As consumers are becoming more environment-friendly and feel more responsible towards sustainable products and solutions and show an increasing trend towards choosing a green product over a conventional one, marketers realize that packaging performs an important role in marketing communications and could be one of the most important factors influencing the consumer's purchase decision.

The combination of green and attractive and sustainable packaging would be a new choice of consumers in developing markets like Malaysia. Marketers who are targeting a green segment of the market are avoiding any marketing gimmicks in order to make loyal customers to purchase their green products. Marketers are also noticing subjective norms of consumers, since Malaysians notice the "important others" in making green purchasing decisions.

The concept of Green Purchasing (especially for green packaging) is relatively new to the Malaysian industry. But the consumption of green products among Malaysian customers is getting popular and the market is emerging tremendously, a similar trend facing by other countries in other parts of the world (Shaharudin et al., 2010).

The providers of the green packings are mainly large companies with the headquarters from the UK, USA, Japan and other developed countries. In contrast, most of the local providers are still in the wait and see stage.

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Green packaging campaign is fast becoming a trend in Malaysia, the objective being to create awareness among the public and motivate them to protect the environment. As illustration we can notice some organizations that organizing green campaigns in Malaysia which are: Malaysia Environment NGOs (MENGO), Environmental Protection Society Malaysia (EPSM), and Treat Every Environment Special Sdn. Bhd. (TRESS).

This research is bound to investigate the impact of green packaging of foods on Malaysian consumers' purchasing behaviour. It identifies the industry trends in the global packaging industry with the focus on Malaysia and examines the consumers' purchase behaviour in the market. In short, the main scope of this study is to determine the factors that impact green packaging.

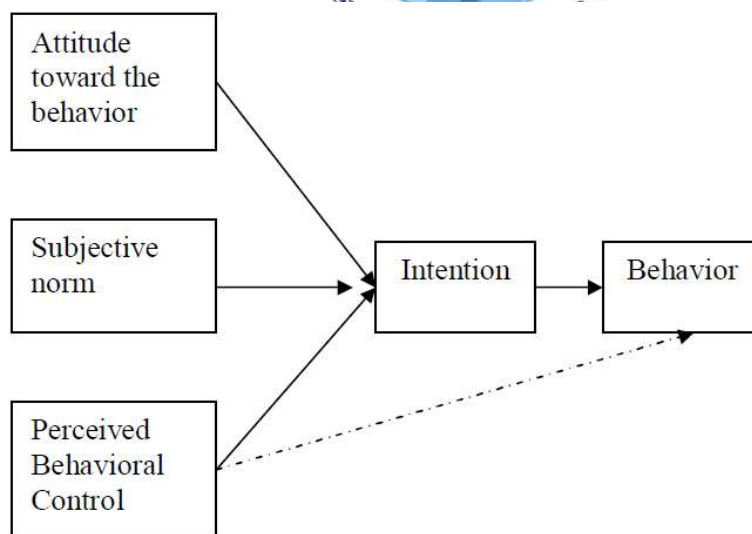
### Objective of the Study

The study of impact of green packaging of foods on consumers' purchasing behavior helps food providers to understand how to improve their products' packages and how to attract consumers by green packaging. The main objectives of this study are as follows:

- 1- To investigate the impact of green packaging of foods on consumers' purchasing behaviour
- 2- To determine the factors impacting the purchase behaviour of green packaging foods.
- 3- To find a relationship between attitude and intention to purchase green packaged foods.

### Methodology

This study focuses on the application of **Theory of Planned Behaviour** to study the impact of green packaging of foods on Malaysian consumers' purchasing behavior. In this study, the impacts of three different variables of Theory of Planned Behavior model including attitudes, subjective norms and perceived behavioural control on Malaysian behaviour in the context of green packaging of foods will be studied.



**Figure 1: Proposed Research Framework**

The study's respondents will be surveyed in 3 different areas within the Klang valley, Malaysia. The population of Klang valley is around 6 million and the area is known as the heartland of commerce and industry in Malaysia. The capital city of Kuala Lumpur is also located in this area.

To meet the objective of the study, 3 models are developed. The first model encompasses only demographic variables. The second model encompasses the psychographic variables (attitude, subjective norms and PBC) and the third model combines both psychographic and demographic variables. The three models are developed to give an insight to the marketers on the two common segmentations (psychographic and demographic).

**Table 1: Equation Models**

Model	Formula
1	Intention= $\alpha + \beta_1\text{Gender} + \beta_2\text{Age} + \beta_3\text{Income} + \beta_4\text{Race}$
2	Intention= $\alpha + \beta_5\text{Attitude} + \beta_6\text{Subjective norm} + \beta_7\text{PBC}$
3	Intention= $\alpha + \beta_1\text{Gender} + \beta_2\text{Age} + \beta_3\text{Income} + \beta_4\text{Race} + \beta_5\text{Attitude} + \beta_6\text{Subjective norm} + \beta_7\text{PBC}$

In these equations,  $\alpha$  is the slope and  $\beta_i$  is the regression coefficient of each independent variable. The following table shows the model summary of the equation:

**Model 1:**

The model 1 has the R Square of 0.056. As the R Square is positive, it shows a positive relationship between demographic variables and purchase intention of consumers. It means that 5.6% of the variance in purchase intention of consumers is significantly explained by the independent variable of demographics. The model summary is depicted on the table below:

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.679	4	.670	1.927	.110 <sup>a</sup>
	Residual	44.837	129	.348		
	Total	47.516	133			

a. Predictors: (Constant), Race, Gender, Age, Income

b. Dependent Variable: Intention

According to the coefficient table, the regression of intention based on the demographic factors indicates that only income was significant (P-value= 0.014 <0.05) and gender, age, and race are all insignificant (P-value > 0.05).

Table 2: coefficient of model 1

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	3.192	.294		10.861	.000
	Gender	.019	.115	.016	.161	.872
	Age	-.055	.053	-.117	-1.034	.303
	Income	.144	.058	.317	2.487	.014
	Race	.088	.056	.159	1.579	.117

a. Dependent Variable: Intention

### Model 2:

The model 2 has the R Square of 0.208. As the R Square is positive, it indicates a positive relationship between psychographic variables and purchase intention of consumers. It means that 20.8% of the variance in purchase intention of consumers is significantly explained by the independent variable of psychographics (attitude, subjective norm and PBC). The model summary is depicted on the table below:

### Summary of Model 2

#### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.456 <sup>a</sup>	.208	.190	.53804	.208	11.379	3	130	.000

a. Predictors: (Constant), PBC, Subjective norm, Attitude

b. Dependent Variable: Intention

The Anova table shows the P-value of 0.000. It means that the regression coefficient between demographic factors and purchase intention do not differ across the groups.

#### ANOVA<sup>b</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.882	3	3.294	11.379	.000 <sup>a</sup>
	Residual	37.633	130	.289		
	Total	47.516	133			

a. Predictors: (Constant), PBC, Subjective norm, Attitude

b. Dependent Variable: Intention

According to the coefficient table, the regression of intention based on the psychographic factors shows that all three factors (attitude, subjective norm and PBC) were significant (P-values<0.05).

### Table for Coefficient of Model 2

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.148	.268		8.004	.000
	Attitude	.184	.064	.251	2.874	.005
	Subjective norm	.144	.057	.218	2.516	.013
	PBC	.104	.049	.168	2.120	.036

a. Dependent Variable: Intention

### Model 3:

The model 3 has the R Square of 0.298. As the R Square is positive, it indicates a positive relationship between demographics and psychographic variables and purchase intention of consumers. It means that 29.8% of the variance in purchase intention of consumers is significantly explained by the independent variable of psychographics (attitude, subjective norm and PBC) and demographics (gender, age, income and race). The model summary is depicted on the table below:

### Table of Summary of Model 3

#### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.546 <sup>a</sup>	.298	.259	.51451	.298	7.642	7	126	.000

a. Predictors: (Constant), PBC, Gender, Subjective norm, Age, Race, Attitude, Income

b. Dependent Variable: Intention

The Anova table shows the P-value of 0.000. It means that the regression coefficient between demographic and psychographic factors and purchase intention do not differ across the groups.

### Anova Table of Model 3

#### ANOVA<sup>b</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.161	7	2.023	7.642	.000 <sup>a</sup>
	Residual	33.354	126	.265		
	Total	47.516	133			

a. Predictors: (Constant), PBC, Gender, Subjective norm, Age, Race, Attitude, Income

b. Dependent Variable: Intention

According to the coefficient table, the regression of intention based on the demographic and psychographic factors indicates that gender, race, attitude and subjective norm were significant ( $P\text{-value} < 0.05$ ) and age, income, and PBC are all insignificant ( $P\text{-value} > 0.05$ ).

### Coefficient Table for Model 3

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.813	.334		5.434	.000
	Gender	-.228	.108	-.190	-2.100	.038
	Age	-.093	.047	-.198	-1.981	.050
	Income	.063	.052	.138	1.202	.232
	Race	.182	.052	.327	3.472	.001
	Attitude	.253	.067	.344	3.799	.000
	Subjective norm	.190	.057	.286	3.311	.001
	PBC	.087	.048	.141	1.812	.072

a. Dependent Variable: Intention

Finally the stepwise regression analysis conducted to identify the most important variables to predict purchase intention. The analysis indicated that the first variable is attitude with contribution of 14%. It followed by race with 4.2%, subjective norm 4.1% and gender with 3.5% of contribution.

#### Conclusions:

This study intends to investigate the factors that impact on the customers attitude and intention on the buying behaviour towards green food packaging in Malaysia as a part of consumers' adoption of sustainable practices through the use of Theory of Planned Behavior (Ajzen, 1991; Ajzen & Fishbein, 1980, 2005).

To fulfil the objectives of this study the researchers have tested three different models. The model was tested based on three demographic variables such as gender, age, income and race. The regression result shows that 5.6% of the variance of purchase intention was explained by the four demographic factors. However only income was found one of the significant ( $P\text{-value} = 0.014 < 0.05$ ) factors in the model. So it indicates that the income level of the consumers have impact on the green purchase intention in Malaysia.


In the second model attitude, subjective norms and perceived behavioural control were taken into consideration for measuring the purchase intention of the consumers. The regression outcome reveals that 20.6% of the variation was explained by the three psychographic factors in the theory of planned behaviour model with a ( $P\text{-values} < 0.05$ ). This outcome signifies the importance of theory of planned behaviour model in predicting purchase intention of green food packaging products.

Lastly the regression result of the third model shows that 29.8% of the variance of purchase intention was explained by the demographic and psychographic variables together. The final result shows among all the demographic and psychographic factors only gender, race, attitude and subjective norm were significant ( $P\text{-value} < 0.05$ ). Besides the stepwise regression result shows that, the most significant factor is attitude with contribution of 14%. The second important factor was race with contribution of 4.2%. The contribution of subjective norm and gender were 4.1% and 3.5% respectively.

The green packaging practitioners should take steps in influencing the attitude of the customers through various activities and social campaigns. Besides if the involvements of the family members, society people, friends in the campaigns can positively influence each individuals to instigate their purchase intentions towards green food packaging in a progressive manner. Since Malaysia is a multi-ethnic country the marketing efforts should also address to attract different groups of people. The packaging can be done in such a way so that it can create special appeal for both the male and female customers as well.

To conclude, the study by advancing the understanding on the factors influencing green product purchase intention and behavior among customers in Malaysia will help the policymakers to design policies and programs to encourage the adoption of green purchase behaviors, which in turn will help to address the problem of environmental sustainability. Given the importance of environmental sustainability for a developing country like Malaysia, this study by encouraging environment friendly attitudes and behaviors among consumers will help minimize environmental damage.

## Bibliography

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1. Bernardo, M., Simon, A., Tari, J.J., Molina-Azorin, J.F. 2015. Benefits of management systems integration: a literature review. *Journal of Cleaner Production*.
  2. Bulent S., & Sibil Y.C. (2013), Effects of green manufacturing and eco-innovation on sustainability performance *Procedia - Social and Behavioral Sciences* 99, 154 – 163. Appendix 1 – Mini Fund Application 2017/2018 Page 3 of 7
  3. Cherian, J., & Jacob, J. (2012). A study of Green HR practices and its effective implementation in the organization: A review. *International Journal of Business and Management*, 7, 25–33
  4. Cramer, J. (1998). Environmental management: from 'fit' to 'stretch'. *Business Strategy and the Environment*, 7, 162–172.
  5. Curkovic, S., Sroufe, R. and Landeros, R. (2008). Measuring TQEM returns from the application of quality frameworks. *Business Strategy and the Environment*, 17, 93–106
  6. Darnall, N. and Edwards, D. (2006). Predicting the cost of environmental management system adoption: the role of capabilities, resources and ownership structure. *Strategic Management Journal*, 27, 301–320.
  7. Domingues, J.P.T, Sampaio, P, Arezes, P.M., 2015. Analysis of integrated management systems from various perspectives. *Total Quality Management & Business Excellence* 26, 1311-1334.
  8. Gianni, M., Gotzamani, K., 2015. Management systems integration: lessons from an abandonment case. *Journal of Cleaner Production* 86, 265-276.
  9. Griffith, A. and Bhutto, K. (2008), "Improving environmental performance through integrated management systems (IMS) in the UK", *Management of Environmental Quality*, Vol. 19, pp. 565-78.

10. Jang, W.-Y., Lin, C.-I., 2010. An integrated framework for ISO 9000 motivation, depth of ISO implementation and firm performance. *J.Manuf.Technol.Management*.
11. Karla M. P. Carvalho, Flávio Picchi, Gladis Camarini, Edna M. Q. O. Chamon. 2015. Benefits in the Implementation of Safety, Health, Environmental and Quality Integrated System. *International Journal of Engineering and Technology* 7,333-338.
12. Kaynak, H. (2003). The relationship between total quality management practices and their effects on firm performance. *Journal of Operations Management*, 21, 405–435.
13. Karapetrovic, S., Willborn, W., 2006. concepts Integration of quality and environmental management systems. *TQM Mag.* 10, 204–213.
14. Ki-Hoon Lee, (2009), "Why and how to adopt green management into business organizations? The case study of Korean SMEs in manufacturing industry", *Management Decision*, Vol. 47 Iss 7 pp. 1101 – 1121
15. Leow K.Y., Suhaiza Z., (2015) Determinants of Green quality practices towards sustainable quality management, *International Journal of productivity and quality management*, 9(2):194 - 216
16. López-Gamero, M.D., Molina-Azorín, J.F., Claver-Cortés, E., 2009. The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables. *J. Environ. Manage.* 90, 3110–3121. doi:10.1016/j.jenvman.2009.05.007

