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ANALYSING THE PURCHASE INTENTION AND BEHAVIOUR TOWARDS GREEN FOOD PACKAGING FOR ACHIEVING ENVIRONMENTAL GOALS IN MALAYSIA

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ABSTRACT. Background/Objective: The study aims to analyse the green purchase intention and green buying behaviour towards the green food packaging in Malaysia based on the Theory of Planned Behaviour (TPB). With an increasing environmental concern, the food/drink companies are trying to contend people as they are becoming more aware. 3.5 billion people in the world's urban areas buy their food products which usually come packaged. Most of it comprises disposable plastic containers and plastic bags. The current research endeavour is to analyse the purchase intention and buying behaviour in Malaysia to promote green food packaging practices.

Methodology: A structured questionnaire is developed and convenient sampling followed to record the responses in the 5-point Likert scale. Mean values of various categories (e.g. race and gender) achieved through the use of SPSS and 'One-Way ANOVA' are counted.

Results: Indian population in Malaysia dominates equally by showing higher purchase intention and green buying behaviour towards green food packaging compared to others. No such significant difference is found in green buying behaviour across genders. The findings are expected to provide fruitful insights about the working and student population in Malaysia in terms of their existing behaviour pattern towards eco-friendly food packaging.

Implications: The implications of this study on the green buying behaviour of the male and female consumers across different races not only serve as a benchmark for the food manufacturers and food marketers but also guide them to comply with 3R's (reduce, reuse, recycle) policies to achieve smart environmental goals in Malaysia.

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Introduction

Developing countries like Malaysia are facing great challenges in sustainable development. Deforestation, water quality, household waste and industrial waste are some of the reasons that cause environmental deterioration. The Malaysian Ministry of Housing and Local Government (2008) reported that solid waste consists of household waste (36.5%), paper (27%), plastic (16.4%), steel (3.9%), glass (3.7%) and others (12.5%)[4].

According to the European Union (EU) reports by European Environment Agency (2010), it is about an average 17,000 tons of domestic waste per day and Malaysia is expected to produce 30,000 tons per day in 2020. Statistics from the Environmental Protection Agency (EPA) reports that paper packaging alone generated 1.5 million tons of waste and similar figures were found for plastic packaging with over 13 million tons generated as reported by European Environment Agency (2010). Specifically, in Malaysia, there is limited information about consumers' perceptions and their practices towards going green (Rezai et al., 2012).

Yet while studies on pro-environmental consumer behaviour are considered in the context of developed markets, such studies are still at the infant stage in many emerging markets including in Asia. This is supported by Biswas and Roy's (2015a, 2015b) calls for new research efforts to examine the progression of pro-environmental consumer behaviour in the Asian region. Green purchasing behaviours differ from

[4] http://www.kpkt.gov.my/

country to country. Although green products exist in Malaysia, the concept of green is still very new to Malaysians. The market for green products in Malaysia is at the beginning of its development. Since Malaysia is a multiracial and multicultural society, it is inevitable for green producers to understand their potential consumers well.

Based on its population statistics, Malays are 61.7% (Malays and indigenous peoples, including Orang Asli, Dayak, Anak Negeri), Chinese 20.8%, Indian 6.2%, other 0.9%, non-citizens 10.4% (2017 est.)[5]. The male population in 2018 outnumber the females with 16.7 million (male) and 15.7 million (female). The sex ratio in 2018 remains at 107 males per 100 females[6].

With the above view in mind, the objective of the study is to investigate the purchase intention and buying behaviour among the various ethnic groups and genders of Malaysia, which can truly reflect the prospects of green food packaging practices in the country. Accordingly, this study has formulated its research objectives based on the following research questions.

Research questions:

1. How the green purchase intention for green food packaging differs in terms of race in Malaysia.
2. How the green buying behaviour towards green food packaging differs in terms of race in Malaysia.
3. How the green purchase intention for green food packaging differs in terms of gender in Malaysia.
4. How the green buying behaviour towards green food packaging differs in terms of gender in Malaysia.

Research objectives:

1. Analysing green purchase intention for green food packaging in terms of race in Malaysia.
2. Analysing green buying behaviour towards green food packaging in terms of race in Malaysia.

[5] https://www.indexmundi.com/malaysia/demographics_profile.html

[6] https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=c1pqTnFjb29HSnNYNUpiTmNWZHArdz09

3. Analysing green purchase intention for green food packaging in terms of gender in Malaysia.
4. Analysing green buying behaviour towards green food packaging in terms of gender in Malaysia.
5. Testing the influence of green purchase intention for green food packaging buying behaviour in Malaysia.
6. To provide recommendations to the green packaging companies on how they can improve their marketing strategies based on the green buying behaviour patterns of the consumers to achieve smart environmental goals in Malaysia.

This paper starts with the background, research problem, research questions and objectives, which are subsequently followed by relevant literature review, research framework, and research methods. Furthermore, the paper concludes with the detail research findings and necessary implications to achieve sustainable environmental goals in Malaysia.

Literature Review and Research Framework

Safe food is an intense public safety matter to avoid the toxic threats coming the food or its packaging. From the consumers' perspective, safe food, which means food that does not make a person, is essential. It also implies that there is no package leak or drip in juice packs which can make the consumers wonder about the integrity of the initial seal (Ronald and Gary, 2003). Food poisoning, which can be defined as "a situation where taking a contaminated food or ingestion of contaminated food affected by bacteria or toxin bacteria" (Yahaya, 2005) affect human bodies, can cause various symptoms such as "diarrhoea, vomiting, nausea, discomfort, headache, dizziness and abdominal pain" (Ismail, 2000; Crosby, 1981). Among the various types of the diseases, food poisoning is the most common in 'Food and Water Bourne Diseases' (FWBD) in Malaysia (Table 1). In this regard, food packaging is one of the effective approaches to overcome and reduce the toxicity of food that leads to food poisoning.

Food packaging is defined as wrappers or containers used to protect food or other products from dirt, germs and damaged. The use of various plastics has developed as new materials for packaging in 1950 when there was a rapid rise in the number of food poisoning cases that reported to the authorities in the United Kingdom (Crosby, 1981). Nowadays, packaging manufacturing uses a variety of materials and labelling methods to protect and promote a product but some of the products may have chemical materials with possible effect upon the health conditions. Therefore, it is important to identify environmental management approaches in dealing with the safety control of food packaging to overcome food poisoning and other FWBD.

Table 1. Number of cases and incident rates every 100,000 population (KI) for FWBD from 2002 to 2010

	Food poisoning		Typhoid		Cholera		Dysentery		Viral hepatitis A	
Year	Case	(KI)	Case	(KI)	Case	(KI)	Case	(KI)	Case	(KI)
2002	7,023	28.6	853	3.5	365	1.5	292	1.2	295	11.0
2003	6,624	25.4	785	3.0	135	0.5	310	1.2	-	-
2004	5,957	23.3	484	1.9	89	0.4	356	1.4	107	0.4
2005	4,641	17.8	1,072	4.1	386	1.5	141	0.5	44	0.2
2006	6,938	26.0	204	0.8	237	0.9	105	0.4	64	0.2
2007	14,455	53.2	325	1.2	133	0.5	146	0.5	94	0.4
2008	17,322	62.5	201	0.7	93	0.3	92	0.3	36	0.1
2009	10,238	36.2	303	1.1	276	1.0	154	0.5	40	0.1
2010	12,519	44.2	210	0.7	443	1.6	104	0.4	39	0.1

Source: as cited in N H Nordin et al 2017 IOP Conf. Ser.: Earth Environ. Sci. 67 012009

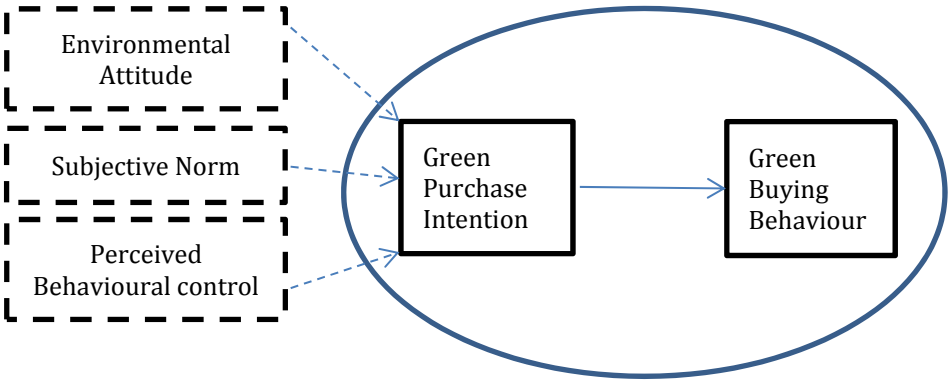
TPB Framework

This study builds on the framework of TPB (Theory of Planned Behaviour), which posits that attitudes, subjective norms and perceived behavioural control contribute toward individuals' behavioural intentions, which in turn determines their behaviour (Ajzen, 1991). Attitude refers to "an individual's favourable or unfavourable assessment of the performance of concerned behaviour" (Ajzen, 1991). Subjective norm is a "social factor that refers to perceived social pressure toward performance or non-performance of a particular behaviour" (Ajzen, 1991). Perceived behavioural control refers to "the perceived ease or difficulty (time, money and opportunity) of performing a particular behaviour and reflects past

experiences and anticipated impediments" (Ajzen, 1991). TPB has been used widely to examine green consumer purchase intentions and behaviours (Yadav and Pathak, 2017; Chan and Lau, 2002; Liobikienė et al., 2016).

Furthermore, unlike most of the previous studies that were restricted to purchase intention, this study goes a step ahead to explore the linkage of purchase intention with actual buying behaviour. Purchase intentions are found to successfully translate into purchase behaviour among green consumers by a limited number of studies by Yadav and Pathak (2017) and Chan (2001). This study advances the use of the TPB framework in comprehending consumer green product purchase intention and behaviour in the multicultural setting of Malaysia.

Figure 1 shows the model of TPB as employed for the purpose of this research. This study mainly analyses the two outcome variables, green purchase intention and green buying behaviour placed inside the circle of the above figure, with an aim to see how these variables change based on the different groups i.e. race and gender towards green food packaging practices in Malaysia.



Source: Adapted from Ajzen, 1991

Figure 1. Theoretical Framework

Green purchase intention

Green purchase intention (GPI) is conceptualized as "the probability and willingness of a person to give preference to products having eco-friendly features over other traditional products in their purchase considerations" (Rashid, 2009). Chan (2001) defines green purchase as

"a specific kind of eco-friendly behaviour that consumers perform to express their concern to the environment". Purchase intention is a critical factor to predict consumer behaviour (Fishbein and Ajzen, 1975). Consumer intention has been used as a proxy for actual behaviour (Follows and Jobber, 1999).

There is considerable evidence that intention to perform a behaviour is correlated to the enactment of the behaviour. Although intentions do not perfectly predict behaviour, intentions can be the most accurate predictor of behaviour (Ajzen and Fishbein, 1975), because behaviours are usually aligned with intentions (Ajzen and Fishbein, 1980). Several studies (e.g. Bock et al., 2005; Ryu et al., 2003) have reported a positive correlation between behavioural intentions and actual behaviours in the context of knowledge sharing. However, this study intends to assess this combination (Intention-Behaviour) across genders and the ethnic groups available in Malaysia in green food packaging practices in Malaysia.

Green purchase behaviour

Green purchasing behaviour (GPB) refers to "the consumption of products that are benevolent/ beneficial to the environment, recyclable/ conservable, or sensitive/responsive to ecological concerns" (Mostafa, 2007). Past studies have focused on what factors affect environmental behaviour in general (e.g. household, environmental group joining etc.) (e.g. Johnson et al., 2004). These studies suggest that environmental attitude, affect, knowledge and memory could be important determinants of eco-friendly behaviour (Chan, 2001).

Comparatively speaking, existing literature on environmental behaviour has paid less specific attention to green purchasing behaviour. Chan (2001) has evidenced "the effects of Chinese adult consumers' human-nature orientation, degree of collectivism, ecological affect and ecological knowledge on their attitudes toward green purchases and purchase intent". However, actual green purchases were not examined. To date, little is known about the gender effect on green purchasing behaviour among Hong Kong adolescent consumers. Evidence from the existing Western literature establishes that women have significantly more participation in general environmental behaviour and specific green consumption than men (Maineri et al., 1997).

However, in this study, the green purchase behaviour towards the green food packaging is analysed in terms of different groups in Malaysia such as race (e.g. Malay, Chinese, Indian and others) and gender.

Research Method

In this study, the researchers focus on the two categories of population in Malaysia such as students and working people. The number of employed persons in Malaysia increased from 14852.60 thousand in June of 2018 to 14863.20 thousand in July 2018[7]. Employed Persons in Malaysia average is 12385.22 thousand from 1985 until 2018, reaching an all-time high of 14863.20 thousand in June of 2018 and a record low of 5624.60 thousand in December of 1985. This growing number of labour force justifies the decision to consider them as a significant group to analyse their green purchasing behaviour towards green food packaging in Malaysia.

The second group of respondents used for this project is the student population comprising the three levels of education: primary, secondary and tertiary. In 2015 there were 7,763 government and government-aided primary schools with 2,683,992 students; 2,397 government and government-aided secondary schools with 2,072,162 students; and 576 higher education institutions (including private institutions) with 1,272,071 students[8]. This statistics also signifies the importance to analyse the green buying behaviour among the student population in Malaysia.

Sampling and Measurements

A self-administered structured questionnaire was distributed by the researchers using convenient sampling method. The targeted sample size was minimum 100. Bagozzi and Yi (2012) opine that the sample size for a study should be 100, and if possible, 200.

A 5-point Likert-scale was utilized to measure all the variables, where 1=strongly disagree and 5=strongly agree. The data were collected from restaurants and cafeterias located in the malls and university areas throughout the Selangor state.

[7] https://tradingeconomics.com/malaysia/employed-persons

[8] http://penangmonthly.com/article.aspx?pageid=165&name=the_numbers_on_education_in_malaysia_and_penang

Selangor state was chosen to conduct the survey for this project. The survey consists of 3 sections. The first section focuses on the demographic items such as age, gender, marital status etc. Section B focuses on Green Purchase Intention (GPI) which is measured using a five-item scale from Paul et al. (2016). In Section C, Green Buying Behaviour items are taken from Ahn et al. (2012). The completed questionnaires have been checked for accuracy, coded and entered into the computer using Statistical Package for Social Sciences (SPSS) version 23.0. Descriptive statistics based on One Way ANOVA (Analysis of Variance) was utilized to compare means from several groups that have an impact on the green buying behaviour towards green food packaging.

Findings and Discussion

Many important themes emerged from careful analysis of the data. Based on the Descriptive statistics, it has been shown that 45% of the respondents are Male and 55% of the respondents are female. Since Malaysia is a multiracial country, the true behaviour can be reflected in this study from the racial distribution which is 37% Of Malay, 30% Chinese, 15% Indian and 18% others.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	45	45.0	45.0	45.0
	Female	55	55.0	55.0	100.0
	Total	100	100.0	100.0	

Source: authors' work; SPSS output

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	37	37.0	37.0	37.0
	Chinese	30	30.0	30.0	67.0
	Indian	15	15.0	15.0	82.0
	Others	18	18.0	18.0	100.0
	Total	100	100.0	100.0	

Source: authors' work; SPSS output

Based on the research framework, this study is going to analyse mainly the Green Purchase Intention and Green Buying Behaviour according to the races and genders which are the two main demographic factors that can create an impact on the green food packaging practices in Malaysia or elsewhere.

Tests of Normality (Race)

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Race	Statistic	df	Sig.	Statistic	df	Sig.
PI	Malay	.151	37	.033	.916	37	.009
	Chinese	.260	30	.000	.900	30	.008
	Indian	.338	15	.000	.701	15	.000
	Others	.198	18	.059	.872	18	.019
GPB	Malay	.110	37	.200*	.985	37	.882
	Chinese	.125	30	.200*	.965	30	.403
	Indian	.156	15	.200*	.963	15	.741
	Others	.241	18	.007	.850	18	.009

Source: authors' work; SPSS output
**. This is a lower bound of the true significance.*
a. Lilliefors Significance Correction

Tests of Normality (Gender)

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Gender	Statistic	df	Sig.	Statistic	df	Sig.
GPB	Male	.129	45	.059	.970	45	.282
	Female	.108	55	.159	.962	55	.081
PI	Male	.166	45	.003	.921	45	.004
	Female	.170	55	.000	.908	55	.000

Source: authors' work; SPSS output
a. Lilliefors Significance Correction

Based on the Kolmogorov-Smirnov[a] test of normality, it appears that the P-value for the different races in terms of purchase intention is .033, .000, .000, and .059 respectively which is <0.05 (at 5% significant level). On the other hand, in the case of Green Buying Behaviour, the P-values are .200, .200, .200 respectively which is more than 0.05 (at 5% significant level). However, only in case of others, the P-value is .007 which is less than 0.05 (at 5% significant level). Similarly, the P-value for PI in case of male and female is .003 and .000 respectively, which is <0.05 (at 5% significant level). The Shapiro-Wilk test of normality also shows similar results. Therefore, we can conclude that there is a significant departure from normality. Therefore, we have decided to go for K Independent Samples Nonparametric Test to evaluate the effects of race and gender upon Green Purchase Intention and Green Purchase Behaviour towards Green Food Packaging in Malaysia.

However, in the case of GPB, the Shapiro-Wilk test of normality shows a different scenario where the P-value for male and female is .282 and .081which is >0.05 (at 5% significance level). Therefore, there is no significant departure from normality for the data. Hence we can go for a parametric test to see whether male and female significantly differ from each other in case of green purchase behaviour.

Nonparametric Kruskal-Wallis Test for Race:

Test Statistics[a,b]

	PI	GPB
Chi-Square	7.179	8.840
df	3	3
Asymp. Sig.	.066	.032

Source: authors' work; SPSS output
a. Kruskal Wallis Test
b. Grouping Variable: Race

The P-value of this test for PI is .066 which is >0.05 and for GPB is .032<0.05. there is some evidence based on ranking that there are differences in purchase intention and green buying behaviour in terms of races in Malaysia.

Ranks

	Race	N	Mean Rank
PI	Malay	37	51.41
	Chinese	30	40.82
	Indian	15	64.40
	Others	18	53.19
	Total	100	
GPB	Malay	37	41.07
	Chinese	30	53.75
	Indian	15	66.37
	Others	18	51.25
	Total	100	

Source: authors' work; SPSS output

In case of PI, the Mean ranks for Malay, Chinese, Indian and others are 51.41, 40.82, 64.40 and 53.19, respectively. Hence Indians rank higher in terms of purchase intention towards green food packaging in Malaysia. On the contrary, for Green buying behaviour, the Mean ranks for Malay, Chinese, Indian and others are 41.07, 53.75,66.37, 51.25 respectively. Therefore, again Indians rank higher compared to the rest of the groups.

Kruskal-Wallis Test for Gender

Test Statistics[a,b]

	PI
Chi-Square	2.086
df	1
Asymp. Sig.	.149

Source: authors' work; SPSS output
a. Kruskal Wallis Test
b. Grouping Variable: Gender

Ranks

Gender	N	Mean Rank
Male	45	45.93
Female	55	54.24
Total	100	

Source: authors' work; SPSS output

In case of PI, the mean ranks for male and female are 45.93 and 54.24 respectively. The mean rank for purchase intention is higher for the female population in Malaysia compared to the male population.

Test of Homogeneity of Variances
GPB

Levene Statistic	df1	df2	Sig.
.069	1	98	.794

Source: authors' work; SPSS output

In the case of green purchase behaviour, the P-value is .794>0.05; therefore, equality of variances assumption is met. The groups are homogenous in GPB towards green food packaging in Malaysia.

ANOVA
GPB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.018	1	.018	.025	.874
Within Groups	67.943	98	.693		
Total	67.961	99			

Source: authors' work; SPSS output

From the ANOVA table above, the P-value is .874 which is > 0.05 (at 5% significance level). Hence male and female do not differ significantly in terms of green buying behaviour towards green food packaging in Malaysia.

Conclusion and Implications of Research Findings

The research findings have provided some insights and feedback for the green food packaging marketers in formulating their various strategies on how to attract customers to purchase eco-friendly packaged food items. Marketers should be aware that in a multiracial and cosmopolitan country like Malaysia the purchase of green packaged food can also vary based on Malay, Chinese, Indian and other groups of consumers residing in this country. This study intends to analyse the purchase intention and green buying behaviour among various race group in Malaysia towards eco-friendly food packaging. The findings show that Indian consumers mean rank is higher compared to Malay, Chinese and other consumers in Malaysia both in case of Purchase intention and green buying behaviour towards green food packaging. The second mean rank for purchase intention goes for other races/ nations consisting of consumers from Pakistan, Bangladesh, Indonesia, Arab countries, India, Iran, Sudan and many more. A majority of the consumers from these countries comes to Malaysia for study purposes. Hence based on our study focus these international student groups are also very crucial that should be considered by the Packaging and food companies to redesign their marketing strategies towards green food Packaging.

On the contrary, in the case of gender, the green purchase intention found to be higher for the female population compared to male in Malaysia. This finding is similar to that of Connell et al. (1999) who has mentioned that women have been found to be more concerned and responsible regarding the environment and environmental protection issues. But interestingly, male and female showed no significant differences in the case of green buying behaviour towards green food packaging in Malaysia.

Based on the results of this study, the food packaging companies can redesign their green packaging style in such a way that can attract food manufacturers as well as consumers to clearly distinguish their quality compared to normal packaged food. Besides, different restaurants and cafés in the educational institutions and office areas can arrange various campaigns which can attract the students and working people in Malaysia to motivate them to buy food that is served or sold using eco-friendly food packaging.

Additionally, Malaysia Government can give subsidies to those food packaging and manufacturing companies that use eco-friendly packaged food so that it can increase their motivation. This motivation can also help them to transmit more interest in the near future to the various consumer groups to achieve sustainable environmental goals in Malaysia as well in the near future. Undoubtedly, similar studies can be carried out in the near future with more sample size to generalise the findings of this study.

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