

## **ENVIRONMENTAL CONSCIOUSNESS OF FOOD CONSUMPTION: CONSUMERS` ATTITUDE AND IMPLICATIONS FOR PRODUCERS, MARKETERS AND POLICY MAKERS**

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### **Research Background**

It is generally observed that consumers increasingly demand for higher value, better quality and safer food. Consumers also demand environmental-friendly produced food (green food), new food products, new packaging, more convenience, new delivery systems, and more nutritious foods. The future food choices will have implications for the organizational structure of the food industry and for the economic well being of farmers, food processors, retailers and other participants in the food production and marketing system. Typically, economists explain such changes in the food consumption pattern primarily as resulting from increase in income and changes in food prices. However, for a country undergoing rapid structural transformation and urbanization, changes in tastes and lifestyle, market development and occupation also may be important influence on food demand. This observation is supported by Alias (2001), which indicates that Malaysian consumers are moving towards high value and superior food as the per capita income increases and the level of affluence of Malaysian society rises.

Presently environmental consciousness is not only an ideology of activities, but a matter of market competition, considerably influencing consumer behavior world-wide as well as in Malaysia. The knowledge of the green consumer is important for the food supply chain, since environmental issues influence the purchase and nutritional decisions of 60% of consumers in the UK and US (Ottman, 1992), and a market segment of consumers in Malaysia (Mad Nasir et al., 2005).

From the above analysis, the food supply chain is increasingly market-led, with the end consumer being one of the main drivers for change. Demographic factors seem to be significant variables that led to the changes. Responding to the consumer, as highlighted in the product based focus of the Third National Agricultural Policy (NAP3), will be a key issue. Understanding the changes in food consumption ad demand patterns will probably provide one of the best bases for adding value to the chain to meet the consumer need and for appropriate policy formulation. Thus investment in tomorrow's food factor will only be meaningful if the relationship in the supply chain are recognized and responded to in Malaysia, as elsewhere.

Hence, a study to identify the consumers' perception and attitude towards green food and how demographic trends, income growth and changes in taste and lifestyles will affect future food choices, and how the food system will respond to such changes is vital to ensure sustainable growth of the food industry in Malaysia.

### **Problem statement**

Producers, marketers and policy makers failed to recognize the segment or group of consumers that demand the 'green food products' which can definitely benefit the parties that involved in the food industry.

### **Significance of study**

The identification of green consumers in terms of their awareness, perception and attitude towards green food products will lead an existing of green marketing management among the producers, marketers and policy makers which will ensuring the sustainability growth of the food industry in Malaysia.

### **Research objectives**

The general objective of this study is to determine the Malaysian consumers' environmental consciousness of food consumption.

The specific objectives are:

- i) to determine the environmental awareness, perception and attitude towards food consumption;
- ii) to determine the relationship between socio-demographic variables towards intention to purchase the environmental friendly food products
- iii) to determine the factors affecting the environmental consciousness that influence or associated with food consumption among the consumers; and
- iv) to recommend strategies to producers and policy makers on how the food system will respond to the consumers' perception and attitude to ensure sustainable growth of the food industry in Malaysia.

### **Research Methodology**

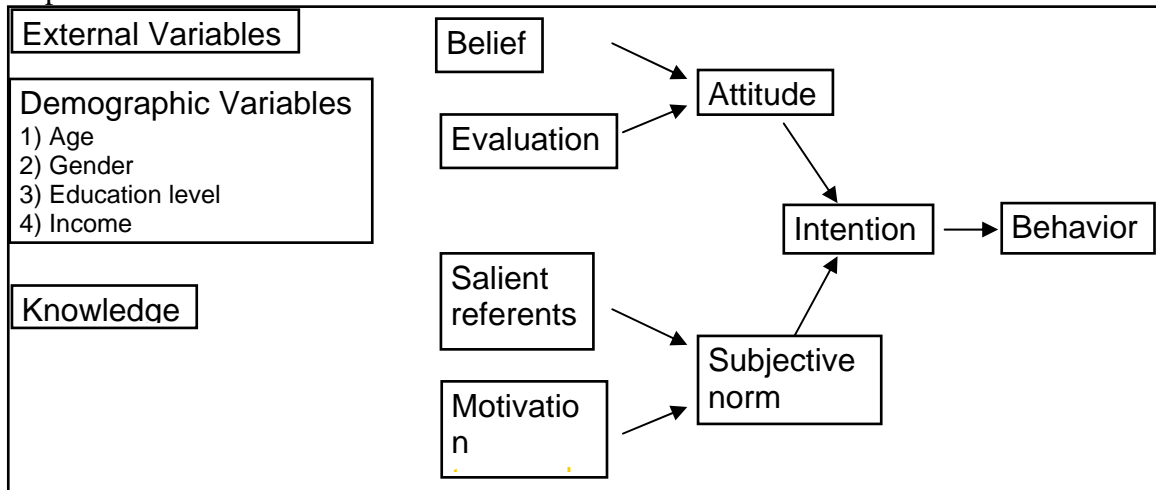
The conceptual framework of the study basically categorized into three parts, namely consumers' awareness, perception and attitude towards environmental-friendly produced food (green food). In the awareness section, consumers may appear to be aware of the attributes of the green food and its characteristics but may not entirely understand them. These two components strongly influence the perception and attitude section. Consumers' perception on green food in term of risk reduction has a tendency to give greater value to the potential benefit from the consumption.

### *Sample procedure*

The Department of Statistics Malaysia provides the sampling frame for the study. The population in Peninsular Malaysia, Sabah and Sarawak are first divided into the geographical clusters and several clusters are convenience selected. Subjects are selected using stratified convenience sampling.

*Theoretical Framework*

Model of Theory of Reasoned Action (TORA) applied in this study. Several applications of the Theory of Reasoned Action (TORA) in the environmentally related behaviors will be presented in this section.



Data Collection Procedures

*Number of Respondents*

About 2000 individuals will represent Malaysian consumers to answer the questionnaire of this study.

*Instrument*

The survey questionnaire is designed in English and Malay languages, and conducted by the personal interview method. Survey questionnaire is comprised of 3 main sections:

- SECTION A: Awareness
- SECTION B: Perception and attitude
- SECTION C: Demographic information

Data Analysis

This study will use the statistical analysis to determine consumers` awareness, perceptions, and attitudes which is consisting Descriptive analysis, Factor analysis and Structural Equation Modelling analysis.

**Result and Discussion**

*Structural Equation Modeling Analysis*

This part presents the results of Structural Model of Structural Equation Modeling analysis using the data and result from preliminary analysis. The 6 main research questions or hypotheses will be presented part by part based on the objective of this research on identification the existence of consumer segment with specific demographic profiles and variables proposed in the Theory of Reasoned Action proposed. A number of indices were used to measure the overall fit of the model. According to Hair et., al (2006)

and Arbuckle & Wothke (1999), the goodness fit measures goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) which require AGFI were 0.95 or above, GFI, CFI were 0.90 or above, and was 0.08 or less, provide the evidence of the construct validity of a model.

### *Model Fit*

The original hypothesized model adopted from the TORA model was rejected due to the offending estimated values occurred and the low estimates as can be seen in Figure 4.7 and Table 4.15. As a result, the hypothesized model was revised to achieve the acceptable model fit without the offending estimates and theoretically sound explanation of the model. The estimated standardized structural coefficients of the revised model are shown in Figure 4.8 and Table 4.16. These tables present the standardized regression weights. The path model depicting the standardized regression weights can be observed in Figure 4.7 and Figure 4.8. All of the estimated direct effects were statistically significant and were practical importance ( $C.R > 1.96 \sim 2$ ).

As can be seen in Figure 4.7 and Table 4.15, the hypothesized Intention to Purchase the Green Food Product (IPGFP) model have low goodness of fit indices values indicated by the goodness of fit index (GFI) of .663 and comparative fit index (CFI) of .487 which were lower than .90. The adjusted goodness of fit index (AGFI) of .474 which was lower than .90 also provided the evidence for rejecting the hypothesized model followed by the root mean square error of approximation (RMSEA) of .225 which was higher than required  $< .08$ .

Due to the rejection of hypothesized model, the model was revised to achieve the acceptable model fit without the offending estimates and theoretically sound explanation for the model. Finally the revised Intention to Purchase the Green Food Product (IPGFP) model was supported and achieved the acceptable model fit base on the findings in Figure 4.8 and Table 4.16. The revised model indicated by the goodness of fit index (GFI) of .987 and comparative fit index (CFI) of .980 which were higher than .90. The adjusted goodness of fit index (AGFI) of .954 which was higher than .90 also provided the evidence for the revised model to be accepted followed by the root mean square error of approximation (RMSEA) of .070 which was much lower than required  $< .08$ . The revised Intention to Purchase the Green Food Product (IPGFP) model was determined by knowledge variables, salient referents variables and salient beliefs variables. The regression weights for the revised model will be explained part by part according to the hypotheses of the model.

**Table 1.1 Summary of GFI, AGFI, CFI and RMSEA Fit Measures the Hypothesized IPGFP Model**

| Model           | GFI   | AGFI  | CFI   | RMSEA |
|-----------------|-------|-------|-------|-------|
| Default model   | 0.663 | 0.474 | 0.487 | 0.225 |
| Saturated model | 1.000 |       |       |       |

|                    |       |       |       |       |
|--------------------|-------|-------|-------|-------|
| Independence model | 0.425 | 0.321 | 0.000 | 0.273 |
|--------------------|-------|-------|-------|-------|

Key:

GFI: Goodness of Fit Index

CFI: Comparative Fit Index

AGFI: Adjusted Goodness of Fit Index

RMSEA: Root Mean Square Error of Approximation

**Table 1.2 Summary of GFI, AGFI, CFI and RMSEA Fit Measures the Revised IPGFP Model**

| <b>Model</b>       | <b>GFI</b> | <b>AGFI</b> | <b>CFI</b> | <b>RMSEA</b> |
|--------------------|------------|-------------|------------|--------------|
| Default model      | 0.987      | 0.954       | 0.980      | 0.070        |
| Saturated model    | 1.000      |             |            |              |
| Independence model | 0.520      | 0.383       | 0.000      | 0.297        |

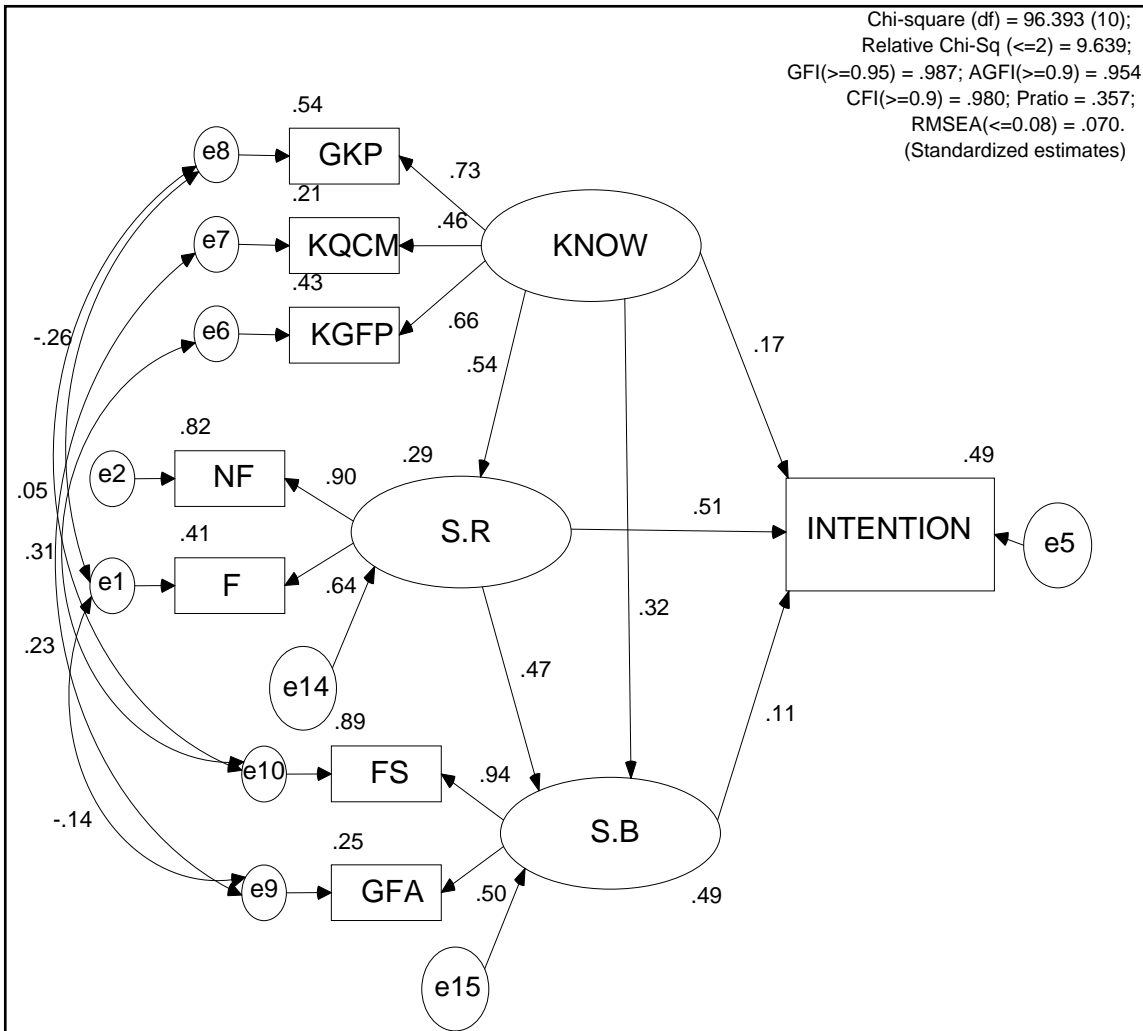
Key:

GFI: Goodness of Fit Index

CFI: Comparative Fit Index

AGFI: Adjusted Goodness of Fit Index

RMSEA: Root Mean Square Error of Approximation



**Figure 1.1 The Revised Intention to Purchase the Green Food Product Model**

**Significant of Finding**

A positive relationship between attitude toward purchasing the green food product and intention to purchase the green food product found in this study support the previous studies (McGuiness, Jones & Cole, 1977; Macey & Brown 1983; Barnaby & Reizenstein 1976; Dresner 1990; Balderjahn 1988) that stated the same findings. Then, this study identified the relationship between subjective norms with respect to purchase the green food product and intention to purchase the green food was positive as proposed by Warren & Warren (1977) and Gill, et al. (1986). These two early conclusions can be accepted based on the findings in hypothesis-testing analysis. The application of Structural Equation Modeling analysis can examine all the determinants and external variables simultaneously. Two basic determinants that represent the attitude and subjective norm hypothesized modified TORA model were deleted. At last, this study indicated the knowledge, salient referents and salient beliefs as the main determinants for

predicting intention behavior to purchase the green food product with total of variance .49.

From these three useful predictors resulted in the revised model, salient referent which is the representative of subjective norm was the best predictor of intention to purchase the green food product. Derksen & Gartrell (1993) suggested that “the highly visible, widespread, and socially desirable nature of the program means that on a neighborhood basis, the norm for recycling probably changed” (p. 440). Derksen & Gartrell (1993) found that persons with positive attitudes towards environmental concern will recycle if given an opportunity, but more importantly, their results show that unconcerned individuals in the strong recycling community reported high levels of recycling. This study finding yields the same results as the previous norm-intention relationship research in the area of environmental responsible behavior proposed by Rozendal et al. (1983) and Mielke (1985). They found that the normative factors were more important determinants of environmental responsible behavior than attitude factors. Derksen & Gartrell (1993) concluded that “the social context alone was sufficient to produce the behavior” (p. 439).

The findings from this study contradict most studies especially the previous studies using U.S samples on the relationship intention with attitude and subjective norm (Allen, et al, 1993; Goldenhar & Connell, 1993; Jones, 1990; Kok & Siero, 1985). A study on Danish recycling programs (Thogersen, 1994) also found that attitude was the better predictor of intention than subjective norm. Bell, et al., (1996) stated that attitude was the better predictor of intention than subjective norm in the context of relationship between Australians’ attitudes toward recycled toilet paper and low phosphate dish washing detergent, subjective norm and intention to purchase and actual purchasing behavior for such items. Respectively, Malaysian consumers’ actions were depending on the environment or people surrounding them and belonging to a certain group. In other words, their intention to purchase the green food product were more influenced by the collectivism activities which represents the level of mental programming which is shared with some people (Hofstede, 1981). In this case, the supposition of the interaction between the people in a group to gain knowledge and information was high. Indirectly, the knowledge of environmental issues indicated by the general knowledge of pollution (.73), knowledge of green food product (.66) and knowledge of quality control and management (.46) has a significant effect on intention to purchase the green food product through salient referents and salient beliefs as can be seen in the results. More important, the regression weight of salient referents on intention (.51) was obviously higher than the regression weight of salient belief on intention (.11). This finding support Rice, et al.’s (1993) which was found that there is no relationship between self efficacy and green concerned behavior among Thai consumers. Self efficacy is the extent to which consumer believes that his or her efforts, acting alone by themselves can make a difference.

Most Malaysian consumers’ intention to purchase the green food product based upon the influence and information gathered from the parents, family and friends as reported in this study. The results from SEM analysis categorized the salient referents into two major factors namely non-family (.90) which was higher than family (.64) influence. In this context, Malaysian consumers were more influenced by government, environmentalists,

teachers, mass media and politicians. Interestingly, the main factor that contributes to the salient beliefs determinant was food safety. Consumer concern about the safety of the food they eat has been increasing, highlighted by a number of “food scares” in recent years. Over the past years, various problems with food safety have frequently been the focus of media attention in Europe (De Boer *et al.*, 2003; Frewer *et al.*, 1993). It shows that the Malaysian consumers were aware of the local and international food safety issues. A theoretical perspective on this issue is provided by the social amplification of risk framework (Kasperson *et al.*, 1988), which posits that external events and increased availability of risk information can increase public risk perceptions (risk amplification), which, in turn, might lead to a decrease in consumer confidence in food safety. The green food attributes also an important factor of determining the salient beliefs on intention to purchase the green food product.

This study also found that there were significant effects of gender on intention to purchase the green food product. Female’s intention was significantly influenced by the knowledge directly which means that the applications of the knowledge were more efficient to the female compare to the male. Male respondents were more significant influenced by the salient referents. Respectively, male tend to care more about the opinion and perception of people around them and depend on social desirable. McStay & Dunlap (1983) stated that women are more likely to express environmental concern through personal behavior, daily behavior, while men are more likely to express environmental concern by trying to influence the behaviors of others. Malaysian females were more intent to purchase the green food products rather than male.

There was no significant difference between low education level category and high education level category. According to Vining & Elbreo (1990), few studies found no relationship between education and environmental attitudes or behavior. This study found that the education level has no significant difference on intention to purchase the green food products. The level of education among Malaysia consumers has no any influence on intention to purchase the green food product. Not surprisingly that the results showed some significant effects of household income on intention to purchase the green food product. The results of this study in determining the relationship between household income and intention to purchase the green product support the findings of previous researchers (Jacobs & Bailey, 1983; Vinning & Elbreo, 1990; Tucker, 1978; Kinnear, et al. 1974; and Van Housewelingen & Van Raaij, 1989).