

An Empirical Study of the Effect of Green Marketing on Purchase Intention – Evidence from Green Restaurant

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Abstract

With the increasing popularity of environmental consciousness, environmental impact of restaurant service industry has caught people's attention and green restaurant therefore become a trend in this industry. Using green restaurant as an example, this study investigates the relationships and effects of green marketing, green cognition, brand image and consumer's purchase intention. Results of this study indicated that green marketing has both a direct effect and an indirect effect (via green cognition) on brand image. In addition, green marketing has both a direct effect an indirect effect (via brand image) on purchase intention. However, the results also show that green cognition not only has a direct effect on purchase intention, but also has an indirect effect on purchase intention via brand image.

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Keywords: Green restaurant, Green marketing, Green cognition, Brand image, Purchase intention

1 Introduction

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Global warming and greenhouse effect is a serious environmental problem facing by mankind today, and it also affects the sustainable development of the restaurant industry. With the increasing popularity of environmental consciousness, environmental impact of restaurant service industry has caught people's attention and consumers start to realize the importance of green dining. Green restaurant therefore become a trend in the restaurant industry.

Though green restaurant has become an important issue for many consumers, most research studies focus on consumer perceptions or their purchase intention toward a green restaurant [1], [2], [3], with a rather limited number on the impact of green marketing and green cognition on consumers' purchase intention.

Green marketing is the application of the marketing concept and tools to facilitate exchanges that satisfy organizational and individual needs and desires in an environmentally friendly way, it not only help to build high-quality products, but also to shape their positive brand image [4]. Many evidence showed that ecologically concerned consumers will purchase and use green products [5], and they are willing to pay a higher price to buy green products [6], [7], [8]. There are significant relationships between green attitude, degree of ecologically conscious, and green consumer behavior [9]. Therefore, this study collected the opinions of 508 consumers to explore the relationships and effects of green marketing, green cognition, brand image, and purchase intention. Results of this study provide a reference for practitioners and consumers in the area of green restaurant.

The rest of this paper is organized as follows. Section 2 reviews previous research on green restaurant cognition, green marketing, brand image and purchase intention. Section 3 describes the data and method we employ. Section 4 reports the empirical results. Section 5 concludes the paper.

2 Literature Review

2.1 Green restaurant and green cognition

Green restaurant is defined as "new or renovated structures designed, constructed, operated, and demolished in an environmentally friendly and energy-efficient manner" [10]. The core of green restaurant includes 4R and 3E: reduce, reuse, recycle, refuse, economic, ecological and equitable. It can be called green consumption as long as one has the concept of environmental protection and try to minimize the damage to environment in the consumption process [11]. The Green Restaurant Association (GRA) is a national non-profit organization established in 1990 that advocates promoting green restaurant and providing effective ways for restaurants, manufacturers, distributors, and consumers to become more environmental responsible. According to its Green Restaurant Certification 4.0 Standards, a restaurant must meet requirements in seven environmental categories to become a certified green restaurant: water efficiency, waste reduction and recycling, sustainable furnishings and building materials,

sustainable food, energy, disposables, chemical and pollution reduction (<http://www.dinegreen.com/>). In this study we define green cognition of consumers toward a restaurant as a consumer's perception and understanding about a restaurant's environmental protection, and the internal and external factors that a consumer consider before his purchase.

2.2 Green marketing

Green marketing is the marketing of products to those consumers who have the concept of environmental protection to meet their needs and desires [12], the application of the marketing concept and tools to facilitate exchanges that satisfy organizational and individual goals in an environmentally friendly way [13], or the process and activities taken by firms through providing the environmentally friendly goods or services to satisfy customers [14]. Kotler and Armstrong [15] considered green marketing as the production of security products that meet the environmental standards, with recyclable and reusable packaging, with better pollution control methods and operate energy efficiently. Coddington [16] defined green marketing as the implementation of marketing activities with an attitude of environmental guard, and pointed out that it was both a business development responsibility and an opportunity for business growth. However, green marketing is to minimize the impact on environment in the entire product life cycle, including the acquisition of raw material, production, marketing, consumption and disposal [17]. It also involves the development and implementation of marketing plans to strengthen the green image of firms [18]. Under the direction of green marketing, the marketing plans developed by public utilities or companies should be established by considering both organizational profits and environmental protection [19].

2.3. Brand image

“Brand is a name, term, symbol, design or all the above, and is used to distinguish one's products and services from competitors” [20]. Brand image is defined as “perceptions about a brand as reflected by the brand associations held in consumer memory” [21], [22]. Accordingly, brand image does not exist in the features, technology or the actual product itself, but rather it is something brought out by advertisements, promotions or users. Brand image is often used as an extrinsic cue when consumers are evaluating a product before purchasing [23], [24].

2.4. Purchase intention

In this study we view consumption intention as purchase intention. Purchase intention is the likelihood that a customer will buy a particular product [25], [26], [27], the personal behavioral tendency to a particular product [28], or “an individual's conscious plan to make an effort to purchase a brand” [29]. A greater willingness to buy a product means the probability to buy it is higher, but

not necessarily to actually buy it. On the contrary, a lower willingness does not mean an absolute impossibility to buy. Purchase intention is determined by a consumer's perceived benefit and value [23], [26], [30].

3 Data and Methods

3.1 Hypotheses

Green marketing is the application of the marketing concept and tools to facilitate exchanges that satisfy organizational and individual needs and desires in an environmentally friendly way, it not only help to build high-quality products, but also to shape their positive brand image [4]. Eco-labels are viewed as one of the important tools of green marketing. They are useful for consumers to make decision for select environmentally- friendly products because it conveying information about how products are made through product labels [8]. As consumers are more and more concerned about environmental protection, they are willing to pay a higher price to buy green products [6], [7], [8]. Accordingly, we set up the following three hypotheses.

- H1: Green marketing has a significantly positive impact on green cognition.
- H2: Green marketing has a significantly positive impact on brand image.
- H3: Green marketing has a significantly positive impact on purchase intention.

Brand image is a brand concept constructed by consumers' subjective perceptions, it varies with consumers' cognition [31], [32]. Swait and Sweeney [33] found that consumers' value orientation and perceptions of various products actually affects their choice behavior. Ecologically concerned consumers will purchase and use green products [5]. There are significant relationships between green attitude, degree of ecologically conscious, and green consumer behavior [9].

Brand image is an important element when consumers are evaluating a product before purchasing [23], [21], [24], [34]. Favorable brand information positively influences perceived quality, perceived value, and consumers' willingness to buy [26], [35]. Accordingly, we build the following three hypotheses.

- H4: Green cognition has a significantly positive impact on brand image.
- H5: Green cognition has a significantly positive impact on purchase intention.

H6: Brand image has a significantly positive impact on purchase intention.

3.2 Questionnaire design and data collection

According to the research framework, we design the items of the questionnaire for the four dimensions: green marketing, green restaurant cognition, brand image, and purchase intention. These items are measured on Likert's seven-point scale, ranging from 1 point to 7 points, denoting "very disagree", "disagree", "a little disagree", "neutral", "a little agree", "agree", and "very agree", respectively. We administered the questionnaires to consumers living in Taiwan from December 1, 2014 to February 28, 2015. A total of 550 responses were distributed, and 508 usable responses were collected. An acceptable response rate was 92.36%.

The gauging scales are selected from the literature. Green marketing is measured by 6 items proposed by Charter [17]. Green cognition is gauged by 11 items taken from The Green Restaurant Association (1995). Brand image is measured by 8 items taken from Keller [21]. Purchase intention is gauged by 5 items proposed by Roy and Cornwell [36].

The questionnaire was modified through a pre-test. We selected 45 consumers based on convenience sampling for the pre-test of the questionnaire. The pre-test results show that all the dimensions have a Cronbach's α between 0.908 and 0.929. This means a good reliability, because the Cronbach's α coefficient has a value greater than 0.7 [37], [38]. The results from factor analysis indicate that all factors have an eigenvalue greater than 1, a factor loading greater than 0.6, a cumulative explained variation greater than 50%, and all the correlations between each factor and their items are greater than 0.5. This meets the criterion of convergent validity proposed by Kaiser [39]. Accordingly, we use this pre-test questionnaire as our formal questionnaire.

4 Analyses and Results

We perform data analyses on SPSS 21.0 and AMOS 21.0. The methods adopted include descriptive statistics analysis, reliability and validity analysis, correlation analysis, and structural equation modeling (SEM) analysis.

4.1. Descriptive statistics analysis

Through descriptive statistics analysis in Table 1, we found that the basic attributes of major group are female (56.3%), 21-30 years old (61.8%), university education level (69.3%), live in central Taiwan (62.2%), students (46.5%) and work in service industry (23.4%), and monthly income under NT\$20,000 (53.3%).

Table 1: Descriptive statistics analysis of sample

	Items	No. of respondents	Percent (%)
Gender	Male	222	43.7
	Female	286	56.3
Age group	Younger than 20 years old	86	16.9
	21-30 years old	314	61.8
	31-40 years old	69	13.6
	41-50 years old	25	4.9
	Older than 50 years old	14	2.8
Education level	Junior high school	13	2.6
	Senior high school	56	11.0
	University	352	69.3
	Graduate school	87	17.1
Residential area	Northern Taiwan	83	16.3
	Central Taiwan	316	62.2
	Southern Taiwan	98	19.3
	Others	11	2.2
Occupation	Service industry	119	23.4
	Manufacturing industry	40	7.9
	Freelance	52	10.2
	Public servants & teachers	21	4.1
	Students	236	46.5
	Others	39	7.9
Monthly income	Below 20,000	271	53.3
	20,001-40,000	171	33.7
	40,001-60,000	38	7.5
	60,001-80,000	11	2.2
	80,001-100,000	5	1.0
	More than 100,000	12	2.4

4.2 Reliability and validity analysis

Composite reliability (CR) is used as a measure of the reliability. It is defined to have “internal consistency reliability” when CR has a value greater than 0.7 [40]. As presented in Table 2, all the dimensions have a CR value greater than 0.7, which indicates good internal consistency reliability.

Table2: Confirmatory Factor Analysis

Dimension		Factor loading	CR	AVE
Green Marketing	GM1	0.937	0.970	0.842
	GM2	0.936		
	GM3	0.925		
	GM4	0.919		
	GM5	0.905		
	GM6	0.882		
Green cognition	GC1	0.948	0.984	0.848
	GC2	0.939		
	GC3	0.934		
	GC4	0.932		
	GC5	0.932		
	GC6	0.921		
	GC7	0.918		
	GC8	0.916		
	GC9	0.909		
	GC10	0.893		
	GC11	0.884		
Brand image	BI1	0.942	0.977	0.844
	BI2	0.927		
	BI3	0.922		
	BI4	0.919		
	BI5	0.919		
	BI6	0.915		
	BI7	0.907		
	BI8	0.897		
Purchase intention	PI1	0.938	0.962	0.835
	PI2	0.928		
	PI3	0.915		
	PI4	0.911		
	PI5	0.875		

Convergent validity and discriminant validity are commonly regarded as subsets of construct validity. This research conducts confirmatory factor analysis (CFA) to measure convergent validity. According to the results in Table 2, all CR estimates are greater than 0.7, all factor loadings are greater than 0.5, and all Average Variance Extracted (AVE) estimates are also greater than 0.5 in these four dimensions. This is consistent with the criterion of convergent validity proposed by Fornell and Larcker [40] and Hair et al. [41].

Table 3 presents the results of discriminant analyses, with the values on the diagonal being AVE of our four dimensions (constructs): green marketing (GM), green cognition (GC), brand image (BI), and purchase intention (PI). Values on the non-diagonal are the square of the correlation between two constructs. We note that the questionnaire has discriminant validity, because the AVE of each construct is greater than the square of the correlation between any two constructs [40]. In addition, it also has content validity, because our scale and item contents are constructed according to the literature review and do pass the questionnaire pre-test.

Table 3: Discriminant Analysis

	GM	GC	BI	PI
GM	0.842			
GC	0.842	0.848		
BI	0.810	0.814	0.844	
PI	0.692	0.653	0.805	0.835

This table shows discriminant analysis of green marketing (GM), green cognition (GC), brand image (BI), and purchase intention (PI). Values on the diagonal and non-diagonal are AVE estimates and the square of correlation between two constructs, respectively.

4.3 Structural equation modeling analysis

This section conducts structural equation modeling (SEM) analysis to test the fit of the factors (dimensions) of green marketing, green cognition, brand image, and purchase intention. For a model with good fit, GFI (goodness of fit) should be greater than 0.8 [42]. AGFI (adjusted goodness of fit) should be greater than 0.8, and CFI (comparative fit index) should be greater than 0.9 [41], [43], [44], [45], [46]. RMSEA (root mean square error of approximation) should be under 0.08

[42], and the ratio of the chi-square value to degrees of freedom $\frac{x^2}{(df)}$ should be

no greater than 5 [47]. The goodness-of-fit indices of the model are as follows:

GFI is 0.829, AGFI is 0.800, RMSEA is 0.074, and $\frac{x^2}{(df)}$ is 3.806. All these

indices are within the acceptable range, meaning that the overall model fitness is good.

4.4 Results from the hypotheses verified

Figure 1 presents the path analyses from SEM. According to the estimated values of the standardized parameters of the relationship model in Figure 1, we find that green marketing has a significantly positive influence on green cognition, brand image, and purchase intention (H1, H2, and H3 are all supported).

With regard to the relationships of green cognition, brand image, and purchase intention, we find that green cognition has a significantly positive impact on brand image (H4 is supported) and purchase intention (H5 is supported), brand image also has a significant impact on purchase intention (H6 is not supported).

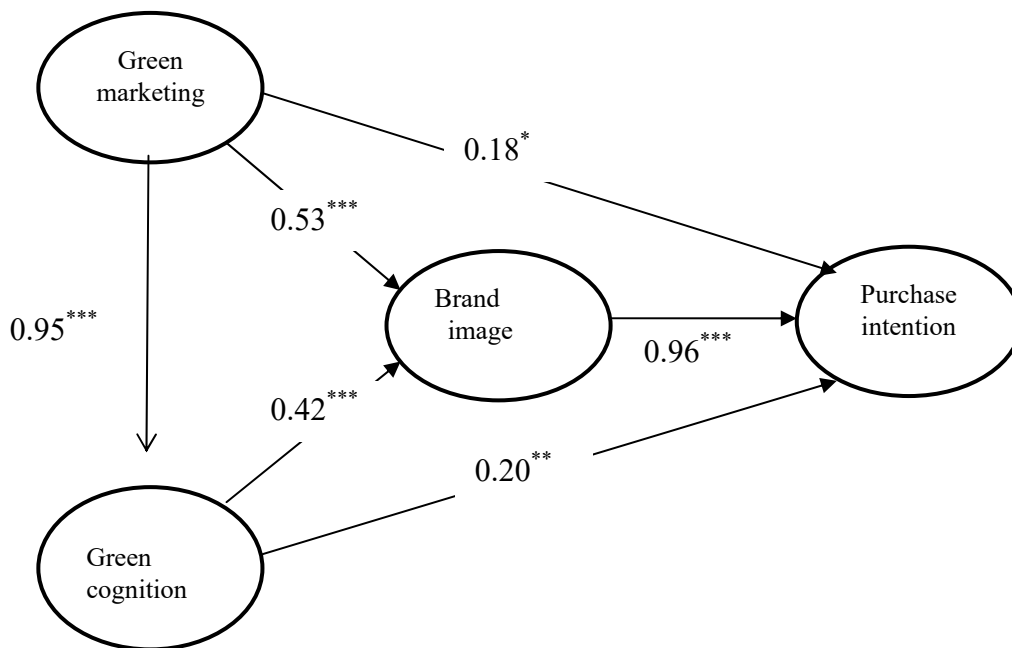


Figure 1: SEM from Path Analysis

Table 4: AMOS Model Fit Test Results

Hypotheses and Paths		Factor loadings	Results
H1:	Green marketing → Green cognition	0.95 ^{***}	Supported
H2:	Green marketing → Brand image	0.53 ^{***}	Supported
H3:	Green marketing → Purchase intention	0.18 [*]	Supported
H4:	Green cognition → Brand image	0.42 ^{***}	Supported
H5:	Green cognition → Purchase intention	0.2 ^{**}	Supported
H6:	Brand image → Purchase intention	0.96 ^{***}	Supported

This table shows the estimated values of standardized parameters and the hypothesis test results. The first column represents our research hypotheses (paths). The figure in second column is the standardized factor loading of each path. ***, **, and * indicate significance at the 0.1, 1 and 5 percent levels respectively.

The results from H1, H2, and H4 indicate that green marketing has both a direct effect and an indirect effect (via green cognition) on brand image. The results from H2, H3, and H6 show that green marketing has a direct effect on purchase intention, and it also has an indirect effect on purchase intention via brand image. Furthermore, the results from H4, H5, and H6 show that green cognition not only has a direct effect on purchase intention, but also has an indirect effect on purchase intention via brand image.

5 Conclusion and Implication

Global warming and greenhouse effect is a serious environmental problem facing by mankind today, and it also affects the sustainable development of the restaurant industry. With the increasing popularity of environmental consciousness, environmental impact of restaurant service industry has caught people's attention and green restaurant therefore become a trend in this industry. Therefore, this study investigates the relationships and effects of green marketing, green cognition, brand image, and purchase intention.

Using random sampling, we administered the questionnaires to consumers living in Taiwan from December 1, 2014 to February 28, 2015. A total of 550 questionnaires were distributed, and 508 usable responses were collected, for an acceptable response rate of 92.36%. We perform data analyses through SPSS 21.0 and AMOS 21.0, with the adopted methods including descriptive statistics analysis, reliability and validity analysis, correlation analysis, and structural equation modeling (SEM) analysis.

The research findings show that green marketing has both a direct effect and an indirect effect (via green cognition) on brand image. Additionally, green marketing has a direct effect on purchase intention, and it also has an indirect effect on purchase intention via brand image. Furthermore, the results show that green cognition not only has a direct effect on purchase intention, but also has an indirect effect on purchase intention via brand image.

The results from SEM show that green marketing has a direct effect on brand image and an indirect effect on brand image via green cognition. Moreover, green marketing also has a direct effect and an indirect effect (via brand image) on purchase intention. The implication is that restaurants implementing green marketing can not only enhance consumers' purchase intention directly, whereas it can lead to consumers holding a more positive image toward them, in turn stimulating consumers' purchase intention. Therefore, we suggest that restaurant practitioners should pay more attention to environmental responsibilities in order to achieve the objective of sustainable development. Restaurants are advised to implement marketing activities with an attitude of environmental guard to minimize the impact on environment in the entire product life cycle, produce security products that meet the environmental standards, use recyclable and reusable packaging, use better pollution control methods, and operate energy efficiently.

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