EXPLORING AND PREDICTING CONSUMERS’ ATTITUDES AND BEHAVIORS
TOWARDS GREEN RESTAURANTS

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ABSTRACT

With the increasing awareness of global climate change and natural disasters, environmental protection is an issue of high topicality and relevance. Companies across all sectors try to develop products and practices with minimized environmental effect as part of socially responsible practices, but also in order to establish themselves in a new niche for consumers with environmental concerns.

This is also true for the hospitality and tourism industry where businesses often rely on the integrity of the environment. However, while a number of studies exist for the lodging sector, there has been done almost no research on green practices in the food service industry. Given the large number of restaurants in the U.S. and the consumer’s common habit of frequently eating out, there is a high need for restaurants to engage in green practices. In fact, restaurants who exhibit strong interest in environmental issues and actively participate in eco-friendly practices could distinct themselves from other businesses, hence creating a significant competitive advantage.

Therefore, the purpose of this study is twofold: to explore consumer attitudes towards various areas of green practices in restaurants and consumers’ willingness to pay for green restaurants, and to predict attitudes, subjective norm, and perceived behavioral control leading to the likelihood of consumers to actively seek and visit green restaurants.
Ajzen’s (1985) Theory of Planned Behavior was used as a theoretical foundation to examine the influence of consumers’ demographic characteristics on attitudes, subjective norm and perceived behavioral control toward green practices in restaurants as well as the influence of those three constructs on consumers’ intention to dine in such restaurants. Data was collected with the help of a structured survey questionnaire that consumers of casual dining restaurants were asked to fill out while waiting for their food. The study sample was 455. Descriptive statistics were obtained in order to answer the exploratory questions and the hypotheses were tested using multiple linear regressions.

The analyses revealed that a majority of consumers perceived the area of “green action” as very important, and many consumers were willing to pay up to ten percent more for green restaurants. Furthermore, several demographic characteristics were related with the constructs of the Theory of Planned Behavior, and attitudes and subjective norm were good predictors of intention to dine at a green restaurant. A collection of qualitative data gave further inside into consumers’ thoughts and values.
Dedicated to my mother
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CHAPTER 1

1. INTRODUCTION

With the increasing awareness of global climate change and natural disasters, environmental protection is an issue of high topicality and relevance. Companies across all sectors try to develop products and practices with minimized environmental effect as part of social responsible practices, but also in order to establish themselves in a new niche for consumers with environmental concerns. This is also true for the hospitality and tourism industry where businesses often rely on the integrity of the environment. Hotels located in natural areas such as mountains or beaches for example, are especially dependent on the “healthiness” of their sites, and therefore some have been engaging in green practices and eco-tourism for several years. Restaurants however, are often less dependent to such environmental factors and have therefore shown less care for these issues. In addition, to the issue of environmental protection, the food service sector is also facing new challenges with regards to a general concern of the effect of food consumption on the health of consumers. With more and more U.S. citizens becoming overweight or obese and the yet unknown effect of genetically engineered food, healthier food is an important issue in the restaurant sector. That includes not only the use of organic food items, but also better food handling and preparation practices.
Realizing their image was at stake, several quick service restaurants have changed their attitudes towards environmental and nutritional issues and implemented certain improvements in favor of a healthier environment and healthier foods. For example, several years ago Mc Donald’s has changed their packaging from Styrofoam to cardboard in order to produce waste that is biodegradable and reduce oil consumption. Furthermore, the company has engaged in several attempts to offer healthier food choices on their menu. However, it is questionable whether these quick service restaurants engage in green practices out of Corporate Social Responsibility or in an attempt to attract more customers and boost sales.

For casual and fine dining restaurants, the impact on the environment is often less visible as they do not produce as much waste as quick service restaurants. They are also more often located in nicely landscaped spots with green areas around as opposed to quick service restaurants that are surrounded by concrete parking lots. On the other side, several restaurants have recognized the need for healthier food and implemented the usage of local or organic foods as well as healthier food preparation techniques.

1.1. Statement of the Problem

However, given the ever growing restaurant industry in the U.S. and the whole world, the widespread habit of eating out and the environmental effects thereof, there is a high need for restaurants to engage in green practices. For example, there are 504,641 food service and beverage outlets in the U.S. including 195,659 full-service restaurants, 186,942 limited-service restaurants and many cafeterias, buffets, etc. (U.S. Bureau of the
Census, 2002 Economic Census). Furthermore, the typical American age 8 and older consumes an average of 4.2 commercially prepared meals per week, according to National Restaurant Association’s 2000 report called Meal Consumption Behavior (Americans’ Dining-Out Habits, 2000). That is an average of one out of five meals consumed at restaurants. Given the high consumption rates, restaurants engage in numerous practices that contribute to the depletion of our environment. Among these practices are construction of restaurant facilities that destroy green areas, high usage of resources such as water, electricity, and gas, usage of non-recyclable products or wrong recycling practices, contribution to emissions for daily delivery and traveling of employees and guests to restaurant site, usage of environmentally harmful chemical products and careless handling of resources and materials in general. In fact, restaurants and commercial kitchens are very energy-intensive. As much as 80% of the $10 billion spent on energy each year by commercial food-service businesses does no useful work because energy is “often wasted in the form of excess heat and noise generated by inefficient appliances, heating, ventilation and air conditioning systems, lighting and refrigeration” (Enis, 2007). These numbers and facts show how high of an impact the restaurant industry has on the environment and hence the high urgency for restaurants to follow the green trend and start implementing green practices.

In fact, restaurants who exhibit strong interest in environmental issues and actively participate in eco-friendly practices could distinct themselves from other businesses, hence creating a significant competitive advantage. This could not only lead to the attraction of new customers, higher satisfaction and positive word of mouth, but also to increased loyalty and hence higher long-term sales (Kassins & Soterious, 2003).
1.2. Objectives of the Study

Therefore, this study aims to explore customers’ attitudes towards eco-friendly food service establishments, i.e. restaurants that engage in green practices. The purpose of this study is twofold:

- To explore consumer demographics and values leading to attitudes towards green practices in restaurants and
- To predict the likelihood of consumers to actively seek and visit green restaurants as well as to pay for such practices.

This study aims at answering questions such as which areas of green practices, green action, green food or green donation has the greatest effect in attracting customers? And which of the three areas is perceived as most important by consumers? Furthermore, we will identify how likely customers are to dine at green restaurants. However, given the possible financial constraints, are consumers willing to pay a premium for green restaurants? And last, can engaging in green practices create a long-term sustainable advantage for restaurants?

The following hypotheses will be tested:

**H1a:** Customers’ income will have a positive influence on attitudes towards dining in green restaurants.

**H1b:** Customers’ education will have a positive influence on attitudes towards dining in green restaurants.

**H1c:** Customers’ age will have a positive influence on attitudes towards dining in green restaurants.
H1d: Customers’ ethnicity will have no influence on attitudes towards dining in green restaurants.

H2a: Customers’ ethnicity will have no influence on subjective norm of dining at a green restaurant.

H2b: Customers’ age will have an influence on subjective norm of dining at a green restaurant.

H2c: Customers’ education will have a negative influence on subjective norm of dining at a green restaurant.

H3a: Customers’ income will have a positive influence on the perceived behavioral control of dining at a green restaurant.

H3b: Customers’ education will have a positive influence on the perceived behavioral control of dining at a green restaurant.

H4: Customers’ attitudes towards green restaurants will have a positive influence on their intention to dine at a green restaurant.

H5: Customers’ subjective norm of green restaurants will have a positive influence on their intention to dine at a green restaurant.

H6: Subjective norm for U.S. customers will have less influence on the intention of dining at a green restaurant than attitudes.

H7: Customers’ perceived behavioral control of dining at a green restaurant will have a positive influence on their intention to dine at a green restaurant.
1.3. Definitions

For the purpose of this study, the terms green practices and eco- or environmentally-friendly practices are used interchangeably. They have been developed following the notion of “environmentally-friendly products” which are products that “in some way aim at reducing a product’s negative impact” (Manaktola & Jauhari, 2007). Similarly to products, services can also have a major impact on the environment and therefore may aim to reduce their negative environmental impact as well. This can be done for instance by implementing practices such as using biodegradable products, actively saving energy and natural resources, purchasing energy saving equipment, reducing and recycling waste, and engaging in environmental protection programs. These practices are then referred to as green practices.

Recently, many companies have started “green marketing”, a concept that “seems to be associated with hype and exaggerated claims about a product’s environmental impact” (Manaktola & Jauhari, 2007). Green marketing however, when done truthfully, can give a company a significant competitive edge. This is especially true for food service enterprises, that have to compete against innumerable other businesses in a widely saturated market. Employing and marketing green practices, could help restaurants to establish a new niche for environmentally concerned customers, and therefore increase sales and long-term profits.

Several studies have supported this argument and reported that more and more consumers appreciated and rewarded firms that show strong environmental and social responsibility and were willing to pay premium prices for such services (e.g., Creyer & Ross, 1996; Joyner & Payne, 2002). However, the notion for green practices is not only
voluntary, but also stems from the pressure to become more environmentally friendly from various forces: consumer demand, increasing environmental regulation, managerial concern with ethics, customer satisfaction, maintenance issues related to physical plant, the need for aesthetics and stakeholder pressures (Foster et al., 2000, Kassins & Soterious, 2003).

The majority of studies in this field of green practices have been conducted for products and retail businesses such as the effect of eco-labeling on consumers behavior (Moon et al., 2002), consumers’ perceptions of green concern in retail stores (“Green Retailing Consumer Report”, 2007), and changing purchasing behaviors of products of non eco-friendly companies (Freeman, & Dagnoli, 1990).

However, little knowledge exists about the demand for green practices in the hospitality industry, specifically in restaurants. Only a few case studies have demonstrated the success of green practices in the hospitality industry with regards to cost reductions, resource savings, customer retention, loyalty and improved employee morale, specifically for Scandic Hotels (Goodman, 2000) and Hyatt Regency (Enz and Siguaw, 1999). While some of the benefits have been demonstrated, no information exists on how green practices are perceived by consumers of restaurants and whether engaging in these practices can really create a long-term competitive advantage for these food service establishments.

1.4. Background and Setting

As people are becoming more aware of the damage caused to the environment by regular business activities, companies across all sectors have started to implement
environmental practices into their operations. According to a recent report, "The Greening of Corporate America," the recognition of green practices among executives is growing very quickly. Sixty-three percent of CEOs recognize the financial benefits of green building. Moreover, sixty-seven percent of them see a specific operating-cost benefit from green practices ("Study Confirms Trend to Sustainability", 2007); that is costs saved from preventing the waste of resources, recycling, etc; and many managers see engaging in green practices as a market differentiation and as a way to foster innovation within their companies ("Study Confirms Trend to Sustainability", 2007).

In fact, engaging in green practices can have significant implications with regards to cost management for a restaurant. Implementing an energy-management strategy that promotes energy efficiency saves money and improves the bottom line while reducing the environmental impact of the property. Lower energy use means less energy produced at the source, which in turn means a reduction in greenhouse gas emissions and a lower energy bill for the restaurant. A recent study of the green programs for instance, found that environmental initiatives of 43 British companies had created for US$17.5 million a year in net savings, and the average payback for measures which required initial extra expenditure was 18 months (Wilson, S., 1996). So even, if a company has to initially incur extra costs, it will soon recover them and save money way beyond.

1.5. Significance

This study will explore an aspect of the food service industry that so far has been widely neglected. While the issue of environmental friendliness has been explored as part of Corporate Social Responsibility Practices and for products and retails (Drumwright &
Murphy, 2001; Meriläinen, Moisander, & Pesonen, 2001), only little information exists on the notion of green practices in restaurants. The findings of this study will contribute new knowledge to the body of theoretical understanding of consumers’ perceptions on green practices in the food service industry. Beyond that, the study will also have practical implications for food service establishments helping restaurants recognize the importance to engage in green practices, not only for the benefits to the environment but also in order to achieve diversification, improved image and increase long-term profitability. This can be achieved by helping restaurants to identify customers who are most likely to choose green restaurants and who are willing to pay for such a service with the help of this study. Furthermore, the results will indicate the kind of green practices that matter most to customers.

Although data will be collected in Columbus restaurants and cannot be generalized for all restaurants within the U.S., the data will be indicative of certain attitudes and beliefs held by consumers of restaurants that may identify general behavioral tendencies similar to those of all U.S. customers. Since almost no knowledge exists for this area, it is important to conduct a first step in exploring and predicting consumers’ attitudes and behaviors within the food service industry.
CHAPTER 2

2. LITERATURE REVIEW AND EMPIRICAL MODEL

This chapter reviews prior studies on green practices in the hospitality industry, including consumer characteristics and trends specifically in the food service industry. Furthermore, it combines an adapted list of green practices of restaurants to three common important areas leading to the exploratory research questions. This chapter also introduces the theoretical framework for the study: Ajzen’s (1985) Theory of Planned Behavior. Last, the empirical framework and hypotheses related to consumers’ perceptions of green restaurants are discussed.

2.1. Literature Review

2.1.1. Green Practices in Hospitality Management

Two recent studies have specifically examined consumer behavior in this area. One, explored managers’ attitudes, preference, and involvement with regard to green practices (Choi & Parsa, 2006), the other examined consumer attitude towards green practices in the lodging Industry in India (Manaktola & Jauhari, 2007). Both studies have recognized the strong need for green practices in the hospitality industry. Several benefits mentioned are a reduced financial risk, strengthened customers relations, increased harmony with the community (Choi & Parsa, 2006), fulfilling a need in the market,
differentiation, and decisive factor and decision-making when two services or products seem equal otherwise (Manaktola & Jauhari, 2007). Other benefits include improved image and enhanced loyalty of key stakeholders (Goodman, 2000). Whereas Choi and Parsa (2006) focus on the attitudes of managers to engage in green practices, Manaktola and Jauhari (2007) focus on consumer behavior. However, their sample of customers in India may not be representative for the U.S. population. Nevertheless they found that 22 percent of their sample deliberately sought information on green hotels and used it in making their hotel decision. Of their respondents, 55 percent paid attention to environmental initiatives which could give a hotel a decisive competitive advantage when exhibiting such initiatives. However, Manaktola and Jauhari (2007) found that in their study, a positive attitude or behavior towards green practices did not result in a consumer paying for the same. In fact, just 15 percent were willing to pay for environmental initiatives while the remaining consumers felt that the costs should be either paid by the hotel or shared. Furthermore, the study found that 40 percent felt that they could pay 4 to 6 percent more for staying at a green hotel.

2.1.2. Customers

This confirms the findings of Hanas (2007) which divide customers into True Greens who regularly buy green products, Light Greens who buy green products sometimes and Never Greens. According to the study, 12 percent of Americans are True Greens (68 percent are Light Greens), but even they do not buy green all the time. This could be in part due to the fact that green products are not always available. The same way, often green restaurants are not “available” either. However, given the large number
of consumers who are very or moderately interested in making green purchases, it is possible that there is an unmet need for green practices in restaurants. This is confirmed also by the finding of the recent Walnut Acres/Roper AW survey that says that 72 percent of Americans would choose a product labeled organic over a regularly labeled product (Prewitt, 2007). If such a high percentage of consumers care for organic products, the interest in green practices might be high as well.

2.1.3. Industry

While there is a lot of knowledge on green practices in the lodging sector, there has been little to almost no research done on this topic in food service. As mentioned earlier the exploration of managers’ attitudes, preference, and involvement with regard to green practices (Choi & Parsa, 2006) is the only available research on this topic, but does not examine consumer perceptions. This might be because this topic is new for the food service industry, especially for casual and fine dining restaurants that operate on a much smaller scale and therefore have not been subject to the strong consumer pressure for environmental protection yet. In order to gain a better understanding of the issue a few sources from the industry might give insightful information.

Previously, there existed the common misconception that operating a green restaurant would cost too much and that it would be too difficult to get quality products (Carbonara, 2007). However, with the increased popularity of environmentally friendly products, these have become cheaper and easier to acquire. That is because the combined buying power of multiple operators can let them negotiate better prices among approved
green vendors (Rosenthal in Carbonara, 2007). Also, with the help of an organization, setting up green practices has become much easier recently.

According to an article in the Nation’s Restaurant News, more and more restaurants are seeking to earn seals of approval for their green practices from third-party certifiers (Prewitt, 2007). One of these certifiers is the Green Restaurant Association, a non-profit national environmental organization that has been active since 1990 as well as the National Restaurant Association that plans to launch an online program to help restaurants become green (Carbonara, 2007). These organizations can assist restaurateurs to go green. With regards to organic claims certification by law is required only for “grocers or vendors that make marketing statements about organic foods and generate more than $5000 in organic food sales” (Prewitt, 2007), but the Green Restaurant Association looks more broadly at a restaurant’s total operating practices. These include energy and water use and conservation, recycling and composting, avoidance of toxic cleaning and chemical products, employee education and construction methods (Environmental Guidelines, 2007). Interestingly with the current trends, some restaurants are seeking organic certifications even though they are not required by law (Prewitt, 2007). If these restaurants are doing this to improve their image or create awareness, then a GRA logo should have the potential to have the same effect for green certificates. Plus, there are the additional benefits of using less energy and ultimately saving money (Prewitt, 2007). This is confirmed also by Joseph Carbonara (2007) according to whom “becoming environmentally friendly makes good business sense” because “being fiscally responsible and economically responsible: When the two intersect, it’s a win-win.” (Chris Giarraputo of B.R. Guests Restaurants in Carbonara, 2007).
While in Europe there is a relatively high number of green restaurants, in the U.S. only 1,000 restaurants in 23 states have gained the GRA certification (“1000 Restaurants Certified as Green”, 2007). On the contrary, according to “How Green is Hospitality in Europe”? (2007), 34 percent of the restaurants and 44 percent of the hotels in Europe have set energy-reduction targets. Furthermore corporate group establishments are more likely to have green targets (58 percent), compared with 31% of independents. That being said, Germany and France lead the green restaurants sector with 47 and 45 percent respectively of the restaurants being green. They are followed by Spain in third place, the UK and Italy. With regards to specific practices that European restaurants engage in, the most common “action” is to minimize, reuse or recycle waste (72 percent). This is followed by the use of energy efficient lightning (40 percent), recyclable water (6 percent) and having an environmentally sensitive sourcing policy (5 percent). It is interesting to note that these are all practices that also help to save costs while benefiting the environment. In last place comes using mainly Fairtrade goods with 1 percent (all percentages from American Express Hospitality Monitor Europe, in “How Green Are UK and European Restaurants?” (2007) which could be due to the fact these goods are more expensive and require hire costs.

2.1.4. The Impact of Green Practices

As mentioned earlier, engaging in green practices can lead to significant advantages for restaurants. Kassinis and Soteriou (2003) found that environmental practices in the service industry are positively related to performance through the mediating effect of enhanced customer satisfaction and loyalty. In other words,
restaurants could cater to the relatively new interest for eco-friendly practices by consumers with the consequence of increasing customer satisfaction and loyalty. The latter one will then ultimately lead to increased performance in the market, hence a sustainable advantage over competitors. With these results in mind it should be only a logic consequence for restaurant owners and managers to engage in green practices.

2.1.5. Areas of Green Practices

In order to promote green practices among restaurants and fulfill this need, the Green Restaurant Association (GRA), an organization that promotes “Creating an Environmentally Sustainable Restaurant Industry” provides numerous guidelines for green restaurants. These suggest green initiatives in the following areas:

1) Energy Efficiency & Conservation

Energy efficient technologies and conservation practices exist for lighting, heating, ventilation, air conditioning, foodservice appliances, office equipment, and transportation.

2) Water Efficiency & Conservation

Water efficient technologies and conservation practices exist for foodservice appliances, equipment, and landscaping.

3) Recycling & Composting

Recycling services exist for many waste products such as glass, plastic, metal, cardboard, mixed paper, grease, ink & toner cartridges. Food waste can be diverted
from landfills and made into nutrient-rich soil through the use of a composting service or an on-site system.

4) Sustainable Food

Sustainable food products support the long-term maintenance of ecosystems and agriculture for future generations. Organic agriculture prohibits the use of toxic synthetic pesticides and fertilizers, irradiation, sewage sludge, and genetic engineering. Locally grown foods reduce the amount of pollution associated with transportation primarily by fossil fuels. Plant-based foods require fewer natural resources and create less pollution per calorie consumed.

5) Pollution Prevention

Pollution prevention is achieved through source reduction, reuse, or improving operational practices.

6) Recycled, Tree-Free, Biodegradable & Organic Products

Recycled products are made from materials that are collected from post-consumer or post-industrial waste sources. Tree-free products are made from alternative plant sources such as hemp or kenaf. Biodegradable products are capable of being decomposed by biological agents, especially bacteria. Organic products are grown without the use of toxic synthetic pesticides and fertilizers, irradiation, sewage sludge, and genetic engineering.
7) Chlorine-Free Paper Products
Chlorine-free paper products are unbleached or whitened with alternatives such as hydrogen peroxide, oxygen, and ozone.

8) Non-Toxic Cleaning & Chemical Products
Non-toxic cleaning and chemical products are biodegradable, free of hazardous ingredients, and are safe for people, animals and the environment when used properly.

9) Green Power
Electricity and power is available from renewable resources such as wind, solar, geothermal, small hydro and biomass. These energy sources cause dramatically less air pollution and environmental damage compared to fossil fuel, nuclear, and large-scale hydroelectric energy sources.

10) Green Building & Construction
Green design and construction practices significantly reduce or eliminate the negative impact of buildings on the environment, occupants, and the local community.

11) Education
Education of staff on the environmental impact of the restaurant industry and a path toward ecological sustainability.
Even though these guidelines are plausible and easy to follow, only few restaurants make an effort to engage in them. This could be due to the low awareness of effective methods for food service practices, fear for increased costs, but also due to the little knowledge available on consumer attitudes and behaviors when choosing “normal restaurants” versus green restaurants. However, restaurants face some challenges that are different from the rest of the service industry. While for example in hotels consumers are actively involved in environmental practices through energy or water saving initiatives in their rooms, most restaurant activities are hidden from the costumer because they take place in the back of the house (Kassinis & Soteriou, 2003). They are therefore not visible to the customers and consequently not even recognized. For example, recycling or waste disposal in restaurant is typically part of invisible practices. However, these green practices may result to increased employee satisfaction which in turn may lead to better services and increased customer satisfaction. In fact, research has shown how crucial employee education and training is in this process (Kassinis & Soteriou, 2003).

Based on this information, there are three major areas of green practices that a restaurant can pursue:

- **Green action**: energy, water efficiency, recycling, pollution prevention, green building construction (points 1, 2, 3, 5, 6, 7, 8, 9, 10)
- **Green foods**: sustainable (organic and local) foods (4)
- **Green donation**: engaging in community projects and donating money for green causes (11)

•
2.1.6. Research Questions

While green foods can be an effective marketing tool when attracting customers, green action sometimes can forgo unseen without the consumer noticing and therefore might not affect consumer behavior. Green donations are often made in an attempt to purposely attract attention of consumers, but might not necessarily change consumers’ attitudes of the business.

Since little is known how consumers perceive each of the areas this study will address the following research questions:

1) Which of the three areas of green action, green food or green donation is perceived as most important by consumers and therefore has the greatest effect in attracting customers?

2) Would consumers consider dining at a green restaurant?

3) Are consumers willing to pay a premium for green restaurants?

4) Can engaging in green practices create a long-term sustainable advantage for restaurants?

2.2. Theoretical Framework

2.2.1. Theory of Planned Behavior

In addition to the exploratory part, this study also aims to predict consumer behavior. Explaining and predicting human behavior in all its complexity is a difficult task (Ajzen, 1991). The Theory of Reasoned Action (Ajzen & Fishbein, 1975) and the Theory of Planned Behavior (Ajzen, 1985) are among the most frequently used models
designed to predict and explain human behavior in specific contexts. They are also useful in predicting consumers’ behavior (Chen et al., 2006). While the Theory of Reasoned Action uses *attitudes towards the act* and *subjective norms* to predict behavioral intention and behavior, the Theory of Planned Behaviors adds the construct of *perceived behavioral control* to the two earlier constructs. This was necessary to overcome the “original model’s limitations in dealing with behaviors over which people have incomplete volitional control” (Ajzen, 1991, p. 181).

Together these three constructs influence consumers’ behavioral intentions. Intention represents a person’s motivation to exert an effort to perform a behavior (Ajzen, 1991). In other words, it is an indication of how hard people are willing to try. In general it is true that “the stronger the intention to engage in a behavior, the more likely should be its performance” (Ajzen, 1991, p.181).

For the purpose of this paper, the Theory of Planned Behavior provides a more appropriate framework as income and hence disposable income for paying for green services is a perceived behavioral control and believed to be an important influence on consumers’ behaviors. This is confirmed by Chan and Lau (2002) who provided empirical support to the external validity of TPB through the examination of green purchasing behavior of American and Chinese consumers. The hypothesized model is depicted in Figure 2.1.

### 2.3. Hypotheses Development

Based on the preceding discussion, a model for the present study is proposed. This proposed model includes demographic characteristics, such as gender, age, ethnicity,
education, and income, as explanatory variables as well as attitudes, subjective norm, perceived behavioral control, and intention. The relationships between these constructs are illustrated in Figure 1.

![Figure 2.1: Modified Theory of Planned Behavior](image)

**2.3.1. Demographics and Attitudes**

Fishbein and Ajzen (1975) defined attitude as an individual’s overall positive or negative evaluation on performing a behavior and its consequences. Previous research has examined the influence of various demographics on green decision-making, without describing demographics’ influence on attitudes. However, according to the Theory of Planned Behavior attitudes are antecedents of behavioral intentions and behavior. Therefore, it is important to examine the influences of demographics on attitudes.

*Gender*   
Interestingly, gender has no significant effect on environmental protection (Gelissen, 2007 and Grønhøj, 2007). Though it does not influence
environmental involvement, it has been evidenced to lead to different environmental practices between men and women. In a combination of qualitative and quantitative research in Denmark, a gender based division of pro-environmental practices has been found. For example, males were more inclined to arrange for practical disposal of household waste while women were more inclined to engage in “benign” activities such as purchasing organic foods (Grønhøj, 2007). This is confirmed by Klineberg (1998) who found that women were more likely to report taking part in "green" shopping, but not in recycling or contributing to environmental organizations (p.751). Furthermore, “women were more likely to express concern about local and statewide pollution and more prepared than men to pay the regulatory, but not the economic, costs of environmental protection”. However, since gender has no significant effect on green behavior, it is not included in the hypotheses.

Income and Education

Nevertheless, other demographic characteristics have been found to directly influence the behavior of environmental protection. Income and educational attainment have been found to be positively and directly related to environmental involvement (Gelissen, 2007). Since people with higher educational attainment likely also know more about environmental issues and their importance, in general they should also have higher attitudes towards eco-friendly practices. Furthermore, income is often linked with education, as higher educational attainment is positively correlated with higher income. Though there are exceptions, it can be logically assumed that income and education also positively affect attitudes, the antecedent of the green intention and behavior.
**H1a:** Customers’ income will have a positive influence on attitudes towards dining in green restaurants.

**H1b:** Customers’ education will have a positive influence on attitudes towards dining in green restaurants.

**Age**  On the other hand, age is negatively related to environmental support (Gelissen, 2007). That means while a person is more likely to engage in green behaviors with increasing education and income, the older a person is, the less likely he or she will engage in environmental protection. This is confirmed by Klineberg et al. (1998, p. 749) who found that “younger and better educated members of the public appear to be more concerned about issues of environmental quality and more committed to environmental protection”. Consequently, it would be logical to assume that age will be negatively related with attitudes toward dining at a green restaurant.

**H1c:** Customers’ age will have a positive influence on attitudes towards dining in green restaurants.

**Ethnicity**  Other demographics have been found to exert influence depending on the different ways environmental issues are framed in questionnaire items. The size of town in which one lives for example, consistently predicts environmental concern only when it is phrased in terms of the perceived quality of the local environment whereas in the assessments of statewide pollution, size of town is not predictive (Klineberg et al., 1998). This is also true for other variables, such as ethnicity, religiosity, and gender.
Specifically, Klineberg et al. (1998, p.751) found that Hispanics and blacks “showed less environmental concern than Anglos when it was explicitly associated with increased economic costs or measured in terms of the pollution of recreational water resources. Hispanics, but not blacks, were also less likely than Anglos to endorse various ecological beliefs, yet were more concerned about global warming, more inclined to support increased government intervention to protect the environment, and more likely to report contributing to environmental organizations”. While this shows that ethnicity does have an influence on green behaviors, no research exits on different ethnic groups’ attitudes towards the specific issue of dining at a green restaurant. Therefore, a null hypothesis is proposed for the relationship between ethnicity and attitudes.

**H1d**: Customers’ ethnicity will have no influence on attitudes towards dining in green restaurants.

### 2.3.2. Demographics and Subjective Norms

**Ethnicity**

Subjective norm refers to what a significant person such as family or friends in the consumer’s life thinks about the act and the consumer’s motivations to comply with this significant person (Fishbein & Ajzen, 1975). Different ethnic groups have been known to be more or less susceptible to be influenced by the opinions of others. Accordingly, Hofstede (1991) has categorized a large number of countries based on their tendency towards individualism and collectivism. In individualistic countries such as the U.S. the ties between individuals are loose and people are relatively independent from their families and social groups. On the contrary, according to this classification, in
collectivist cultures (such as Asian countries) people belong to strong cohesive groups, often extended families, and are expected to show strong loyalty towards those. This also results in a stronger need to please people in ones group, hence a higher subjective norm. Though this classification shows cultural differences between Asian countries versus Anglo-Saxon and other countries, it does not provide any information on the behavior of ethnic groups within a multi-ethnic country like the U.S. However, while there are people of many different ethnicities in the U.S., many of them have tried to integrate and consequently have been acculturated to be more individualistic over time. Therefore, a null hypothesis is proposed for the relationship between ethnicity and subjective norm.

**H2a:** Customers’ ethnicity will have no influence on subjective norm of dining at a green restaurant.

*Age* Research from other social behavior fields has found that age influences the strength of normative believes. In a study about health goal attainment, older adults displayed greater motivation to comply with subjective norms (VonDras & Madey, 2004), hence being influence more by normative beliefs than younger adults. This is also confirmed in the context of driving violations where younger drivers were found to perceive less pressure from others (Parket et al., 1992). However, in this study younger people were also more motivated to comply with the perceived wishes of their referent. Because of the conflicting results a null hypothesis will be tested:
**H2b**: Customers’ age will have an influence on subjective norm of dining at a green restaurant.

*Education* Similarly, it can also be assumed that education and income will have an influence on the consumer’s subjective norms. Often, more educated people have the knowledge and abilities to search for and subjectively judge information and are therefore more independent decision makers. Therefore, the proposed relationship between education and subjective norm is negative.

**H2c**: Customers’ education will have a negative influence on subjective norm of dining at a green restaurant.

2.3.3. Demographics and Perceived Behavioral Control

*Ethnicity* Perceived behavioral control refers to the people’s perception of the ease or difficulty of performing the behavior of interest (Ajzen, 1991). While ethnicity most likely exerts influence on attitudes and subjective norms, no information is available on its effect on behavioral control. Therefore, I will not predict its influence.

*Age* The same is true for age. Since no research exists on its influence on behavioral control, no predictions can be made.

*Income* It is however, reasonable to assume that perceived behavioral control in influences by income. Specifically, the more income a person has, the more likely he or she will be able to afford dining at a green restaurant. Moreover, the more likely the person will be willing to pay relatively more for such services.
**H3a:** Customers’ income will have a positive influence on the perceived behavioral control of dining at a green restaurant.

*Education* A similar relationship should be true for educational attainment and perceived behavioral control. The more education a person has, the more he or she should be likely to possess the necessary knowledge about environmental issues such as knowledge on pollution, environmental protection and the availability of green products and services. Consequently, the more likely as person should be involved in green decision-making.

**H3b:** Customers’ education will have a positive influence on the perceived behavioral control of dining at a green restaurant.

2.3.4. **Attitude towards Green Practices in Restaurants**

As mentioned before, attitude is defined as an individual’s overall positive or negative evaluation on performing a behavior and its consequences. As suggested by Fishbein and Ajzen (1975), when determining whether to perform an act, individuals want to maximize the rewards to be gained by the act and minimize the costs associated with it. Consumers often weigh the costs and benefits gained from an act (Cheng et al., 2006). In other words, if an individual possesses a positive attitude toward a behavior, he or she will be more likely to engage in the behavior. On the contrary, if an individual possesses a negative attitude toward an act, he or she will be less likely to undertake that behavior. For example, Manaktola and Jauhari (2007) have shown that there is a
significant relationship between the consumer attitude and behavior towards green practices in the hotel industry. Therefore, it is hypothesized that the more positive a person’s attitude was toward green practices in general, the more likely the person would intend to actively seek and dine at a green restaurant.

**H4:** Customers’ attitudes towards green restaurants will have a positive influence on their intention to dine at a green restaurant.

### 2.3.5. Subjective Norm on Green Practices

Subjective norm refers to what a significant person in the consumer’s life thinks about the act and the consumer’s motivations to comply with this significant person (Fishbein & Ajzen, 1975). Significant others are those who are close or important to an individual, including parents, siblings, close friends, relatives, subordinates, superiors, and business partners (Hee, 2000 in Cheng, 2006). Subjective norm is intended to measure social influence on consumer behaviors (Fishbein & Ajzen, 1975) and the perceived social pressure on an act. It is determined both by a person’s normative beliefs about what most others who are important to him or her and the extent to which an individual wants to comply with what they think (Ajzen & Fishbein, 1975). That is, if one or several significant people in a person’s environment see environmental protection and green practices as important and an individual’s motivation to comply with what his or her significant others think is high, an individual may have higher propensity or stronger intention to care for the environment themselves and will be more likely to dine at green restaurants. It is important to notice that subjective norm matters more in collectivist
countries because of the stronger need for conformity (Chan & Lau, 2002). Results showed that for the purchase of eco-friendly products, subjective norm rather than attitude was seen to exert a stronger influence on Chinese consumers. Moreover, subjective norm was found to have a stronger impact on their green purchasing intention than on American consumers. Conversely, attitude rather than subjective norm exerts a stronger influence on American consumers’ green purchasing intention, though subjective norm still influences intentions and behavior (Chan & Lau, 2002). Thus, the following hypothesis was developed:

**H5**: Customers’ subjective norm of green restaurants will have a positive influence on their intention to dine at a green restaurant.

**H6**: Subjective norm for U.S. customers will have less influence on the intention of dining at a green restaurant than attitudes.

### 2.3.6. Perceived Behavioral Control of Visiting Green Restaurants

Perceived behavioral control refers to the people’s perception of the ease or difficulty of performing the behavior of interest (Ajzen, 1991). This construct is necessary because even though a person might have a positive attitude towards an act, if he or she is lacking the necessary resources, it is impossible to engage in the behavior. While the resources and opportunities dictate the likelihood of behavioral achievement to some extend, it is the people’s perception of those that influence behavioral intentions. The reason is that people’s behavior is strongly influenced by their confidence in their ability to perform. Ajzen (1991) gives the fitting example of two individuals who have
equally strong intentions to learn to ski and try to do so. The person that is confident to being able to master this activity is more likely to persevere than the person who doubts his ability.

Perceived behavioral control includes factors such as the availability of time and money or the possession of required skills and the person’s self-confidence in his or her ability to perform the act (Cheng et al., 2006). Researchers in the area of green practices have confirmed that an individual’s perceived behavioral control exerts a strong influence on the green purchasing intention, more so for Chinese than American consumers (Chan & Lau, 2002). In other words, U.S. consumers were found to exhibit a higher degree of volitional control over green purchases. This could be attributed to the greater availability of sources (environmental knowledge or money) and opportunities (higher availability of green products) (Cheng & Lau, 2002). Hence, these capabilities and abilities have an important impact on their purchase intentions and ultimate purchase behaviors with regards to green products. Therefore, it is proposed that when consumers perceived more control over green practices, they are more likely to visit green restaurants.

H7: Customers’ perceived behavioral control of dining at a green restaurant will have a positive influence on their intention to dine at a green restaurant.
CHAPTER 3

3. PROCEDURES

In the previous chapters the research framework and the related questions and hypotheses were developed. In this chapter, the research procedures for the data collection and analysis are described and the measurements of variables in the empirical model presented.

3.1. Research Design and Subject Selection

The study was carried out in Columbus, Ohio, a major city in the Midwest that is known for being “normal” in terms of consumer behavior and therefore in the past has often been used as a test market for many companies (BNET, 1998). The city has just over 2,100 restaurants, and there are over 80,000 people working in the industry serving over 80,000 meals each day, making it the largest private sector employer in the city. Columbus restaurants are generating $2.86 billion dollars in sales, and nine out of ten restaurants are involved in charitable giving in the community (CORA, 2008). For these reasons Columbus presented a perfect outlet for engaging restaurant owners in the survey and collecting information from local restaurant customers.

IRB approval for the survey research was obtained on March, 14, 2008 and assigned protocol number # 2008E0206. A pre-test was conducted in one local restaurant at the beginning of April, 30 responses obtained, and the questionnaire modified.
accordingly to the flaws detected. Data collection took place between April 23rd and May 23rd, 2008.

Several casual dining restaurants were asked to participate with the help of CORA (Central Ohio Restaurant Association) and five agreed to do so. Casual dining restaurants were chosen because they are frequented by the most diverse group of customers as opposed to quick or fine dining restaurants. Furthermore, participating restaurants were located in different areas of the town. This was important in order to obtain a heterogeneous sample from which generalizations to a broader population can be drawn.

Respondents were customers of a particular restaurant. When the researcher was not present, customers were encouraged to take a questionnaire from the counter and complete it. When the researcher was at the restaurant, she personally asked the customers to fill out a questionnaire while waiting for their food. Respondents had the incentive of entering a draw for a gift card worth $100 for any of the participating restaurants. This resulted in 455 total respondents. No response rate is known for the times when the restaurant personnel took care of distributing the questionnaires, but it is assumed that it was significantly lower than when the researcher personally distributed the questionnaires and explained the scope of the survey to the customers. Through this procedure the estimated response rate was between 90 and 95% depending on the restaurant and day. In many restaurants respondents took questionnaires home with them when the researcher was not present. Interestingly though, four completed questionnaires were sent to the department mailbox of the researcher.

A structured questionnaire was used to address the previously mentioned research questions. The questionnaire included questions on demographics, as well as on each of
the belief composites of attitudes, subjective norm, and perceived behavioral control of
the consumers. These are behavioral belief strength and outcome evaluation, normative
belief strength and motivation to comply, and control belief strength and control belief
power. All questions were rated on a 7 point Likert-type scale from 1 (= strongly agree)
to 7 (= strongly disagree). The questionnaire included also a short section for respondents
to leave their comments on the survey itself as well as on their thoughts about “green”
restaurants which will be of high importance for restaurateurs in the industry.

3.2. Outcome Measures

The questionnaire was constructed in accordance with established guidelines on
the home page of Dr. Ajzen (Icek Ajzen) and reviewed by a panel of experts from
consumer sciences in order to establish validity.

Since green restaurants do not yet exist in Columbus and the concept of a green
restaurant is not well understood in general, it was necessary to ensure that respondents
under study would adopt a common frame of reference when answering. To this end, the
questionnaire started with a short scenario of a green restaurant opening in the area of
Columbus: “Columbus has a growing restaurant scene. Suppose a new restaurant was to
open in a short driving distance from your house. It is advertised as a green restaurant
because it dedicates itself to providing high quality food and service while protecting the
environment and therefore has acquired a green certificate.” Part of this scenario
specifically defined practices that green restaurants might engage in: “

- Green Building and construction of the restaurant site
- Use of energy and water efficiency saving kitchen devices
• Recycling and composting
• Use of biodegradable and recycled cleaning products
• Overall pollution prevention and sustainability”

Last, since it was anticipated that respondent’s primary concern with restaurants would be the quality of the food and service, a sentence was included that would assure respondents that quality would be equally as high: “The menu is comparable to those of other casual dining restaurants and fits your taste well.” It was hoped that these measures would help avoid confusion among respondents.

The questionnaire included at least two items on each construct in order to establish reliability. Reliability and correlation analysis were conducted for appropriate items (as described in Chapter 4) and indicated satisfactory reliability of the survey instrument.

Furthermore, it was pre-tested by distributing it to about 30 participants in one casual dining restaurant. This pilot-test was conducted in a restaurant in Grandview, Columbus, OH on April 4, 2008. Few issues became obvious, and the open-ended questions helped to detected sections that were unclear to the respondents. Therefore, minor changes were made to the outline and wording of the questions.

3.2.1. Independent Variables

To accomplish the research objectives, all the constructs within the TPB framework were first operationalized. This was done largely according to the procedure described and the sample questionnaires provided on Ajzen’s webpage
In an attempt to keep the questionnaire as short as possible, attitudes were computed through the belief-based attitudes \((B, E)\). To this end, it was necessary to first identify the relevant salient attitudinal beliefs (cf. Ajzen, 1991; Ajzen and Fishbein, 1980; pp. 64-75) and their outcome evaluations. Respondents were asked to express their behavioral beliefs:

- Dining at green restaurants will help to protect the environment \((B_1)\)
- Dining at green restaurant will be more expensive \((B_2)\)
- Dining at green restaurants will be healthier for me \((B_3)\).

Next, they were to value outcomes of the target behavior:

- It is good for restaurants to protect the environment \((E_1)\)
- Restaurants with higher prices are good \((E_2)\)
- For me to eat healthier food is good \((E_3)\).

Subjective norm was computed through the two constructs of normative belief and motivation to comply \((N, M)\). Items on subjective norm were as follows:

- My family thinks I should engage in green behaviors, including dining at green restaurants if available \((N_1)\).
• My friends think I should engage in green behaviors, including dining at green restaurants if available (N2).

These items were multiplied with the respondents’ motivation to comply:
  • Generally speaking, I care a lot about what my family thinks I should do (M1).
  • Generally speaking, I care a lot about what my friends think I should do (M2).

(3) Global Measure of Perceived Behavioral Control (PBC)

Three items were developed to assess the two constructs, control belief and control belief power (C1P1) that comprise perceived behavioral control in the context of money (PBC1), time (PBC2), and knowledge (PBC3). Questions pertaining to the control belief were:
  • Often, living on a tight budget prevents me from engaging in “green” behaviors (C1).
  • Often my days are overloaded and stressful preventing me from engaging in “green” behaviors (C2).
  • Often living because information is not readily available, I seldomly engage in “green” behaviors (C3).

The scores of these items were multiplied with the scores of the power of the control believes that express how difficult the lack of these issues makes it to dine at a green restaurant.
  • The amount of my money available to me makes it more difficult for me to dine at green restaurants (P1).
• It is difficult for me to dine at a green restaurant because my work often places high demands on my time (P2).

• Not knowing enough about green restaurants would make it difficult to dine at a green restaurant (P3).

(4) Demographic Characteristics

The likelihood of dining at a green restaurant may be affected by the following demographic factors: gender, age, race, education, income and frequency of dining out. Categorical items including gender, race, and education were recorded using dummy variables to facilitate the statistical analyses.

Respondents’ age was assessed in terms of six categories: 18 to 25 years, 26 to 35 years, 36 to 45 years, 46 to 55 years, 56 to 65 years, and above 65 years.

Respondents’ race was classified as “white”, “black/African American”, “Hispanic/Latino”, “Asian” or “other”.

Education was measured in seven categories by the highest education achieved: “none”, “high school diploma/GED”, “associate degree”, “Bachelor’s degree”, “Master’s degree”, “professional degree”, and “Doctorate degree (Ph.D.)”.

Current annual household income was assessed in terms of five categories: “less than $20,000”, “$20,000 to $39,000”, “$40,000 to $59,000”, “$60,000 to $79,000”, and “more than $80,000”.

Last, the questionnaires asked for the number of times respondents eat out (including fine, casual, or quick service restaurant) during a week with an open ended question.
(5) Importance of Green Practices

In order to address the exploratory research questions the questionnaire also included six questions in which the respondents were asked to evaluate how important they perceive various areas of green practices of green action, green food and green donation. Questions were also rated on a 7 point Likert-type scale and worded accordingly:

- It is important for me that restaurants reduce their energy usage and waste.
- It is important for me that restaurants use biodegradable or recycled products.
- It is important for me that restaurants use organic products.
- It is important for me that restaurants serve locally grown foods.
- It is important for me that restaurants donate to environmental projects.
- It is important for me that restaurants pay fees to reduce their ecologic footprint.

In question 25, respondents were also asked to estimate how much they would be willing to pay for the food and service at green restaurants with a fill-in-the-blank question.

- I would be willing to pay ____% more for the food and service at green restaurants.

3.2.2. Dependent Variable

(1) Behavioral Intention of Dining at a Green Restaurant (BI)

Two statements were used to measure respondents’ intention to engage in the target behavior. They read as: (1) In the future, I plan to dine at green restaurants over other restaurants whenever available (BI1); (2) In the future, I will make an effort to dine
at green restaurants over other restaurants whenever available (BI2). Although BI1 and BI2 were asking the same it was important to include them for reasons of reliability.

(2) Green Purchasing Behavior (Beh)

Due to the fact that there are no green restaurants in Columbus at this point in time, it was not possible to observe respondents’ actual behavior. However, being able to predict respondents’ intentions is an important step at this stage and will have significant implications for restaurants in the area.

3.3. Data Analysis

Data analysis with SPSS took place during the month of May, 2008. First, with the help of descriptive statistics consumers’ demographic characteristics and behaviors were explained. Mean values, frequencies and standard deviations of the respondents’ answers were calculated and answers to key questions reported. In the second step, multiple linear regressions were used to predict consumers’ behaviors with regards to their intention to visit green restaurants and their willingness to pay for such practices. Multiple linear regression attempts to model the relationship between two or more independent variables and a dependent variable by fitting a linear equation to observed data. It explains a proportion of the variance in a dependent variable at a significant level (through a significance test of $R^2$), and can establish the relative predictive importance of the independent variables (by comparing beta weights) (Garson, 2008). Even though not every demographic characteristic was hypothesized for every construct, all were included
as control variables in the analyses. The regression formula for the adopted model is as follows:

$$ BI = \beta_0 + \beta_1 Att + \beta_2 SN + \beta_3 PBC + \varepsilon $$

Where the independent variables are defined as follows:

$$ Att \propto \sum_i b_i e_i $$
$$ SN \propto \sum_i n_i m_i $$
$$ PBC \propto \sum_i c_i p_i $$
CHAPTER 4

4. RESULTS

This chapter presents the results of the empirical analyses. First, it describes the nature of the study sample using descriptive statistics. Next, a ranking of the importance of the three green areas is presented followed by the results of the respondents’ willingness to pay for green restaurants. Finally, the results of the linear regressions for the hypotheses are summarized. A qualitative section comprising consumers’ comments is also included.

4.1. Internal Consistency Reliability

Cronbach’s alpha was used to establish reliability. This coefficient will generally increase when the correlations between the items increase and therefore is also called the internal consistency of the test. Alpha should be at least .70 or higher to retain an item in an "adequate" scale; and many researchers require a cut-off of .80 for a "good scale" (Garson, 2008).

Reliability was tested for items 1 through 6 pertaining to the importance of the various “green” areas, and Cronbach’s alpha was 0.841, hence these six questions are a good measure for assessing the consumers’ importance of green restaurant practices and maybe be used also in future survey research aiming to assess these questions. Since
attitudes, subjective norm, and perceived behavioral control were computed through indirect measures it is not possible to test their reliability with Cronbach’s alpha.

Last, the correlation coefficient for behavioral intention is reported as 0.813 showing that the two questions are a reliable measure for assessing the consumers’ likelihood of dining at green restaurants.

4.2. Demographic Characteristics

Table 4.1 describes the characteristics of the study sample as a total and by restaurant. Of the 455 respondents, 51.7% of the sample was male (Figure 4.1). Respondents’ ages ranged from 18 years to above 65 years old, with a mean of approximately 46 years. People in the range of 26 to 35 years comprised the highest proportion of the total sample (35%). 20% of the respondents in the sample were under 25 years old and 20% in the range of 36 to 45. 13.5% were in the age of 46 to 55, 8% between 56 and 65 and only 2% were above years old (Figure 4.2).

The majority of the sample (82.8%) was white with only few respondents being African American (3.5%), Hispanic (1.4%), Asian (8.4%) and other (4%) (Figure 4.3).

As highlighted in Figure 4.4., respondents’ educational backgrounds somewhat varied: while 12.4% of the respondents had completed high school, 8.7% had had received an associate degree and 43.2% a bachelor. The rest (35.3%) had received a graduate degree such as Master’s, professional degree or Ph.D.

The household income as presented in Figure 4.5 assessed using five categories ranging from less than $20,000 to more than $80,000. While income was relatively equally distributed in the first four categories with approximately 13 to 18% of the
respondents in each category, the majority of the sample, 36.1% reported and annual household income of more than $80,000.

To obtain a better understanding of the distribution of demographic characteristics of the sample by restaurant, data was also broken up by the five restaurant sites and is presented in Table 4.1 as well.

Figure 4.1: Distribution of Respondents’ Gender
Figure 4.2: Distribution of Respondents’ Age

Figure 4.3: Distribution of Respondents’ Race
Figure 4.4: Respondents’ Education

Figure 4.5: Distribution of Respondent’s Income
Table 4.1: Demographic Characteristics of the Sample
Table 4.1. continued

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<th>Prof. Degree</th>
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<td>2.6%</td>
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</tr>
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<td>9.6%</td>
<td>7.8%</td>
<td>3.5%</td>
<td>43.0%</td>
<td>13.8%</td>
<td>6.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>.0%</td>
<td>32.3%</td>
<td>11.5%</td>
<td>15.5%</td>
<td>42.3%</td>
<td>26.3%</td>
<td>3.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>.0%</td>
<td>25.0%</td>
<td>12.9%</td>
<td>6.5%</td>
<td>32.3%</td>
<td>19.2%</td>
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<td>100.0%</td>
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<td>.0%</td>
<td>75.0%</td>
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<td></td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Race</th>
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<th>Black/African</th>
<th>Hispanic/Latino</th>
<th>Asian</th>
<th>Other</th>
<th>Total</th>
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<td>2</td>
<td>6</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>98</td>
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<td>2</td>
<td>2</td>
<td>3</td>
<td>113</td>
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<td></td>
<td>78</td>
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<td>1.8%</td>
<td>1.7%</td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>8</td>
<td>.9%</td>
<td>1.8%</td>
<td>1.7%</td>
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<tr>
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<td>.0%</td>
<td>.1%</td>
<td>31</td>
</tr>
<tr>
<td></td>
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<td>.0%</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>355</td>
<td>15</td>
<td>6</td>
<td>36</td>
<td>17</td>
<td>429</td>
</tr>
</tbody>
</table>

Continued
The study’s variable categories as described above were modified to facilitate statistical analysis. The categorical variables include gender, race, and education. Race was recoded into four categorical variables (“white”, “black”, “Hispanic” and “Asian”). Also education was recoded into a categorical variable: 0 for “high school” and “no degree” versus 1 for “Bachelor and beyond” (including “Bachelor, “Associate degree”, “Master’s degree”, “Professional degree”, and Doctorate Degree”).

With regards to age, and income the original continuous measures were maintained. In order to facilitate a better interpretation of the variables, responses for variables 1 through 16 as well as 24 and 25 were inverted in their value so that an answer
of “1” means strong disagreement and an answer of “7” means strong agreement with the statement. Variables 17 through 22 pertaining to perceived behavioral control were maintained in their original scale as they had been worded negatively and therefore need to be interpreted “inversely”.

The combined mean of respondents’ frequency of eating out during a week (including fine, casual and quick dining) was 3.7 times with a standard deviation of 3.13 and a range of 34.5. Median and mode for number of time a person eats out during a week were 3.

4.3. Green Areas

To provide an overview on the results of the respondents’ rating of importance of the various green areas, Table 4.2 was constructed to display means of the six different areas in which restaurants can engage in green practices.

It was found that reducing energy usage and waste as well as using biodegradable or recycled products, both with a mean rating of 5.73 was considered most important by the respondents. Second most important were serving organic products (mean = 5) and locally grown food (mean = 5.22), with locally grown being slightly more important for respondents. Least important practices of green restaurants were donating to environmental projects (mean = 4.40) and paying fees to reduce the ecologic footprint (mean = 4.04).
<table>
<thead>
<tr>
<th>Variables: It is important for me that restaurants…</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>reduce energy usage and waste</td>
<td>454</td>
<td>1.000</td>
<td>7.000</td>
<td>5.72007</td>
<td>1.303481</td>
</tr>
<tr>
<td>use biodegradable or recycled products</td>
<td>454</td>
<td>1.000</td>
<td>7.000</td>
<td>5.72026</td>
<td>1.354799</td>
</tr>
<tr>
<td>Use organic products</td>
<td>454</td>
<td>1.000</td>
<td>7.000</td>
<td>4.99559</td>
<td>1.479806</td>
</tr>
<tr>
<td>Serve locally grown food</td>
<td>455</td>
<td>1.000</td>
<td>7.000</td>
<td>5.21978</td>
<td>1.523691</td>
</tr>
<tr>
<td>Donate to environmental; projects</td>
<td>454</td>
<td>1.000</td>
<td>7.000</td>
<td>4.40308</td>
<td>1.573256</td>
</tr>
<tr>
<td>Pay fees to reduce their ecologic footprint</td>
<td>451</td>
<td>1.000</td>
<td>7.000</td>
<td>4.03769</td>
<td>1.673559</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>448</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.2: Importance of Areas of Green Practices**

36% of the respondents rated reducing energy usage and waste, and using biodegradable or recycled products as very important while for organic food this was the case for only 19%, and for locally grown food for 26% of the respondents. Donating to environmental projects was rated as very important by 10% of the respondents, and last, paying fees to reduce the ecological footprint by only 7%.

**4.4. Correlation of Importance of Green Areas with Demographic Characteristic**

As presented in Table 4.3 several areas of green practices correlated with the demographic characteristics of respondents. For instance, variable 1 correlated positively with income and being white, and negatively with Asian. In other words, the higher the income of the respondent the more they thought it was important for restaurants to reduce energy usage and waste. Being white correlated also with higher ratings while being Asian is associated with a decreasing rating on the importance of reducing energy and waste by restaurants. “Using biodegradable or recycled products” did not correlate
significantly with any demographic characteristic, and the same was true for “serving
locally grown food”. However, “using organic products” was correlated positively with
income and education. Hence the higher their income or education, the more important
the respondent ranked “using organic products” which could be attributed to the
respondents’ ability to afford such items as well as their knowledge of organic products.

“Donating to environmental projects” was positively correlated with gender (i.e.
increased importance from female to male) and white ethnicity, but negatively with Asian
ethnicity. Being Asian also correlated negatively with “restaurants paying fees to reduce
the ecological footprint”, while the same variables correlated positively with gender,
income, and white ethnicity.
Table 4.3: Correlations

4.5. Willingness to Pay

35% of respondents were willing to pay up to 10% more for the food and services in green restaurants. A second majority of approximately 30% would pay up to 5% more.

While there were a number of people who would pay even 15 or 20% more, there was
also a significant amount of respondents who would not pay more money for green restaurants (15%). However, this analysis shows that the overall trend towards respondents being willing to pay more for green restaurants.

Figure 4.6: How Much Respondents Were Willing to Pay More for Dining at a Green Restaurant

4.6. Hypotheses – Linear Regressions

This section reports the results of the multiple linear regressions conducted. Multiple linear regressions were conducted in order to examine the relationship between the demographic characteristics and the three constructs of the Theory of Planned Behavior: (1) attitude, (2) subjective norm and (3) perceived behavioral control. Furthermore, linear regressions were also used to assess the influence of those three constructs on intention to dine at a green restaurant (4). While for the first step, the three TPB constructs were the dependent variables in the second step, they were the
independent variables, and the respondents’ intention to dine at green restaurant was the dependent variable.

To provide an overview on all the major constructs under investigation, Table 4.4 was constructed to display the relevant descriptive statistics of the sample. As noted in the Table 4.4 mean scores were highest for attitudes, followed by subjective norm and perceived behavioral control. After modifying the data as explained previously, high means express high agreement with the statement, while low means stand for lower agreement. Therefore in our sample, attitude toward green restaurants is relatively high, while social norm and perceived behavioral control are low.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
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<td>4.00</td>
<td>49.00</td>
<td>26.879</td>
<td>8.30146</td>
</tr>
<tr>
<td>Subjective Norm</td>
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<td>1.00</td>
<td>49.00</td>
<td>18.9315</td>
<td>10.39544</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>425</td>
<td>1.00</td>
<td>49.00</td>
<td>17.2078</td>
<td>9.50535</td>
</tr>
<tr>
<td>Behavioral Intention</td>
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<td>1.00</td>
<td>7.00</td>
<td>4.7033</td>
<td>1.40333</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>398</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4: Descriptive Statistics of the Major Constructs under Investigation

4.6.1. Demographics on Attitudes

\textbf{H1a}: Customers’ income will have a positive influence on attitudes towards dining in green restaurants.

\textbf{H1b}: Customers’ education will have a positive influence on attitudes towards dining in green restaurants.
**H1c**: Customers’ age will have a positive influence on attitudes towards dining in green restaurants.

**H1d**: Customers’ ethnicity will have no influence on attitudes towards dining in green restaurants.

As presented in Table 4.5 the multiple linear regression of the demographic characteristics on the dependent variable attitudes did not produce significant results (F(8,375) = 1.751, p = 0.085, adj. R^2 = 0.015). Therefore, hypotheses H1a, H1b, H1c and H1d were rejected. Consequently, in the context of attitudes towards green restaurants none of the demographics matters.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>(Constant)</td>
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<td>.000</td>
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<tr>
<td>Gender</td>
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<td>-.076</td>
<td>-1.496</td>
</tr>
<tr>
<td>Age</td>
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<td>.408</td>
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<td>.435</td>
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<td>-.814</td>
</tr>
<tr>
<td>Income</td>
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<td>.360</td>
<td>-.083</td>
<td>-1.349</td>
</tr>
<tr>
<td>White</td>
<td>.201</td>
<td>2.268</td>
<td>.009</td>
<td>.089</td>
</tr>
<tr>
<td>black/African American</td>
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<td>3.256</td>
<td>-.087</td>
<td>-1.279</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>4.077</td>
<td>4.074</td>
<td>.061</td>
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</tr>
<tr>
<td>Asian</td>
<td>2.565</td>
<td>2.649</td>
<td>.087</td>
<td>.968</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Attitude

* p<0.05

**Table 4.5: Results of Multiple Linear Regression on Attitudes**
4.6.2. Demographics on Subjective Norm

**H2a**: Customers’ ethnicity will have no influence on subjective norm of dining at a green restaurant.

**H2b**: Customers’ age will have an influence on subjective norm of dining at a green restaurant.

**H2c**: Customers’ education will have a negative influence on subjective norm of dining at a green restaurant.

While the regression on subjective norm was significant ($F(8,378) = 2.946, p=0.003, \text{adj R}^2 = 0.039$), only education ($\beta = -3.316$) was significantly related ($p = 0.039$) to the construct, and the relationship was negative as predicted (see Table 4.6).

Therefore, H2a and H2c were supported, while H2b was rejected.
Unstandardized Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
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<td>-.038</td>
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<td>.508</td>
<td>-.040</td>
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<tr>
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<td>5.049</td>
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</tr>
<tr>
<td></td>
<td>Asian</td>
<td>5.410</td>
<td>3.287</td>
<td>.145</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Subjective Norm

* p<0.05

Table 4.6: Results of Multiple Linear Regression on Subjective Norm

4.6.3. Demographics on Perceived Behavioral Control

**H3a:** Customers’ income will have a positive influence on the perceived behavioral control of dining at a green restaurant.

**H3b:** Customers’ education will have a positive influence on the perceived behavioral control of dining at a green restaurant.

Among the demographic factors regressed on perceived behavioral control (F(8,366) = 3633, p = 0.000, adj R² 0.053), several variables were significantly related. The results are presented in Table 4.7. Education had a negative relationship with perceived behavioral control (beta = -2.983) and was significant (p = 0.05). However, the
relationship was reverse of what had been predicted. Among ethnicity, only Asian (beta = 6.773) was significant (p = 0.027), though Black and Hispanic were marginally significant (p = 0.058 and 0.096 respectively) and also displayed positive relationships (beta = 6.961 and 7.732 respectively).

Consequently, we do not have support for H3a and H3b. Though the latter one was significant, its results were opposite of the expected direction, in other words, customers’ education had a negative influence on the perceived behavioral control of dining at a green restaurant. We also detected a relationship that based on the literature had not yet been detected: between ethnicity and perceived behavioral control. While this relationship was positive, it could only be partially supported.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
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<td>20.677</td>
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</tr>
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<td>0.410</td>
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</tr>
<tr>
<td></td>
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<td>2.646</td>
<td>0.098</td>
</tr>
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<td>black/African American</td>
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<tr>
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<td>Asian</td>
<td>6.773*</td>
<td>3.050</td>
<td>0.205</td>
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</table>

a. Dependent Variable: Perceived Behavioral Control
* p<0.05

Table 4.7: Results of Multiple Linear Regression on Perceived Behavioral Control
4.6.4. Attitudes, Subjective Norm, and Perceived Behavioral Control on Intention

*H4:* Customers’ attitudes towards green restaurants will have a positive influence on their intention to dine at a green restaurant.

*H5:* Customers’ subjective norm of green restaurants will have a positive influence on their intention to dine at a green restaurant.

*H6:* Subjective norm for U.S. customers will have less influence on the intention of dining at a green restaurant than attitudes.

*H7:* Customers’ perceived behavioral control of dining at a green restaurant will have a positive influence on their intention to dine at a green restaurant.

Among the three constructs, multiple linear regression analysis revealed that attitude and subjective norm were significant predictors of intention to dine at green restaurants (p<0.05) while perceived behavioral control showed not be significantly associated with intention (p=0.852). Attitude affected behavioral intention (F(3,394) = 93.935, p=0.000, adj R² = 0.413, std. Beta = 0.444) (see Table 4.8) and the nature of the relationship was positive (Beta = 0.075). Similarly, subjective norm affected behavioral intention (F(3,394) = 93.935, p=0.000, adj R² = 0.413, std. Beta = 0.296) in a positive relationship (Beta = 0.040). As attitude increased, the likelihood to dine at a green restaurant also increased. Perceived behavioral control displayed a negative relationship (Beta = -0.001) but was not significant.

Consequently, H4 and H5 were accepted, but H7 rejected. Perceived behavioral control is significant by itself, but not by accounting for the other two constructs which means that the effect of attitudes and subjective norm is stronger and consequently masks the effect of perceived behavioral control.
In terms of H6, Table 4.8 shows that the coefficient was higher for attitude \( (B = 0.075) \) than for subjective norm \( (B = 0.041) \). Hence H6 was accepted.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
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<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
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<td>(Constant)</td>
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</tr>
<tr>
<td></td>
<td>Att</td>
<td>.075***</td>
<td>.008</td>
<td>.444</td>
</tr>
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<td></td>
<td>SN</td>
<td>.040***</td>
<td>.006</td>
<td>.296</td>
</tr>
<tr>
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<td>PBC</td>
<td>-.001</td>
<td>.006</td>
<td>-.007</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI
* p<0.05, **p<0.01, ***p<0.001

Table 4.8: Multiple Regression Analysis for the Relationships between the Three TPB Constructs and Behavioral Intention

When regressing the demographic variables in addition to the three constructs on behavioral intention \( (F(11, 341) = 22.285, p = 0.000, \text{adj } R^2 = 0.399) \), attitude and subjective norm remain significant predictors of behavioral intention. Additionally, income appears to be marginally significant \( (\beta = -0.087, p = 0.077) \) (Table 4.9). This is important to mention, as income is also a factor of perceived behavioral control.
Table 4.9: Multiple Regression Analysis of the Relationships between the Three TPB Constructs and Demographic Characteristics and Behavioral Intention

4.7. Multicollinearity

In order to test whether the masked effect of perceived behavioral control might be due to correlation with the other two constructs, attitude and subjective norm, multicollinearity was tested. The variance inflation factors (VIFs) indicate whether there is a strong linear association between each predictor and all remaining predictors. Read and Read (2004) suggest that one should be concerned if a VIF exceeding 10 is found.
For this data, no VIF exceeded 2. Therefore it can be concluded that there was no reason to be concerned about multicollinearity (see Table 4.9).

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
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<td>Tolerance</td>
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<td></td>
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<td>.000</td>
</tr>
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<td>-.007</td>
<td>-.187</td>
<td>.852</td>
</tr>
</tbody>
</table>

Table 4.10: Multicollinearity of TBP Constructs

4.8. Linear Regressions Split by Restaurant

In order to provide a more in-depth analysis of the consumer behavior with regards to dining at green restaurants, multiple linear regressions were also conducted separately for each restaurant. These provide implications for each food service establishment on their respective customers’ attitudes, subjective norm, perceived behavioral control, and intention to dine.
4.8.1. Attitudes by Restaurant

As expected from the previous analyses, split by restaurants almost none of the demographic characteristics seemed to be good predictors of attitudes either. Only in the case of the Coffee Shop and Lounge (Restaurant 5; F(6,23)=3.025, p=0.025, adj. R²=0.295) was Black ethnicity highly significant (b=-21.626, p=0.01). Hence, for Restaurant 5 it can be predicted that Black customers have a significantly less favorable attitude towards green restaurants.

4.8.2. Subjective Norm by Restaurant

For subjective norm, two of the linear regressions provided significant results. For the Indian Restaurant (Restaurant 3; F(8,100)=2.258, p=0.029, adj.R²=0.085) education was significantly related with subjective norm (b=-6.488, p=0.065) confirming the overall trend of an increased education leading to decreased subjective norm.

For the Coffee Shop and Lounge (F(6,23)=4.227, p=0.05, adj.R²=0.4) gender (b=-9.195, p=0.02) as well as Hispanic ethnicity (b=-14.475, p=0.064) showed to be significantly and negatively related with subjective norm. Hence in Restaurant 5, men were less prone to depending on others’ opinions about green restaurants than women, and so were Hispanic customers as opposed to customers from other races.

4.8.3. Perceived Behavioral Control by Restaurant

The split regressions also provided significant results for perceived behavioral control for two of the five restaurants. In the casual dining restaurant (Restaurant 2;
F(8, 99) = 2.109, p = 0.042, adj.R² = 0.077) age (b = -2.028, p = 0.17) and education (b = -4.013, p = 0.097) were both negatively related with perceived behavioral control. In other words, older customers of the restaurant perceived less control over their behavior of dining at a green restaurant and so did people with higher education. As speculated earlier, this might be due to the fact that older and more educated people may judge their environment and surrounding conditions more realistically and therefore may be more aware of multiple constraints of time, money and knowledge available that may prevent them from engaging in the behavior.

At the Indian restaurant (F(8, 97) = 2.356, p = 0.023, R² = 0.094), customers’ education (b = -5.916) was negatively related (p = 0.049 with perceived behavioral control, whereas Hispanic (b = 18.755) and Asian ethnicity (b = 8.931) were both positively related with perceived behavioral control (p = 0.055 and 0.019 respectively).

**4.8.4. Predictors of Behavioral Intention by Restaurant**

The linear regression of attitudes, subjective norm and perceived behavioral control with behavioral intention separately for each restaurant confirmed the results of the total regression. Only in the case of the Coffee Shop and Lounge (F(3, 26) = 8.863, p = 0.000, adj.R² = 0.499) are all three constructs predictors of behavioral intention. Attitude (b = 0.051, p = 0.40) and subjective norm (b = 0.074, p = 0.004) are related in the same direction as for all restaurants together, while perceived behavioral control (b = -0.039, p = 0.037) is related negatively with perceived behavioral control.

A summary of all results by restaurant can be viewed in Table 4.11.
<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Att</th>
<th>SN</th>
<th>PBC</th>
<th>BI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Gourmet Deli</td>
<td></td>
<td></td>
<td></td>
<td>Att &amp; SN +</td>
</tr>
<tr>
<td>N=132</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2) Casual Dining</td>
<td></td>
<td></td>
<td>Age – Education</td>
<td>Att &amp; SN +</td>
</tr>
<tr>
<td>N=123</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Indian Restaurant</td>
<td></td>
<td></td>
<td>Education –</td>
<td>Att &amp; SN +</td>
</tr>
<tr>
<td>N=115</td>
<td></td>
<td></td>
<td>Education –</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hispanic &amp; Asian</td>
<td></td>
</tr>
<tr>
<td>4) Business Lunch</td>
<td></td>
<td></td>
<td></td>
<td>Att +</td>
</tr>
<tr>
<td>N=52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Coffee Shop &amp; Lounge, N=31</td>
<td>Black</td>
<td>Gender –</td>
<td>Hispanic –</td>
<td>Att &amp; SN + PBC –</td>
</tr>
</tbody>
</table>

Table 4.11: Summary of Results of Multiple Linear Regression by Restaurant

4.9. Qualitative data

As mentioned before, the questionnaires also included a small section that provided space for the respondents to leave their comments on “green” restaurants. See Appendix A for these comments. Most people who left a comment were in favor of the survey and interested in green issues. They supported the notion of green restaurants and felt that a survey is a good way to raise awareness among people. Among those respondents, a common notion however was the confusion about which restaurants in the area are green. As there are no truly green restaurants in Columbus yet, this is an understandable issue. It shows however, that restaurants that do engage in green practices should also market themselves this way using their green practices as a competitive edge. The responses clearly showed that if people knew which restaurants were green they would consider visiting those. Hence making green action public through newspaper advertisement, posters, or internet can be a significant leverage to a restaurant. Education
on these issues will be the key in a successful transition for a restaurant from “normal” to “green”.

Second, a large number of customers made it clear on the questionnaires that the quality of the food, i.e. taste and freshness is most important. They are not willing to compromise quality for “green”. This means that while a restaurant should engage in green practices to obtain a competitive edge, these practices must neither compromise food quality nor comfort of the guests. In other words, recyclable products are only welcomed when they display the same functionality, and local or organic foods are only a “plus” when they taste at least equally as good or better.

Overall, it seems that respondents would like to contribute to the notion for eco-friendly behavior, it being a trend or socially responsible behavior. That includes that guests of restaurants would also like to minimize their ecological impact while eating out. Green building, recycling, use of disposable product and local foods were all mentioned as important factors and can hence have a positive impact on consumers’ perceptions of a restaurant if implemented.
CHAPTER 5

5. SUMMARY AND DISCUSSION

This chapter summarizes the research findings and discusses the study’s implications and limitations.

5.1. Summary

The focus of the present study was twofold: one, to explore consumer perceptions about green restaurants and two, to examine the influence of consumers’ attitudes, subjective norm, and perceived behavioral control on the likelihood of dining at a green restaurant. The literature was reviewed to gain an insight into current industry and to evaluate the previously mentioned relationships. Additionally, five demographic factors (gender, age, race, education, and income) were included in the analysis to examine their influence on the three constructs of the Theory of Planned Behavior. The sample was drawn from customers at five different Columbus restaurants, in various areas of the city. The total sample included 455 cases.
5.1.1. Research Questions

The research questions proposed were as follows:

1) Which of the three areas of green action, green food or green donation is perceived as most important by consumers and therefore has the greatest effect in attracting customers?

2) Would consumers consider dining at a green restaurant?

3) Are consumers willing to pay a premium for green restaurants?

4) Can engaging in green practices create a long-term sustainable advantage for restaurants?

This study found that the area of “green action” (engaging actively in environmental protection) by restaurants was considered most important of the three proposed areas. The second important area for restaurants to engage in was “green food” with locally grown being slightly more important than organic. This shows that many customers are informing themselves well about current environmental issues. While organic was considered the best food choice a few years back, today media has put a lot of effort into convincing consumers of the superiority of local foods. While these are not always pesticide-free, they can reduce the environmental impact significantly due to the fact that they are not shipped across the whole country or between continents. It seems that people have acknowledged this fact leading to a slight preference of locally grown over organic food. The least important green area for restaurants was “green donation” that includes donating to environmental projects or paying fees to offset the ecologic
footprint of a business. Indeed the latter option has received negative critique during the past year as it is often simply viewed as indulgence.

Therefore it can be concluded that a green restaurant advertising green action can be most attractive in attracting customers. In fact, from the qualitative feedback it became clear that people wanted to know what kind of practices specifically a restaurant engaged in if it was a green restaurant. Therefore, publicly advocating to customers the various actions a green restaurant engages in will be highly effective in attracting customers. The same would also be true for “green food” and “green donation” practices, but they will be somewhat less effective.

Specifically, restaurants advertising efficient energy usage (part of “green action”) could be very successful in attracting clientele when targeting white, Asian and higher income customers as previously shown through the correlation analysis. Publicly advertising organic products in order to attract customers is expected to be successful for higher education and higher income consumers, which could be attributed to increased knowledge about organic products as well as consumers’ ability to afford those. On the other hand, engaging in “green donation” will be more successful for male and white customers, but less successful in attracting clientele when targeting Asian customers.

From the analysis it can also be seen that a large number of customers would be willing to pay more for green restaurants. While being green does not necessarily mean that cost and therefore price increase, it can lead to several investments that need to be made upfront. If the cost of these expenditures needs to be passed onto the consumer, charging about ten percent more than non-green restaurants seems to be reasonable and would not deter customers. Out of all respondents only 15% were not willing to pay more
money for green restaurants. While this survey did not assess directly whether consumers would prefer a green restaurant over a “normal” restaurant, the willingness to pay for green restaurants and the high ratings for the green action area indicate that there is a high interest in green restaurants. Furthermore, the scores of the belief composite show that 70.5% of the respondents believe that it is good for restaurants to protect the environment (score 6 or 7). Therefore, if the quality of the food and service remains equal to other restaurants and if a green restaurant effectively advertises its practices, being a green restaurant could create a competitive edge and consequently a long-term sustainable advantage for restaurants.

5.1.2. Theory of Planned Behavior

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitudes</td>
</tr>
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</tr>
<tr>
<td>Age</td>
<td>N/S</td>
</tr>
<tr>
<td>Income</td>
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<tr>
<td>Education</td>
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<tr>
<td>Race</td>
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</tr>
<tr>
<td>Attitudes</td>
<td>/</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>/</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>/</td>
</tr>
</tbody>
</table>

Note: (+): positive effect, (-): negative effect, N/S: no significant effect

The number of asterisks indicated the significant level * p<0.05, **p<0.01, ***p<0.001

Table 5.1: Summary of Study Results from Multiple Linear Regressions
(1) Demographics and Attitudes

Hypotheses 1a through 1d examined the relationship between the consumers’ demographic characteristics of income (H1a), education (H1b), age (H1c) and ethnicity (H1d) on attitudes. Through multiple linear regression, this study revealed that none of the demographic characteristics were significant predictors of attitudes towards green restaurants. Therefore, only H1d was accepted confirming previous results by Klineberg et al. (1998).

The remaining results are not consistent with previous research in which it was found that people with higher incomes and higher education have higher attitudes towards environmental involvement (Gelissen, 2007). Neither could this study confirm that increasing age has a negative influence on environmental attitudes (Gelissen, 2007 and Klineberg et al. (1998).

A plausible explanation could be the fact that green restaurants did not yet exist in this market and therefore the concept was vague and only hypothetical for the respondents. Therefore, attitudes towards green restaurants might be weak at this point and can therefore not be predicted through demographics.

(2) Demographics and Subjective Norm

Multiple linear regression revealed that also for subjective norm none of the demographic characteristics was a significant predictor. Therefore, H2a of no relationship between consumers’ ethnicity and subjective norm as well as the hypothesis of a negative relationship between education and subjective norm (H2c) were accepted. The hypothesis
on the influence of consumers’ age (H2b) on subjective norm was rejected consequently disconfirming previous results by VonDras & Madey (2004) and Parket et al. (1992).

(3) Demographics and Perceived Behavioral Control

Hypotheses H3a and H3b examined whether consumers’ income and education asserted influence on perceived behavioral control. While income was not found to be a significant predictor, a relationship between consumers’ education and perceived behavioral control was found. The relationship however is negative meaning that as education increases perceived behavioral control decreases. Furthermore, a negative relationship between several races and perceived behavioral control was detected. Being black versus other races, being Asian versus others as well as being Hispanic versus others increased perceived behavioral control slightly.

(4) Attitudes, Subjective Norm, and Perceived Behavioral Control on Intention to Dine at a Green Restaurant

These hypotheses examined whether consumers’ attitudes (H4), subjective norm (H5), and perceived behavioral control (H7) affected the likelihood of their dining at green restaurants. Multiple linear regression analysis revealed that consumers’ attitudes and subjective norm significantly influenced the probability of dining at a green restaurant. However, in the context of green restaurants perceived behavior control did not exert significant influence. Therefore this study partially supported Ajzen’s Theory of Planned Behavior (1991).
Last, hypothesis 6 examined whether for U.S. costumers subjective norm has less influence on intention to dine at green restaurant. Comparing the constructs’ coefficients this hypothesis was accepted and hence confirms previous results (Chan & Lau, 2002).

5.2. Implications

Several important conclusions were drawn from the empirical analysis. First, this study shows that the current trend of green practices has also taken a direction towards restaurants. While people do not want to reduce their comfort, a vast majority would at least like to minimize their environmental impact, also while dining out. Given the fact that restaurants build such a large industry in the U.S., the impact of their eco-friendly practices could be remarkable. Given the consumers’ interest in green practices, this study highlights the potential for a new market niche and therefore opportunities for restaurateurs to enhance their businesses’ image and create a competitive advantage. Furthermore, the study shows the opportunities available to entrepreneurs in the industry by highlighting a current trend. The data collected confirm that many consumers would be interested in dining at a green restaurant. It also shows how much more they are willing to pay for these restaurants as well as what their expectations are with regards to the practices that a green restaurant engages in. Since “green action” (i.e. actively participating in eco-friendly behaviors in day-to-day operations) has been determined to be most important for consumers but it is also the least visible area, restaurants with a green certificate should proudly advertise which kind of practices they have adopted. For example, the use of recycled material, biodegradable take out containers, friendly
dishwasher detergent, energy saving equipment, etc. should be made aware to the customers.

It is noteworthy that consumers’ intention to dine at a green restaurant can be enhanced if their attitudes are increased and normative beliefs (part of subjective norm) are directed in a way that favors dining at green restaurants. The current study showed that education influences subjective norm. Moreover, education and race influence perceived behavioral control. It also showed that attitudes, subjective norm and income are associated with intention to dine at green restaurants. These findings have implications for efforts to encourage customers to actively seek and dine at green restaurants. Thus, in order to enhance consumers’ attitudes towards green restaurants, effort should focus on exposure to information about the benefits of green practices. Specifically, public advertising and brochures handed out by the restaurants, for instance, could increase consumers’ attitudes towards green restaurants and consequently their intention to dine at them. Similarly, if these advertisements can reach family and friends, these reference groups can exert important influence on consumers and alter their normative believes towards green restaurants. Last, since income also plays a role on the intention to dine at a green restaurant, it will be crucial to convince customers of the fact that dining at a green restaurant will not necessarily be more expensive or only cost marginally more.

It is noted that all of the efforts described here should be targeted toward people of all demographics as this study found only one demographic variable, education to be significantly related with one of the significant constructs of the Theory of Planned Behavior, subjective norm. For all the other demographic characteristics it is not possible
at this point in time to predict attitudes and subjective norms leading to intention to dine at a green restaurant. Consequently, no matter which gender, age, level of education, income or ethnicity, all consumers should be targeted in an effort by the restaurant industry to engage in environmentally conscious behaviors and to minimize their affect on the planet.

5.3. Limitations

The present study contains several limitations. Although a pilot test was conducted and appropriate changes made to the issues that arose, the questionnaire still had several flaws. First, many people did not read the introduction and were therefore not clear on what green restaurants meant. Also, a significant amount of respondents did not circle an answer for question 24 in which case we assumed that the answer would be similar to 23. Furthermore, not all people filled in a value on question 25 (willingness to pay for green restaurants) and questions 30 (frequency of dining out). Last, though the attempt was to obtain a sample representative of the population, we did not receive sufficient answers from African American and Hispanic visitors of restaurants, making it difficult to draw conclusions for these customer groups.

Second, as mentioned earlier green restaurants do not yet exist in this market. Therefore, the issue of green restaurants must have seems hypothetical to the respondents and could have confused them. Furthermore, assessing attitudes, subjective norm and perceived behavioral control on a context that is not yet realistic might be problematic.

Next, due to time constraints sampling was stopped at 455 respondents although the original goal was to receive roughly 1000 completed questionnaires. Though this
sample is big enough to draw valid conclusions, the significance of the results could have been improved though a larger sample.

5.4. Future Research

Although this study was a first important step into the exploration of green restaurants and consumer perceptions thereof, it is only a framework of understanding at this point in time. It provides procedures, analytical tools and indicators to evaluate consumers’ perception towards the concept of green restaurants which has not yet been examined in the academic literature. From this preliminary research it is possible to gain an understanding of consumer’s perception of issues pertaining to green restaurants, but more research is necessary to obtain a more complete picture.

A subsequent study with improved questionnaires should be conducted. Based on this study’s experience, data collection could also be improved in the future. In order to not burden the restaurants’ servers with extra work and to increase the response rate, it is mandatory that a researcher is present at all times to hand out the questionnaires to the customers accompanied by a short introduction to the study.

Furthermore, in order to obtain more inclusive results that can be generalized on a broader population it is important to obtain a larger sample and to reach a more diverse population. Along the same lines, the study could also be carried out in various cities with differing geographic characteristics in order to obtain results that can be generalized to a broader geographic area. Consumer perceptions might vary significantly between various areas of the country which could have important implications to the restaurant industry. Moreover, other demographic characteristic that might be more predictive of the
three constructs might be assessed, for instance profession, household recycling practices, or vegetarianism.

Last, it is suggested to repeat the research as soon as green restaurants exist in the market. When questions will not only assess hypothetical issues, the relationships between the variables might significantly change and improve predictability of the model.
REFERENCES

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APPENDICES

APPENDIX A: Comments on Green Restaurants from Customers

At Restaurant 1 (Gourmet Deli)

Green needs to be part of the culture and process. It should not be considered a “premium” aspect nor should it be forced upon anyone. Restaurants, bars and other social places will have little or no effect on the environment.

Educate the public on benefits of eating at green restaurants.

Thanks for trying to be green and taking care of the environment. I’d like to support you if you continue in that effort. It’s important to me.

I choose restaurants based on the quality of the product. Being “green” does not factor into the decision.

Would be interested to see how truly green a restaurant can be.

This [being a green restaurant] would be great if well advertised.

It’s my first time in the US that I heard something about a “green” restaurant. To be honest, I never did anything on my own to find something out about. I am living in the US just for one year and I try to eat as healthily as possible, but it [being concerned with the environment] is not the same important topic for me here than it is in my hometown.

In my opinion, a survey such as this is the perfect step in the direction of making consumers aware of the roll they play in making the general public more environmentally conscious. If consumers want “green” restaurants, business owners will provide them.

I believe, in the future any restaurants displaying a “green” certification will be more desirable and a better marketing. It will become an important standard for all restaurants to attain.

I do not think people would pay more for “green” on a frequent basis. They might try but not return if it is not good food at an affordable price.
Restaurants need to market their green practices.

It is embarrassing that we are the most wasteful and over-weight society in the world. We are spoiled beyond belief, and we are selfish about how we treat Mother Earth. Restaurants… a good start. Let’s do it!

I don’t know which restaurants are green and quality (taste, preparation, etc.) greatly affect what I’m willing to pay.

Restaurants must build in existing structure, not tear down and rebuild. Recycle cooking oil for vehicles used by restaurants. Not certain if serving only locally grown is feasible. We love seafood – so start fish farms in central Ohio?

I am all for “green” but more research should be done to produce usable products. Some “green” napkins can’t absorb any spill and fall apart when used.

The most important thing for any restaurant is obviously to have great food and great service. Going “green” just makes more sense but can’t make up for bad food or bad service. We only knew of one other place that was recycling (but they stopped), so we’re glad this restaurant is.

“What else is important to you?” – Honesty [that restaurants don’t like about their green practices?]

The issue with restaurants is always the quality of the food and service.

At Restaurant 2 (Casual Dining)
Restaurants and bars should be forced to recycle glass, plastics, and cardboard.

Great survey, fantastic idea.

Having a better environment needs to start way before restaurants. What is the real point of “green”? Is it money, trend, or a late attempt of doing the right thing?

Recycling at restaurants is difficult (especially glass). More advocacy from government to initiate recycling!

Great idea. Hope it is constructive/useful data.

I want to take a streetcar to your restaurants!

I work in a restaurant and would love to incorporate “green” practices into our business.
Also, I feel education of the public should be implemented in your campaign. Columbus has a terrible recycling percentage. People are not used to eco-friendly practices and are unaware of the impact they make everyday.

I have absolutely no idea how “green” any restaurant is. Food quality is really the most important criteria. I would consider a restaurant that uses more local products a plus.

Cost would be the biggest reason keeping me out of a “green” restaurant. I support the use of locally grown produce, etc. but the Ohio climate and landscapes put limitations on it!

A website about green restaurants in Columbus would be helpful in changing habits and educating the public.

I don’t know if a restaurant is green or not… is there a way that they could advertise it?

At Restaurant 3 (Indian)

[This survey] is an excellent way to get feedback from diners, as well as making people aware of green restaurants. A list of green restaurants and where to find these will be helpful.

Supporting independent local green restaurants is important to me.

My biggest concern is that restaurants can recycle what they can in regards to their waste and reduce waste (paper waste – napkins, etc.)

To be honest, the idea of applying “green” to a restaurant is not that familiar to me. How does one know that a restaurant is “green”?

[The survey] is a great idea, worth more study! Go for it.

I am more interested to understand what ingredients are used.

I feel that protecting the environment is important and you should try to protect it any way you can.

There should be a directory of “green” restaurants.

We need a certifying board/label that notes restaurants on how green they are in food preparation, cleaning, purchasing, etc.

Good initiative!
It is easier for people to choose these places [green restaurants] when they are in plain sight and info is readily available. This is a great way to collect info.

Green is a myth. It is the actions of developing countries (in terms of curtailing CO₂) that are they key for better environment. Green restaurants are a fad, like Starbucks it’s dead when the fad dies.

At Restaurant 4 (Business Lunch)

It is important to be “green” without raising the cost of food.

I’m just recently being educated about green groceries, restaurants, locally grown produce and encourage your efforts.

Interesting subject matter.

Need to balance “green” with other needs and perspectives.

It would be helpful to have a symbol or certification designating which restaurants are green and the standards for the designation.

It would be helpful if a certification was available. It seems “greener” to eat at home, e.g. less waste, lower cost, no gas to get to restaurants, can select better ingredients…

Survey makes you think. It asks important personal questions and makes you curious to learn more about green restaurants.

I am glad you’re making steps to promote green!

I think Columbus does have green restaurants, to different extents. Also restaurants that reuse existing buildings are much more “green” than new-builds (even if built with green methods).

I would want to know how a restaurant is green, not just see the certificate on the wall. I am against the idea of a cap and trade system in general. It was helpful reading the definition of “green” at the beginning. “Green” has been thrown around a lot and means different things to different people. I would be more willing to spend more if a place used efficient appliances vs. paying fees to reduce their footprint.
At Restaurant 5 (Coffee Shop and Lounge)

How is a “green” restaurant an asset, right now when people can not afford bear necessities like gas.

Green restaurants tend to have better tasting (or healthier or fresher) food which would make me choose it, not necessarily cost.

It is important to me that restaurants providing disposable cups/plates/utensils use corn or sugar-based or other biodegradable materials.
It’s great that you are asking these questions!

Vegetarian food is inherently “green” Plus, you don’t have to eat meat – double bonus. Vegetarian food options are the number one factor in determining my dining choice.

Being that I work in the service industry, I struggle every day with the amount of waste. In my household, we recycle everything we can. I would be the “poster child” for new green restaurants, spread the word and patronize often.

By mail

The most important thing is FRESH, LOCAL PRODUCE. Second thing is ORGANIC LOCAL meats and poultry, no factory farms even if “organic”. I am willing to pay more to small local farms. Third, no fish from overfished waters. Organic farm raised ok. No growth hormones in fish.
Will it do any good? Please emphasize “local” over “organic”. Both would be best. Portion sizes in all restaurants must be smaller. Way too much food is presented and a lot of it wasted. All carry-out and to-go-boxes must be recyclable: no Styrofoam. Foil (when it is washed) is the best for recycling.
We need less food and less plastic in our lives.

We would make a point if going to “green” restaurants if there were more knowing we were helping to do some good for the environment… another form of socially responsible investing.
Thanks for the opportunity to get our thoughts!