TITLE: Green transportation for tourism: Assessing demand for eco-labels

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ABSTRACT

Transportation for tourism is a major contributor of environmental pollutants, providing an opportunity to examine new mechanisms that motivate behavioral responses to this problem. Eco-labels have become a more common method of providing information to consumers about purchasing decisions, while utilizing market forces to initiate environmental responsibility among competing firms. Tourism, as the largest global industry, presents great potential for eco-labels to reduce the environmental impacts of travel.

In 2009, the Green Coach Certification, an eco-label, was introduced to the motorcoach industry. This certification program is currently in an 18-month pilot phase. Tour operators are an important potential consumer of Green Coach Certified motorcoach services. To better understand the attitudes and behaviors of tour companies in regard to environmental responsibility and eco-labels, a survey was administered to tour operators across North America. Survey results demonstrate tour operator interest in an eco-label for the transportation and tourism industry; however, cost may temper this interest.

INTRODUCTION

Tourism is a leading international industry, generating 30% of the worlds' exports and imports (1). The mass migration of people for the purpose of tourism requires the use of multi-modal transportation systems. This aspect of tourism presents a significant opportunity to reduce overall environmental impact and greenhouse gas emissions. There are a number of initiatives to promote more sustainable tourism; however, few specifically address the transportation aspect and only the Green Coach program, directly certifies motorcoach buses with an eco-label. A common mode of transportation among tourists in North America is the motorcoach, which reaches urban, suburban and rural locations, moving tourist groups where rail and airline often cannot.

In 2009, an eco-label was introduced in the motorcoach industry. The Green Coach Certification was developed as a collaborative project between the University of Vermont (UVM), American Bus Association (ABA), and the United Motorcoach Association (UMA). While in the pilot-study phase, the Green Coach Certification research team conducted a survey of tour operators across North America to gauge environmental attitudes and behaviors of companies that are the consumers of motorcoach services. Understanding the tour operator population will help determine how the Green Coach Certification eco-label can successfully improve the sustainability efforts within the transportation and tourism industries.

Eco-labels have been established in several industries, including over one hundred labels related to the tourism industry. Previous research suggests that the success of the eco-label is contingent upon the level of understanding and awareness that the consumer has of the label itself in regard to the product or service being certified (2). This paper presents the preliminary results of the survey administered to over two hundred tour operators at the beginning of the 18-month pilot phase of the Green Coach Certification. Findings from this survey can provide valuable information to help make the eco-label more successful in the market for motorcoach services (3).

BACKGROUND

Environmental Problems and Public Awareness

Worldwide recognition of environmental problems has been growing over the past four decades (4, 5). Since the early 1970's public concern for environmental problems in the United States has risen. This era has brought about legislative and voluntary measures to protect the natural capital essential for sustaining life on this planet (6). Despite greater awareness, the Millennium Ecosystem Assessment, the most comprehensive ecological study to collect baseline data on the status of the earth's resources, reported continued widespread damage, largely the direct results of human activities (7). Recognizing the declining conditions of world's ecosystems has become more urgent as studies confirm the far-reaching effects of climate change.

Scientific consensus predicts that humans will face significant changes in surface temperatures, precipitation patterns, and sea level during the next several decades. The Intergovernmental Panel on Climate Change (IPCC) 2007 Report states that the observed increase in global temperatures is largely due to human influences. Greenhouse gases emissions and changing land cover are two major human activities that affect climate change (8). Of the

greenhouse gases contributed to the atmosphere from human behaviors, carbon dioxide has the greatest rate of increase. The rate of carbon dioxide accumulation in the atmosphere has increased dramatically in the past 10 years. The carbon dioxide concentrations detected in 2005 far exceed the range of 180 – 300 parts per million (ppm) that has been maintained over the past 650,000 years.

Science supports that human activity has a negative impact on the earth's natural systems and studies reveal increasing concern among people yet there is a lag in behavioral changes to mitigate damages (5). People's disproportional responses to environmental problems have been studied from the perspective of several disciplines, including behavioral psychology, philosophy, sociology, political science, and economics (9).

Behavioral Response to Environmental Problems

Responding to environmental problems would be well reasoned, rational and culturally acceptable in many cases, yet people's behavior does not consistently correspond to their concerns. Psychosocial explanations for environmental inaction suggest people feel too far removed from the problems and do not realize the impact of their behavior (10). Additionally, people feel that their ability to actually elicit any significant change in an environmental problem, be it local or global, is disproportionate to the actual problem itself. Pervasive helplessness inhibits people's motivation to change their behaviors regardless of their level of concern (4).

Rising general concern and awareness about environmental problems over the past several decades also brought about the establishment of several institutions and legislative initiatives for the protection of natural resources (5). The environmental policies of the past several decades are characterized as "command and control" and "market-based" (9). Although there have been many successes with policies that regulate behavior in these manners, recent studies call for more diverse policy tools to achieve more significant results in environmental protection. This interest stems from shifting in the sources and types of environmental degradation from identifiable point-source pollution and small-scale, clean-up efforts to non-point source, global problems such as climate change. Periods of more conservative politics that did not rigorously address environmental issues also contributes to shifting focus toward more widespread public education efforts and grass-roots action (9).

Eco-labels as Motivators for Behavioral Change

A more recent approach to reinforce the need for environmental action is eco-labels; which addresses these issues by using the momentum of a market-driven economy and providing more complete information to the purchasing public. This gives consumers a choice to spend intentionally money in ways that will help mitigate pollution that cannot be easily regulated by previous policies (9). Eco-labeling also addresses the psychological disconnect between people and environmental problems by bringing greater awareness and the opportunity for immediate decision-making regarding environmental action to a large percent of the population. Labeling programs provide valuable, more complete information to consumers about the direct effects of their purchase decisions. Additionally eco-labeling can motivate producers to adopt practices that use fewer resources and improve their environmental performance. Pressure from competing firms that become certified with an eco-label can cause additional firms to do the same in order to stay competitive in the market

Eco-labeling can be an effective method for reducing negative environmental impacts and for promoting more responsible consumption patterns, but can also lead to other undesirable outcomes. Some criticism of eco-labeling suggests that if consumers perceive their purchases to have less impact, they may actually consume more. The challenge is to identify the avoided impact of a product in cases where consumption is likely to take place regardless of the presence of an eco-labeled option. If consumption of a particular product or service is inelastic, an eco-label will decrease the degree of degradation (11).

The accountability of a label must also be examined. Consumers show little confidence in claims made by product manufacturers themselves therefore credibility behind an eco-label must be established. Third party certification can add legitimacy to an eco-label (12). Along with creating trust in a label, consumer recognition is also critical to the success of eco-labeling initiatives. This aspect of labeling requires time and public education efforts to ensure that the purpose of the label is understood.

Many industries have successfully adopted certification and labeling schemes. Labels in the food industry are widely recognized and thoroughly studied. Nutritional labels have become mandatory to provide accurate health information. The organic and fair trade labels further inform a consumer about the environmental and social impacts of a product. Other industries have adopted standardized eco-labels, including home appliances and the "Energy-star" certification; the green building and construction industry using "LEED" certification to designate a standard of environmental quality on projects; and wood and paper products with eco-labels such as SmartWood to certify that the materials used in the product were sustainably harvested.

The above industries account for major contributions to climate change. Changes in land cover as a result of deforestation, agriculture and development as well as energy use in homes and businesses all increase levels greenhouse gases in the atmosphere (7) making these critical areas for further consumer responsibility and education. The transportation sector is also a major contributor of carbon dioxide and therefore presents significant opportunities to further reduce emissions.

Eco-labeling in Transportation

According to the U.S. Department of Energy, transportation has been the highest end-sector emitter of carbon dioxide since 1999 (13). Many initiatives have been established to reduce carbon dioxide emissions from transportation including the use of alternative fuels, new technology and encouraging modal shifts for commuters. Further opportunities for reducing greenhouse gas emissions still exist within the transportation sector. Reducing greenhouse gas emissions has been identified by the Department of Transportation as a national priority (14).

Eco-labels in the transportation sector may prove to be effective tools for moving the industry toward decreasing greenhouse gas emissions and overall impact on natural resources. Tourism created the greatest demand for transportation in the first half of this decade, responsible for the largest number of people travelling annually (15). The tourism industry continues to grow and is often termed "the largest industry in the world." Additionally, travelers have a variety of choices especially in their transportation modes when planning their trips. For this reason, transportation in the tourism industry presents an optimal market to introduce a green certification program and eco-label.

Tourism and Motorcoach Travel

Mass tourism, as all-inclusive packages offered to higher volume of travelers, accounts for the greatest number of people travelling (16). While growth in the tourism sector is viewed as economically important for many regions, tourism itself can become destructive if it exceeds a threshold and begins to diminish the attractiveness of a destination. For example traffic congestion, which is the most commonly cited problem in tourism can deter future travelers from returning to an area (17). This makes mass tourism a powerful leverage point in the industry where change can be very effective. A popular mode of transportation in organized tourism is chartered motorcoach buses.

Catering to charter groups, organized tours, airport shuttles, scheduled route passengers, and sightseeing groups, the motorcoach industry in the United States carried approximately 774 million passengers in 1999, more than the airline industry and more than Amtrak and commuter rail combined (18). Motorcoach travel achieves as high as 206 passenger miles per gallon (MPG), which far surpasses the rail industry at 92 passenger MPG, airplane travel at 44 passenger MPG and can even compare to hybrid cars depending upon capacity. If a motorcoach were filled to capacity it could potentially remove as many as 55 private vehicles from traffic.

This addresses a key issue of reducing roadway congestion during tourist experiences (19). When compared to other modes of motorized transit, motorcoaches also emit the least carbon dioxide per passenger MPG (20). These facts make motorcoach travel an eco-friendly alternative to private vehicles, especially for people interested in mass tour packages.

Green Coach Certification

A pilot certification project is currently underway for motorcoach companies in North America. The Green Coach Certification provides an eco-label to motorcoach companies in recognition of their environmental responsibility. This study is a collaborative effort between the University of Vermont (UVM), the American Bus Association (ABA) and the United Motorcoach Association (UMA). Motorcoach companies have been invited to voluntarily participate in the certification process that would then allow them to use a third-party issued eco-label (Figure 1).

FIGURE 1. Green Coach Certification Eco-label.

To become a certified Green Coach, a company must meet include at least one of the following criteria:

- Meeting or exceeding the industry average of 148 passenger miles per gallon.
- Running an EPA 2007 or 2010 compliant engine.

- Offsetting carbon emissions by 80 percent through an endorsed carbon-trading program.
- Running on an alternative fuel such as a blend of biodiesel.
- Having strict, documented, and verifiable energy conservation and recycling program.
- Incorporating other emerging environmental technologies as prescribed by GCC.

Almost 20 motor coach companies have begun the process to become Green Coach Certified in the pilot program. These companies are currently working with University of Vermont researchers to verify that they meet criteria listed above. After certification materials have been submitted to UVM, a memorandum of understanding will be signed and the company will be given the right to use the eco-label on their vehicles as well as in marketing materials. By the end of 2009, an estimated 7-10% of the 29,000 motorcoaches across North America will be certified to use the Green Coach eco-label (21).

Over one hundred eco-labels already exist in the tourism industry (22). But the proliferation of eco-labels does not guarantee their success or widespread acceptance by the consumer. Previous studies of tourist responses to eco-labels show very low rates of recognition and awareness of the labels (2, 23). This reveals the importance of not only understanding the consumer of an eco-labeled product but to know the demand for an eco-label in a particular market as well.

Consumers of Motorcoach Services

Tour operators comprise a segment of the consuming population of motorcoach services. Due to the risk of irresponsible tourism practices decreasing the profitability of the industry, there is a large movement toward sustainability among tour operators. Because mass tourism creates a high volume of activity, it is critical that this sector of the tourism industry take measures to reduce their impacts. When booking mass tour packages, tour operators choose their transportation provider; in turn the end consumer chooses the tour operator (Figure 2). This places tour operators in the middle of the supply chain as both a consumer and a producer of tourism services (16). As such, the decision to work with a motorcoach company certified with an eco-label is not often an individual choice but that of a firm.

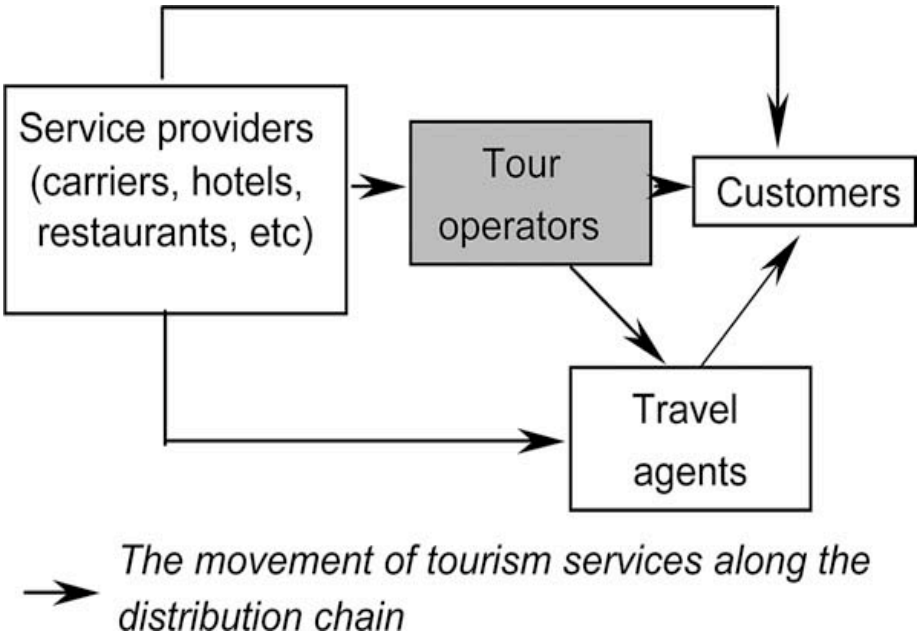

FIGURE 2. The Tourism Supply Chain (15).

Behavioral Theory of the Firm and Environmental Responsibility

A firm is a coalition of individuals who collectively make decisions (24). Presumably in a firm, decisions are based largely on profitability; however pressure from stakeholders presents another major factor that at times presents the need to prioritize behavior differently than if maximizing revues were the sole concern.

Other aspects of a firm, such as the objective to meet established goals, also impacts decisions made within the organization. The goal that drives certain decisions may not be profit maximization; instead, increasing market share or being socially and environmentally responsible may take precedence. Still, groups within the firm, rather than an individual often make these decisions. The structure and size of a firm may affect how these decisions are made (26).

Previous research has attempted to determine whether or not adopting environmentally and socially responsible policies or practices affects the profitability of the firm. In these studies results are continually reported to be inconclusive (25). One reason for this is that it is difficult to factor out concurrent variables. For example, many firms that have socially responsible initiatives also invest heavily in research and design. It is difficult to determine which of these two factors were responsible for the firms' success or if it is the combination of them both. Another study attempts to compare two firms that produce at an equal quality and quantity yet one firm has a social responsibility ethic. There was no significant difference in profits between the two firms (26).

More recent reports suggest that social and environmental responsibility leads to greater long-term profits despite there being little or no difference in short-run profitability (27; 28). However, even these provide a caveat that ambiguity in the definition of social and environmental responsibility, the results remain inconclusive. Regardless of whether the firm is motivated by profitability or "doing the right thing," adopting environmentally responsible practices is still considered by most firms as an afterthought in their production models (27). The

most effective driver for more widespread adoption of such practices is government regulation, suggesting that while consumer and stakeholder demand may affect a firm's decision, those pressures are still secondary to profit maximization (29).

METHODS

To better understand decisions made by tour operators when booking motorcoach services, an Internet survey of tour operators was conducted between May and June of 2009.

Instrument Design

The Internet survey was developed closely following the guidelines of *Internet, Mail and Mixed Mode Surveys, The tailored design method* (30). The objective of the survey is to assess the attitudes and behaviors of tour operators in regard to business decisions, booking transportation and environmental responsibility.

Because of the cost-effectiveness and timeliness of web surveys, this method was used instead of mail or telephone surveying. Web surveys elicit lower response rates than mail surveys, however, the efficiency of using the Internet outweighs this factor (31).

To help encourage response, tour operators in the sample were offered an opportunity to enter a drawing for $500 cash or waived registration fees to the annual industry meeting. Previous studies do not definitively indicate that incentives increase response rates. Researchers contend that this may be due to the fact that incentives are more commonly offered in long, tedious surveys (32).

Survey Questions

The first question screened out tour operators who also internally operate their own transportation services. This ensured that survey respondents were in fact consumers of motorcoach services. The next question gauged the size and purpose of each tour operator.

Participants were then asked questions pertaining to considerations taken by companies when selecting transportation services. These were followed by several questions that gauged the level of environmental practices of the tour operator company. Tour operator's willingness to pay for transportation with a certified eco-label and the level of importance of eco-labeling in the tour operator's decision-making process was also assessed.

A set of 17 questions adapted from previous environmental responsibility studies were included in the survey instrument to provide further information about attitudes and behaviors of tour operators regarding concern for environmental impact (33). The final questions asked about the decision-making power of the respondent. This gauged the likelihood that the individual who responded to the survey also participates in the final decision-making process when choosing a transportation company.

Survey Implementation

During the survey design process, UVM professors, graduate students and staff members reviewed questions. The survey was then pre-tested by five tour operators nationwide, for language, clarity, aesthetic appeal and formatting. Additionally, the Director of the Vermont Tourism Data Center and the Director of the UVM Transportation Research Center, as well as staff at ABA and UMA reviewed the survey. To ensure consistent display and format on a

variety of computer monitors and Internet software the survey was also sent to several personal contacts.

The first e-mail was sent mid-week, mid-morning to 228 potential respondents. During the following 4 weeks, follow-up e-mails were sent to those who had not yet responded reminding them about the survey. Different subject lines were used to gain the attention of tour operators with different interests. Each time a deadline was provided to encourage response in a timely manner (34). After the fifth follow-up e-mail 58 responses were collected.

Non-respondent phone calls were made to 100 randomly selected tour operators. Of the 100 companies called, 93 were reached and willing to answer questions. Non-respondents were asked for an updated e-mail contact if they were willing to take the survey but had not received it. This raised the number of responses to 72.

RESULTS

Survey respondents are members of the American Bus Association. The survey was sent to 228 potential respondents. Of those, 7 had previously opted out of any surveys sent from the Survey Monkey program. None of the e-mails were identified as invalid. This brought the total number of potential respondents to 221. These companies are located across North America. The final response rate was 32.5%, which falls within or above the average response rates of previous web-based surveys (33, 35).

Sixty-nine respondents indicated that that they do book transportation with a company external to their own. Responding tour operators reported having as few as zero full time employees and as many as 275 full time employees. The average firm size by full-time employees is 10.2 however because the response, 275, was a severe outlier with the next reported number being 47, the adjusted average is 6.4 full-time employees.

The majority of respondents book multi-day, all-inclusive package tours as their most common type of business. Of all the companies surveyed, 96% book multi-day trip and 81% book all-inclusive group charters. The group size most often booked is between 31-50 people as reported by over 97% of tour operators. This signifies that the majority of survey respondents' most typical source of business is generated from activities related to mass tourism.

More than three quarters (79%) of tour operators reported recycling waste in their company. Less than 10% calculate their carbon footprint or purchase carbon offsets. One-third of the companies incorporate a green message in their marketing materials. Of those companies that do not incorporate a green message, 54% said they would be interested in beginning to do so. Most tour operators (90%) do not have formal environmental management policies (Figure 3). Over half of respondents currently engage in one of the aforementioned environmentally conscious behaviors and 87% engage in one or more behaviors.

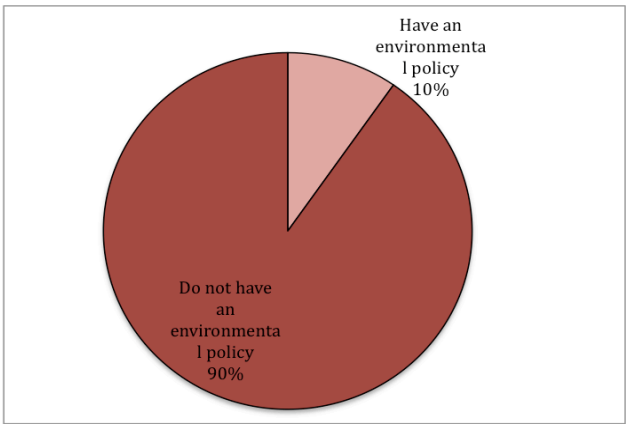

FIGURE 3. . Tour operator responses when asked whether the company has a formal or written environmental policy *(*n= 72).

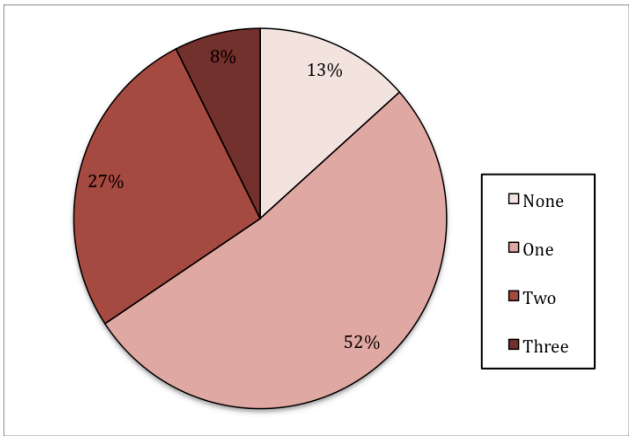

FIGURE 4. Number of environmentally conscious behaviors that tour operators are currently engaged in.

In order to understand the important factors that tour operators consider when choosing transportation for their packages, participants were asked what is most important to their decision. Price was reported as the most important factor (n=19). Repututation of service and safety were also commonly chosen as important in decisions (n=18 and n=16, respectively) (Figure 5). About 90% of tour operators replied that a reliable reputation in service and safety is extremely important.

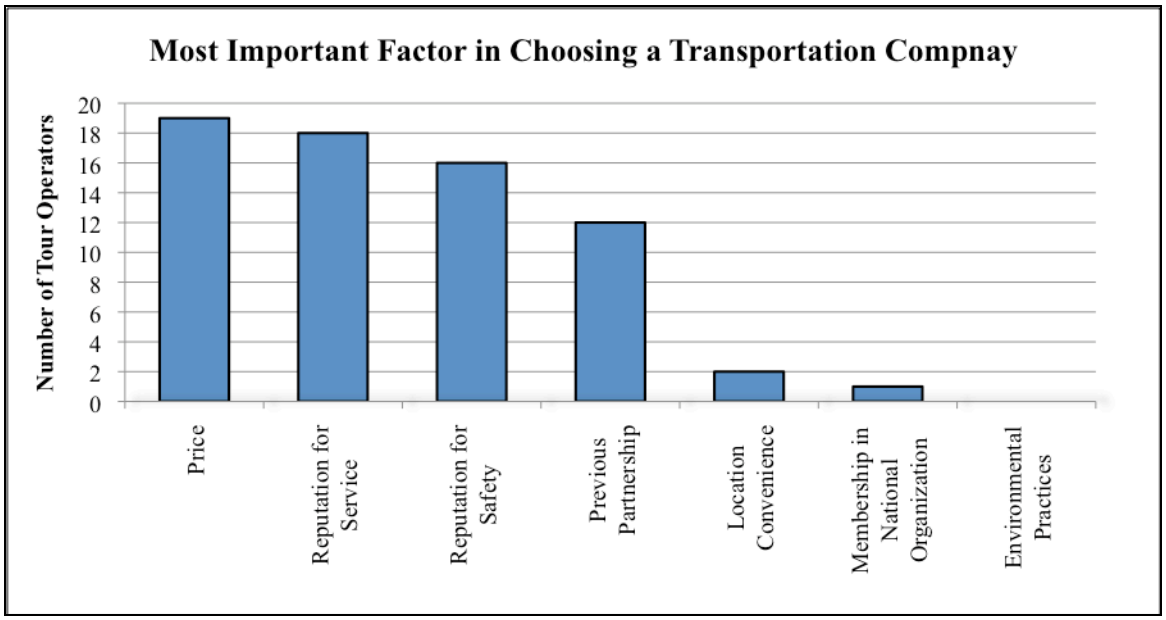

FIGURE 5. Tour operator responses when asked about the most important factors for choosing transportation companies (n=72).

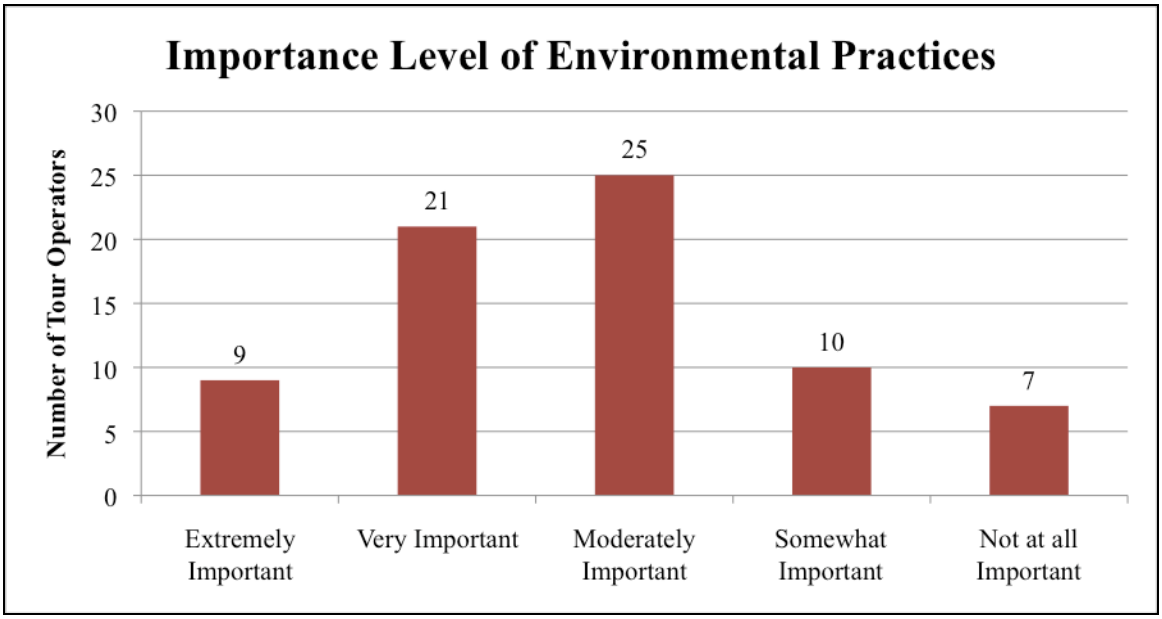

FIGURE 6. Importance level of environmental practices in transportation choices (n=72).

Over one-third of tour operators responding to the survey had heard about the Green Coach Certification pilot program. Respondents were asked what would be most important to them when choosing a motorcoach company that had an eco-label. Increasing business, gaining competitive advantage, moving away from dependence on oil and gas, and having less impact on the environment were considered extremely important (Figure 6).

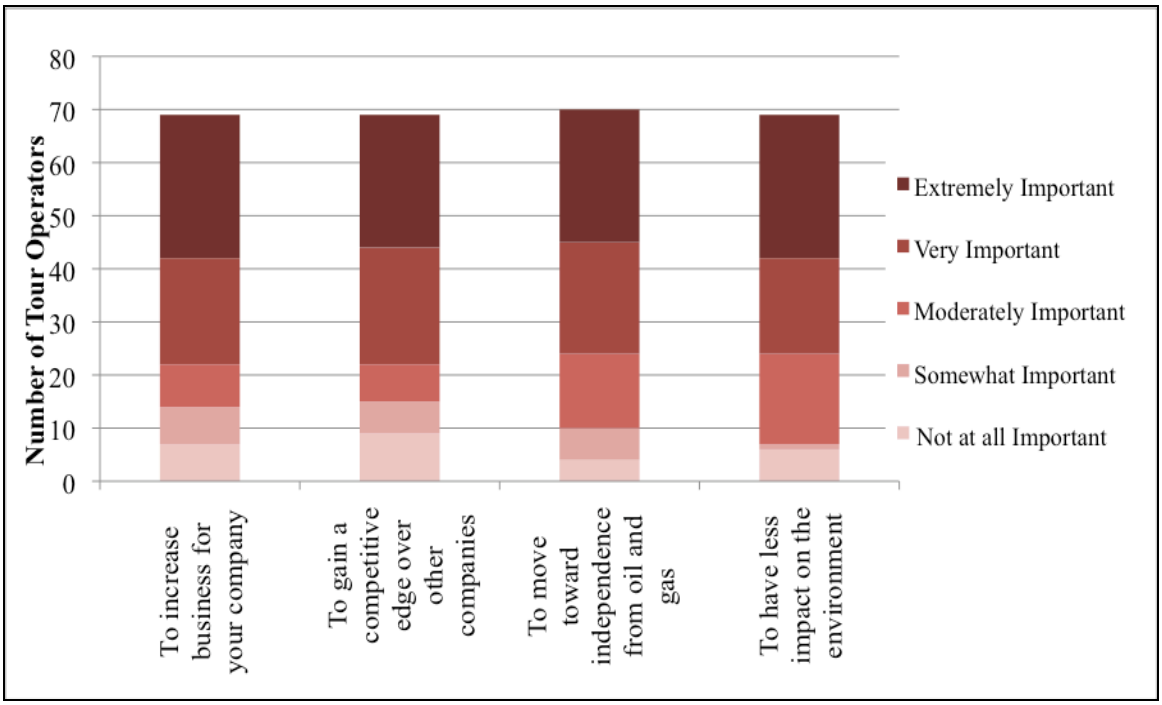

FIGURE 6. Importance of factors considered by tour operators when deciding to use a transportation company that has been ceritified with an eco-label (n=72).

While these factors are ranked as extremely important, just less than half of respondents would not be willing to pay an additional amount for transportation certified with an eco-label nor for the ensurance that the transportation company takes measures to be environmentally responsible according to several different criteria (Figure 7). However, the other half would pay and additional amount.

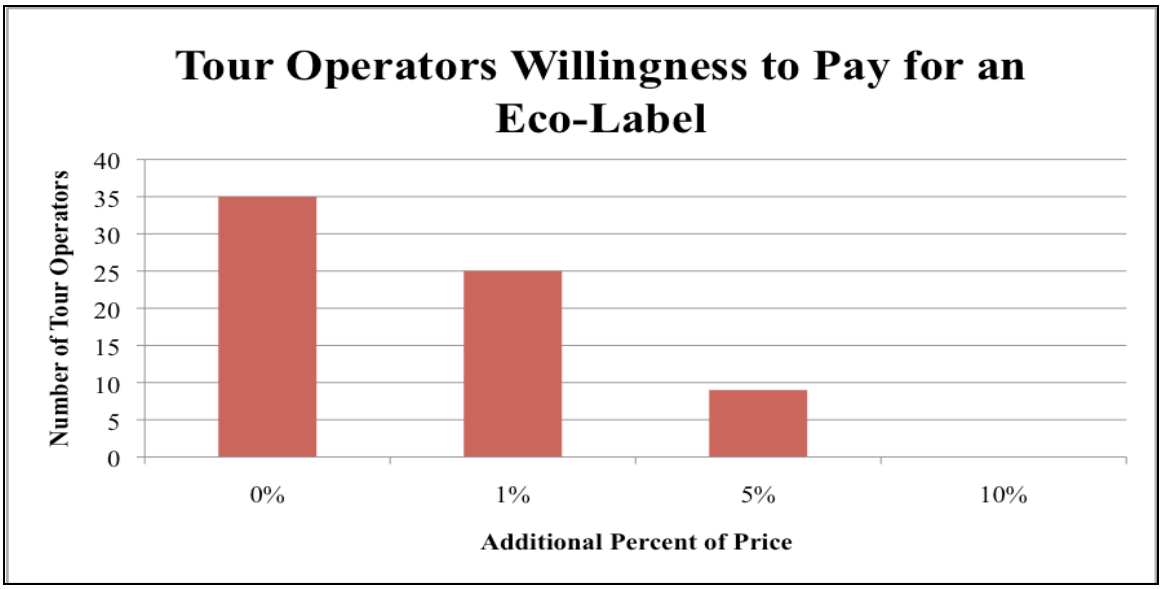

FIGURE 7. Respondents' willingness to pay for a eco-labeled transportation services (n=72).

DISCUSSION

These findings suggest that there is interest among tour operators in eco-labeled motorcoach services and in greening their industry. A majority of respondents indicated that they already incorporate, or would be interested in incorporating, a green message in their marketing materials. Choosing transportation with an eco-label will then provide a logo and an opportunity for inclusion in their advertising information.

However, price was found to be the most important factor that tour operators consider when choosing a motorcoach company. This is not surprising since most firms view profit maximization as their primary focus. This is also evident in the fact that about half of respondents are not willing to pay more for transportation services that are eco-labeled or have adopted specific environmental practices. Having a reliable reputation for safety and service also ranked very high as priorities in transportation choices. It is possible that with a certified eco-label, transportation companies' reputation can improve. This might provide a greater competitive advantage to firms that have an eco-label.

Nearly half of tour operators replied that they would be willing to pay some additional amount for motorcoach services with an eco-label. For some additional environmental service, some tour operators were willing to pay up to 10% more. This indicates that within the market, these companies may lead others to also choose transportation with an eco-label in order to remain competitive. Over time, the introduction of an eco-label in the market may inform end-consumers and other tour operators thereby increasing the demand for green certified motorcoach services. This could lead to more widespread acceptance and greater willingness to pay for these additional aspects of motorcoach transportation once the label has been familiarized to the market.

Because this survey was conducted at the beginning of the Green Coach Certification program, the actual demand for eco-labeled transportation cannot yet be determined. However, previous studies have shown that consumers can significantly affect the market for an eco-labeled product or service after it has been introduced (35).

Further investigation of company structure and decision-making processes may reveal new information about the choices of respondents willingness to pay, attitudes and behaviors in relation to environmental performance of the transportation company selected by tour operators. There is also the need for a post pilot-project survey to assess the change in tour operators' responses after an eco-label has been present in the motorcoach industry. This will allow for a better understanding of how the Green Coach Certification affects the actual behaviors of tour operators in comparison to stated attitudes and beliefs. A follow-up survey will provide information about how the introduction of an eco-label might change the market and effectively reduce the environmental impact of the transportation and tourism industries.

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