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# Evaluating Nature-based Tourism Using the New Environmental Paradigm

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## *Abstract*

Nature-based tourism (NBT), alternatively known as ecotourism, is a rapidly expanding area in the tourism travel sector. States such as Louisiana with a well established urban-based tourism industry may have expansion opportunities through development of complementary nature-based tourism. This study analyzes the decision to participate in nature-based tourism and identifies factors, including attitudinal, that influence the decision to participate in NBT among Louisiana tourists.

**Key Words:** Nature Tourism, Ecotourism, NEP

Nature-based tourism, also known as ecotourism or nature tourism, is defined as "tourism that consists of travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestation found in these areas" (Boo, 1990). In most cases, travelers are passive, nonconsumptive observers rather than active resource users. Nature-based tourism is an increasingly popular specialization within tourism which may have economic relevance for semi-tropical states such as Louisiana. Adventure travel (including nature-based tourism) was estimated to account for almost 10 percent of the world tourism market in 1989, growing at an annual rate of 30 percent (Whelan, 1991). Quammen (1992) suggests that nature-based tourism may account for more than \$12 billion in annual spending, most of which involves travel to tropical developing countries where biological diversity is most abundant.

Travel currently contributes considerably to the Louisiana state economy, the lifestyle and the culture that Louisiana residents and their visitors enjoy. However, although Louisiana's receipts from tourism have steadily increased over the past few years, the state has only recently started gaining back part of the market share it lost during the 1980s. Although the role of New Orleans as a primary attraction for tourists is well established, less is understood about the potential for development of nature-based tourism in Louisiana (U.S. Travel Data Center, 1994).

This research analyzes factors which influence participation in nature-based tourism in Louisiana. Using primary data from a random survey of individuals who sent tourism inquiries to Louisiana, the decision to participate in nature-based tourism in Louisiana is considered in the framework of a qualitative choice model. Unique to this analysis of ecotourism is the evaluation of a

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psychological scale based on the New Environmental Paradigm (NEP) (Dunlap et al., 1992) as an explanatory factor in ecotourism participation. Results of this research shed light not only on Louisiana's ecotourism potential, but also on the explanatory contribution of NEP-based attitudinal scales in economic models.

### **Nature-based Tourism**

Nature tourism promotes more culturally and ecologically sensitive travel which ideally profits all involved. In addition, nature-based tourism can also be effective in promoting conservation and management of natural resources for long-term, sustainable economic development (Kutay, 1989; Edwards, 1988). As Boo (1990), states, "Tourism to protected areas demonstrates the value of natural resources and wildlife to tourists, rural populations, park managers, government officials, and tour operators." As a result, nature-based tourism is now seen as a model of development in which natural areas are planned as part of the tourism economic base and biological resources and ecological processes are linked to social and economic sectors (Kutay, 1989).

In addition to recognized benefits associated with tourism in general, nature-based tourism provides economic justification for the protection of areas that may not be protected otherwise (Boo, 1990). Nature-based tourism has encouraged the use of natural resources such as forests and wildlife for nonconsumptive uses that may be as profitable as any other type of exploitation. Successfully managed, nature-based tourism can provide additional revenues to public and private land managers as well as offer additional justification for managing the resource base for sustainable use. Beyond its economic importance, tourism development can promote the preservation of cultural and social values, including historical places of interest that might otherwise be lost. This is particularly true for nature tourism because it promotes culturally and ecologically sensitive travel.

Nature-based tourism appears to offer many economic benefits to areas endowed with a resource base that appeals to today's environmentally conscious tourist. While much of the focus on nature-based tourism has been directed toward

tropical areas of the world, some areas of the U.S. such as Louisiana have the potential to benefit from recent trends in increased nature-based tourism (Kieselbach and Long, 1992). Louisiana, for example, offers many of the attributes identified as building blocks for a successful nature-based tourism sector, including semi-tropical climate and exotic flora and fauna. Louisiana offers a distinctive cultural backdrop for nature-based tourism, in addition to relatively lower travel costs, political security, and a developed infrastructure (Whelan, 1991).

### **Louisiana Tourism**

In the travel market, Louisiana has an unusually high repeat visitor rate, 91 percent, with 82 percent of tourists indicating they will return to Louisiana within two years. In 1993, the average tourist to Louisiana spent 3.3 nights away from home with 58 percent staying in motels or hotels. Since 1989, there has been a 22 percent increase in nature-based tourism being reported as a Louisiana trip highlight. In 1993, travel to Louisiana totaled 19.7 million visitors, an increase of 8.8 percent from 1989. (United States Travel Data Center, 1994).

Although Louisiana is known in the pleasure travel market primarily for New Orleans focused tourism (nearly half of all Louisiana tourists in 1993 went to New Orleans), opportunities exist in Louisiana to expand on this urban tourism experience to include nature-based tourism. The semi-tropical wetlands that characterize much of south Louisiana provide habitat for threatened and endangered species, unusually good birding opportunities, and access to the estuarine environment of coastal Louisiana. In addition, the Cajun culture of south Louisiana provides a colorful human interface with the coastal and wetland environment. Efforts to market these environmental and cultural assets as nature-based or ecotourism are currently limited in Louisiana. While Louisiana tourism marketing specialists confidently market urban tourism, little is known about factors influencing the demand for Louisiana's nature-based tourism.

In order to identify and evaluate factors influencing participation in nature-based tourism in Louisiana, a behavioral model including socio-

economic factors and an environmental attitudinal component is specified in a qualitative choice framework. Participation in nature-based tourism is expressed as a function of socio-economic variables and attitudes towards the environment. Unique to this economic analysis, environmental attitudes based on a modified New Ecological Paradigm Scale are included in this study (Dunlap, et al., 1992).

### **New Environmental Paradigm**

Due to the inter-relationship between behavior and attitudes, there is an increased interest in environmental attitudes as predictors of participation decisions, or environmentally based actions. A diverse and rich social-psychology literature on behavioral research has established the role of attitudes as predictors of behavior, behavioral intentions, and as explanatory factors of variations in individual behavior (Ajzen, 1980; Ajzen, 1988; Heberlein, 1989; Ajzen and Driver, 1991, 1992). However, most studies on environmental attitudes have been provided by social sciences outside of economics. These studies typically examine the relationship between environmental attitudes and behavior and analyze the main socio-economic variables determining environmental attitudes (Buttel, 1987; Dunlap, et al., 1992). Due to its descriptive nature, the information provided in these studies, although useful, does not allow economists to test hypotheses about, further explain, or predict environmental behavior.

The New Environmental Paradigm proposed by Dunlap and Van Liere (1978) was prompted by a general and growing interest in public attitudes towards the environment. NEP is based on the assumption that "implicit within environmentalism was a challenge to our fundamental views about nature and humans' relationship to it" (Dunlap and Van Liere, 1978). Within the NEP framework, Van Liere and Dunlap developed Likert items assessing the three conceptual domains of the paradigm, i.e., beliefs about our ability to conflict with nature, limits to growth, and the proper role of humans in nature. The overall internal consistency and the predictive ability of the Likert items allowed the authors to consider them as a single entity named the New Environmental Paradigm Scale (NEP). Since its

creation, the NEP scale has been extensively used to analyze and contrast environmental attitudes of different groups (Caron, 1989; Hall, 1990; Noe and Snow, 1990). The relationship between environmental attitudes and socio-economic variables constitutes another area of application of the NEP scale (Van Liere and Dunlap, 1980; Buttel, 1987; Kuhn and Jackson, 1987). The NEP scale has also been used to evaluate the relationship between environmental attitudes and environmental knowledge (Arcury, Johnson, and Scollay, 1986; Edgell, 1989; Arcury, 1990).

Despite its usefulness and various applications, the NEP scale is not without critics (Geller, 1985). For example, its lack of grounding in the social psychology literature on attitudes has been criticized by Heberlein (1981). Albrecht, Bultena, Hoiberg, and Nowak (1982) and Geller and Lasley (1985) suggested that the NEP scale is not a single entity but is a multidimensional construct. The multidimensionality of the scale is due to its initial design. All but four of the initial Likert items were worded in a pro-NEP direction (Dunlap, et al., 1992). This prompted researchers to use subsets of the original NEP scale, identified in the literature as "modified NEP scales". To correct the imbalance existing in the original scale and broaden its scope, a New Ecological Paradigm Scale was proposed by Dunlap, et al. (1992). This revised scale also gives respondents the option to answer "unsure". The revised NEP scale was extended by including questions about exemptionalism, i.e., "the idea that humans--unlike other species--are exempt from the constraints of nature" (Dunlap et al., 1992).

In contrast to individual Likert scales tailored uniquely for a specific study, the more generalized NEP scale and its recent modifications offer researchers over 20 years of use and examination by social science researchers. This previous research provides a basis for hypothesis development as well as a framework for interpretation. In the context of analyzing ecotourism behavior, the NEP provides an efficient means of assessing attitudes previously identified as pro-environmental or anti-environmental. The following section proposes a conceptual framework for identifying determinants of participation in Louisiana nature-based tourism, including environmental attitudes as measured by a modified NEP scale.

**Behavioral Model of Ecotourism Participation**

Models for determining the choice of discrete, alternative activities such as participation in nature-based tourism are known as qualitative choice models. Stynes and Peterson (1984) have previously established the use of this approach to modeling recreation behavior in analyses of choice of activity or choice of site. Amemiya (1981) more generally identified an important reason for the recent upsurge in use of qualitative choice modeling in economic and behavioral applications--the existence of many naturally discrete variables. Economic agents often are observed making choices between activities rather than only making choices involving levels of participation in markets. Qualitative choice models have, as a result, increasingly been used in analyzing participation in a variety of activities.

This study uses a dichotomous choice framework to explain participation in nature-based tourism in Louisiana. Logit and probit are the two alternative approaches used in dichotomous choice modeling. Because logit and probit models essentially yield similar results, the choice of one method over the other depends upon the discretion of the researcher (Capps and Kramer, 1985; Madalla, 1991). This study uses a logit model to explain ecotourism participation in Louisiana. The decision to participate in nature-based tourism in Louisiana is hypothesized to be a function of socio-economic, attitudinal, and locational factors. The model proposed can be written under the general form:

$$LANBT = f (INCOME, MINORITY, GENDER, NEP, STATE, FAMILY, \epsilon) \quad (1)$$

where:

LANBT = 1 if the individual engaged in Louisiana nature-based tourism; 0 otherwise

INCOME (-+) = annual income of the individual: 1 if income > \$50,000; 0 otherwise

MINORITY (+) = Respondent's race: 1 if not minority; 0 otherwise

GENDER (-) = Respondent's gender: 1 if female; 0 otherwise

NEP (+) = NEP measured environmental attitude

STATE (-) = Respondent's state of origin: 1 if noncontiguous to Louisiana; 0 otherwise

FAMILY (-) = Respondent's family size

$\epsilon$  = error term

The discrete dependent variable, *LANBT*, measures the participation decision for nature-based tourism. This dependent variable is based upon the question asked in the mail survey: "Did you engage in any nature related activities during your visit to Louisiana (i.e. participate in travel to relatively undisturbed natural areas with the objective of observing the scenery, plants, or animals)?" In order to ensure respondent understanding of what constitutes nature-based tourism in this study, this question was additionally framed in the survey by explanations of nature-based tourism in an information box and through the survey cover letter.

Socio-economic characteristics of respondents, including age, income, education, and family size were hypothesized to influence Louisiana nature-based tourism participation. As previous studies have established that education and age are significantly and consistently correlated to environmental attitudes (Van Liere and Dunlap, 1980), they were not included in the set of socio-economic explanatory variables. Extremes of income, including poverty level and higher income groups, were hypothesized to be negatively associated with this participation decision. Lower income individuals (less than \$15,000 annual income) typically travel less for tourism purposes in contrast to higher income individuals who can afford more exotic nature-based tourism, including international sites (Searle and Jackson, 1985; Boo, 1990). For marketing and advertising purposes, it

was of interest in this case to identify income threshold levels for participation. In this specification, *INCOME* was initially identified as 1 if income exceeded \$50,000, and 0 otherwise. The sensitivity of estimation results to the income threshold selected was then evaluated by specifying a series of income levels.

Although Louisiana is, for tourism purposes, characterized by its Creole and Cajun heritage, the state's population increasingly reflects multicultural diversity resulting from its significant African American and growing Asian and Hispanic population. Indigenous cultural diversity is often viewed as an asset when marketed in conjunction with nature-based tourism. In contrast, tourist ethnicity, especially minority status, was hypothesized to negatively influence nature-based tourism participation decisions due to previously documented recreation patterns in the U.S. (Washburne, 1978; Stamps and Stamps, 1985; Searle and Jackson, 1985; Hutcheson, 1988). Minority status was therefore hypothesized to negatively influence the nature-based tourism participation decision. Minority status was designated in the model as 0 if nonwhite (African American, Oriental, Native American, or Hispanic), 1 otherwise.

Gender was also hypothesized to influence participation in Louisiana nature-based tourism. Henderson, et al., (1988) and Shaw, (1985) suggest that status differences between males and females leads to an inequality in access to leisure time in general. Participation in outdoor-based recreation and leisure activities in particular have been shown to require a socialization process which historically has systematically excluded females (Kelly, 1974; Henderson, et al., 1988). The gender hypothesis was specified in terms of a negative relationship between females and participation in nature-based tourism. The variable *GENDER* was defined as 1 if survey respondent was female, 0 otherwise.

Locational variables were included in the model based on traditional travel cost considerations and access to information about Louisiana tourism, including nature-based tourism. Louisiana traditionally draws most of its tourists from six states, two of which (Texas and Mississippi) are contiguous to Louisiana. Potential nature-based

tourists facing significant travel costs to participate in Louisiana nature-based tourism were hypothesized to be more likely to travel at similar costs to more established nature-based tourism sites. Superior access to Louisiana media (and hence advertising) and familiarity with the state's overall tourism opportunities due to proximity also contributed to the development of the locational hypothesis. Residence in a noncontiguous state was therefore hypothesized to reduce the likelihood of participation in Louisiana nature-based tourism. The variable *STATE* was defined as 1 if the respondent's state of origin were noncontiguous to Louisiana, 0 otherwise.

Family size was also considered as an important factor in explaining the nature-based tourism participation decision. Previous research on the influence of family size on leisure activity has established a positive relationship between family commitments and family size as a barrier to leisure activity (Searle and Jackson, 1985). Knowledge of the influence of family size on participation would facilitate tailoring nature-based tourism to appropriate user groups. *FAMILY*, a continuous variable, was included in the model with a hypothesized negative influence on participation. The hypothesis that a positive environmental attitude is significantly and positively correlated to ecotourism participation was also tested in this study. Adding a psychological attitudinal variable such as that provided by the NEP-based scale extends the analysis to include psychographics as an explanatory factor. In an effort to understand travel motivations, contemporary marketing efforts are increasingly including some measure of attitudes in evaluations of tourism participation decisions (Inskeep, 1991).

The modified NEP scale developed for this survey included six statements consistent with recent iterations of the NEP (Dunlap, et al., 1992). Questions were framed to elicit both positive and negative attitudes toward three attitudinal domains: human conflicts with nature, limits to growth, and the role of humans in nature (Table 1). For each statement presented in a pro-environmental manner, the answer was ranked according to the response of the individual: 5 for "strongly agree", 4 for "agree", 3 for "no opinion", 2 for "disagree", and 1 for "strongly disagree". As suggested by Lynne, Casey,

**Table 1.** Modified New Environmental Paradigm Scale\*

| Q-23 Please indicate your agreement or disagreement with the following statements about nature. (circle the letters) | Strongly Agree | Agree | No Opinion | Disagree | Strongly Disagree |
|--|----------------|-------|------------|----------|-------------------|
| The balance of nature is very delicate and easily upset  | SA             | A     | N          | D        | SD                |
| Humans must live in harmony with nature in order to survive  | SA             | A     | N          | D        | SD                |
| When humans interfere with nature it often produces disastrous results   | SA             | A     | N          | D        | SD                |
| Humans are destined to rule over the rest of nature  | SA             | A     | N          | D        | SD                |
| Plants and animals exist primarily to be used by humans  | SA             | A     | N          | D        | SD                |
| Humans have the right to modify the natural environment to suit their needs  | SA             | A     | N          | D        | SD                |

\*Source: Louisiana Tourism Survey, Luzar and Henning, 1993

Hodges, and Rahmani (1994), scales corresponding to questions presented in an anti-environmental fashion were reversed to achieve a higher total score for a positive environmental attitude. With six statements, the maximum score on this modified NEP scale is 30, with a neutral score of 18. In this behavioral model, an individual was considered to have a positive environmental attitude if the score computed from the modified NEP scale used in this study was greater than the neutral score. NEP was specified in this analysis as a continuous variable in order to maintain the richness of information contained in the data.

In summary, the set of explanatory variables considered in this study attempts to capture key elements critical in engaging in a given behavior: the financial capability (income), the positive predisposition (attitudes) of the individual towards the behavior considered, and other socio-

economic characteristics well established in the literature on recreation participation. Empirical results of this model should offer useful information to public and private providers of nature-based tourism who currently have little information characterizing their clientele or their tourism interests.

**Data**

Data for this empirical analysis were obtained from a 1993 Louisiana Tourism Survey conducted by Luzar and Henning, (1993). The mail questionnaire contained several categories of questions which elicited information about ecotourism and recreation activities and expenditures, preferences for ecotourism activities, use of public and private nature-based tourism facilities, a modified NEP scale, and socio-economic information. The mail survey was designed and

implemented according to the Dillman Total Design Method (1991), which has proven to result in improved response rates and quality.

The sample for this mail survey was drawn from a random sample of people who sent tourism inquiries through the Louisiana Department of Culture, Recreation, and Tourism in 1992. The random sample of 5,000 was stratified to represent the six states that typically supply Louisiana's tourist population, including Alabama, California, Florida, Georgia, Mississippi, and Texas. The overall Louisiana Tourism Survey response rate was 54 percent, reflecting a return of 2,723 of the total 5,000 surveys that were mailed. Due to item nonresponse, common in mail surveys, the usable sample for this analysis included 2001 responses. Respondents who had visited Louisiana totaled 87.6 percent (1,752), while 151 respondents (7 percent) indicated they had participated in nature-based tourism while visiting Louisiana. Sample respondents are profiled in Table 2.

### Empirical Analysis and Results

Empirical estimation of the logit model via maximum likelihood assures large sample properties of consistency, efficiency, normality of the parameter estimates and validity of the t-test of significance. Given these properties, these estimation techniques circumvent the major documented problems associated with ordinary least squares estimation of the standard linear probability model (Judge, et al., 1982; Pindyck and Rubinfeld, 1991). Maximum likelihood coefficient estimates produced through the logit analysis have no direct interpretation with respect to the probability of participation in nature-based tourism other than indicating a direction of influence on probability. It is useful to turn instead to the calculated changes in probabilities which indicate the magnitude of the marginal effects (Maddala, 1991; White, 1993). Changes in probability refer to the partial derivatives of the nonlinear probability function evaluated at each variable's sample mean (Pindyck and Rubinfeld, 1991).

The maximum likelihood coefficient estimates, changes in probabilities, and t-ratios for the logit analysis of Louisiana ecotourism participation are presented in Table 3. In addition,

summary statistics including goodness-of-fit measures as indicated by the correct classification rate (percentage of right predictions) and pseudo- $R^2$  measures (McFadden  $R^2$  and Cragg-Uhler  $R^2$ ) are reported (Judge, et al. 1982). While a number of goodness-of-fit measures can be used in reporting results in qualitative choice modeling, there is no consensus as to which is optimal for application in all occasions (White, 1993). The correct classification rate and pseudo  $R^2$  values (McFadden and Cragg-Uhler) presented in Table 3 indicate a reasonably good overall fit for the model.

At a 5 percent significance level, all explanatory variables except family size are found to significantly influence the probability of participation choices. Signs on the parameter estimates support the *a priori* hypotheses outlined earlier, with the exception of family size. As hypothesized, the psychographic variable measured by the NEP-based scale does contribute to explaining participation in Louisiana nature-based tourism. A positive relationship was found between environmental attitudes, as measured by the NEP-based scale and participation in Louisiana nature-based tourism. As individual NEP scores increase, indicating a positive environmental attitude, respondents are more likely to participate in ecotourism activities. Empirical results also suggest that the decision to participate in Louisiana nature-based tourism is negatively influenced by being female. Residence in a noncontiguous state also reduces the probability of participation in Louisiana nature-based tourism. Nonminority ethnic status is positively correlated with participation in ecotourism in Louisiana.

While income was hypothesized to influence the probability of participation in nature-based tourism, previous research suggests competing hypotheses regarding the direction of this influence for upper income groups. Income therefore was analyzed by three income groups representing incomes of less than \$15,000 to incomes greater than \$50,000 (low income: less than \$15,000; middle income: less than \$35,000, and upper income: greater than \$50,000). Parameter estimates for the income group above \$50,000 were statistically significant and negative, middle income parameter estimates were positively associated with the participation decision and statistically



**Table 2.** Profile of Survey Respondents: Louisiana Tourism Survey, 1993.\*

| CHARACTERISTIC                | MEAN  | STANDARD DEVIATION |
|-------------------------------|-------|--------------------|
| Age                           | 42    | 24                 |
| NEP Score                     | 11.72 | 9.88               |
| Family Size                   | 1.78  | 1.43               |
| Percent of Respondents:       |       |                    |
| Male                          | 48 %  |                    |
| Income > \$50,000             | 14    |                    |
| Income < \$35,000             | 29    |                    |
| Education >High School        | 48    |                    |
| From Contiguous States        | 74    |                    |
| Participated in LA Ecotourism | 7     |                    |
| Minority Status               | 11    |                    |
| Environmental Org. Member     | 15    |                    |

N= 2001

\*Source: Louisiana Tourism Survey, Luzar and Henning, 1993

**Table 3.** Empirical results [maximum likelihood estimates] for the Logit model of nature-based tourism participation in Louisiana<sup>1</sup>

| Variable | Logit Parameter Estimates <sup>2</sup> | Asymptotic T-Ratio <sup>3</sup> | Changes in Probabilities <sup>4</sup> |
|----------|--|---------------------------------|---------------------------------------|
| INCOME   | -5.642<br>(0.959)                      | -5.883                          | -0.0345                               |
| NEP      | 1.669<br>(0.245)                       | 6.789                           | 0.0102                                |
| MINORITY | 1.349<br>(0.155)                       | 8.658                           | 0.0082                                |
| GENDER   | -1.942<br>(0.224)                      | -8.649                          | -0.0118                               |
| STATE    | -1.428<br>(0.252)                      | -5.411                          | -0.0087                               |
| FAMILY   | 0.066<br>(0.064)                       | 1.019                           | 0.004                                 |
| CONSTANT | -3.615<br>(0.254)                      | -14.226                         | ----                                  |

<sup>1</sup> Data source: Louisiana Tourism Survey, Luzar and Henning, 1993<sup>2</sup> Standard errors in parentheses<sup>3</sup> The critical t-statistic at the 95 percent confidence level is 1.645<sup>4</sup> Evaluated at variable means

N = 2001

0-1 dependent variable: LANBT

McFadden R<sup>2</sup> .29Cragg-Uhler R<sup>2</sup> .34

Likelihood Ratio Test 310 with 6 D.F.

Percentage of right predictions: 93 percent

significant, while lower income parameter estimates were negative and statistically insignificant. This sensitivity analysis of income groups suggests that while nature-based tourism is the pursuit of upper income groups, there is a threshold of higher income at which Louisiana nature-based tourism is not pursued (i.e., income greater than \$50,000). One interpretation of these results is that higher income groups interested in nature-based tourism may be more inclined to pursue more established domestic opportunities or seek international nature-based tourism opportunities.

Additional information can be obtained through analysis of the changes in probability calculated as the partial derivatives of the nonlinear probability function, evaluated at each variable's sample mean (Greene, 1993). For example, in the case of estimation of the parameter on GENDER, a binary variable indicating the respondent's gender, the probability that female respondents will choose to participate in nature-based tourism, *ceteris paribus*, is approximately .010 lower than if respondents are male (Table 3). Changes in probabilities for continuous variables such as NEP or family size can be interpreted in terms of unit changes similar to the interpretation of ordinary least squares results. For example, a one unit increase in a respondent's NEP score will result in a 0.01 increase in the probability of participation in Louisiana nature-based tourism.

## Conclusions

Nature-based tourism is a rapidly expanding segment of the travel tourism industry. As a further differentiated product, nature-based or ecotourism potentially offers economic opportunities to established tourism markets such as that found in Louisiana. Factors hypothesized to influence Louisiana's development of a nature-based tourism market are analyzed through a behavioral analysis of potential tourists. Using primary data from a survey of potential Louisiana tourists, a qualitative choice framework is presented and empirically estimated using logit analysis. Results of the empirical analysis provide some initial insight in

differentiating among the consumers who choose to participate in nature-based tourism in Louisiana.

Empirical results yielded by this analysis include indications that Louisiana is not the choice of an upper income group seeking nature-based tourism activities. This suggests that those promoting nature-based tourism may not have reached this group through the promotional tourism literature and advertising that focuses on the New Orleans urban experience. Alternatively, this group may have selected against Louisiana nature-based tourism in favor of more exotic international experiences or other more established domestic destinations. Other results of the analysis suggest that ethnicity and gender may be important considerations for future nature-based tourism marketing. Information about location also suggests that consideration should be given to marketing activities targeted to contiguous states to reinforce an existing interest in nature-based tourism. Similarly, information could be targeted to non-contiguous states to better familiarize potential tourists with nature-based tourism opportunities in Louisiana.

Unique to the behavioral specification presented in this paper is the inclusion of a modified New Environmental Paradigm scale as an explanatory factor. In contrast to its previous use as a descriptive factor in empirical research, procedures adopted in this analysis permitted its inclusion as an explanatory variable in a qualitative choice framework. Results of the empirical analysis reveal that the NEP-based scale proved to be a significant explanatory factor in Louisiana ecotourism participation. As a rich history of NEP research exists in the social sciences, a significant degree of confidence underlies the use of a modified NEP scale as an environmental attitude indicator. As individual environmental attitudes become more defined through time, they will increase in importance as psychographic determinants of behavior, much like tastes and preferences. The ability to efficiently and accurately assess environmental attitudes will undoubtedly significantly contribute to research efforts to evaluate environmentally related behavior.

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