Selective marketing for environmentally sustainable tourism

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Abstract

The natural environment represents the main resource for many tourism destinations and tourists are increasingly interested in spending their vacation in unspoilt natural areas. Consequently, destination managers are under increased pressure to implement ecologically sustainable practices. Selective targeting of tourists has been proposed as one approach to sustainable destination management, but the feasibility of this approach remains untested. Therein lies the contribution of this study. Results from a survey of 1000 Australians indicated that market segments based on past environmentally friendly behaviour at the destination represent distinct groups with respect to psychographic, behavioural and socio-demographic personal characteristics. These explanatory variables contributed substantially to explaining pro-environmental behaviour. It was concluded that selective target marketing represents a feasible complement to current sustainable tourism management techniques which focus on tourists at the destination who may not necessarily be interested in protecting the local environment.

Keywords

Disciplines

Business | Social and Behavioral Sciences

Publication Details

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Keywords: a priori market segmentation, sustainable tourism, environmentally friendly tourists

1. Introduction

Tourism planners increasingly have to take environmental issues into account. A large proportion of typical vacation activities are directly dependent on the natural resources at a destination. The effects of global environmental changes are already visible and more dramatic changes, particularly climate changes are predicted (Gössling & Hall, 2006) which are expected to have major impacts on a whole range of tourism destinations, such as mountain regions (Scott, 2006), coastal and lake areas (Craig-Smith, Tapper & Font, 2006; Jones, Scott & Gössling, 2006), deserts (Preston-Whyte, Brooks & Ellery, 2006), and, last but not least, polar regions (Johnston, 2006).

These developments and predictions have captured the attention of destination managers who now see a need to incorporate environmental issues in their tourism planning. Some planning consequences merely represent reactions to cope with climate change, while others actually attempt to achieve higher levels of environmental sustainability at the destination. The latter approach may be preferable from the point of view of a long-term interaction between humans and the environment as "tourists are increasingly driven by the motive of seeing unsullied natural areas" (Gössling, 2002a, p. 553), and beautiful natural environments, in return, increase environmental consciousness (Gössling, 2002a; McGehee & Norman, 2002).

Such attempts of reducing the ecological footprint (the extent of negative environmental consequences related to one or all tourists at a destination) at the destination are required given that tourism has significantly contributed in many different ways to environmental change in the past: in the way the land is used, through

the consumption of energy and increased use of water, the extinction of wild species, spreading of diseases and perceptual changes of the environment (Gössling, 2002b).

One possible avenue of integrating environmental responsibility in tourism planning is to try to attract consumers who are intrinsically interested in protecting the environment and consequently behave in a way that leads to a smaller ecological footprint. A number of authors have proposed this alternative approach and suggested that it may be suitable to reduce the ecological footprint of tourism at destinations. Inskeep (1991, p. 349), for example, has stated explicitly that "Selective marketing techniques can also be used to attract environmentally-oriented tourists who respect the environment and are conservation-minded". Dolnicar (2006) has referred to such approaches as "demand-sided" and has argued that they represent a valuable complement to the current sustainable tourism management tools which have typically worked with the tourists at the destination rather than selectively inviting them to the destination. The area of eco-tourism is another example of how selective marketing techniques can be used to the benefit of environmental sustainability of a destination. It has been generally assumed that eco-tourists, defined primarily by being interested in nature, are also environmentally friendly and that catering to eco-tourists will consequently lead to less depletion of natural resources.

If the assumption is correct that some tourists are more environmentally friendly than others (that it is in fact a personal characteristic of individuals that they do or do not behave in an environmentally friendly way) it is necessary to describe the group of tourists who demonstrate environmentally friendly behaviours in order to be able to follow Inskeep's recommendation of selective marketing. Yet, very little knowledge

3

exists about who these environmentally friendly people are (Dolnicar, Crouch & Long, forthcoming).

A small number of authors have recently conducted empirical studies to contribute to our knowledge about individuals who can be assumed to leave a smaller ecological footprint: Dolnicar (2004) and Crouch et al. (2005) assumed that people who state that maintaining an unspoiled environment on vacation is important to them are likely to be more environmentally friendly and have determined a number of differences between this group of tourists and all others. Fairweather, Maslin and Simmons (2005) used environmental attitudes as a criterion to determine which respondents can be considered as what the authors referred to as Biocentric Segments.

All three studies concluded that the environmentally friendly tourists (as operationalised in their studies) differed significantly in a number of characteristics from less environmentally friendly tourists. Although these three studies have contributed to our knowledge about possible market segments that could be targeted by a destination to attract tourists with a smaller environmental footprint, the insights resulting from these studies are limited by the fact that actual pro-environmental behaviour was not considered. Instead, one or more attitudinal measures were assumed to be a valid predictor of pro-environmental behaviour.

The aim of the present study is to address this limitation and use people's statements about their past pro-environmental behaviour on vacation as the basis for classifying individuals. This study consequently contributes to the knowledge in the area of sustainable tourism in two ways: by (1) investigating which characteristics of tourists

4

are significantly related to pro-environmental behaviour, and by (2) investigating whether the segment of environmentally friendly tourists represent managerially useful targets for selective marketing as proposed by Inskeep (1991).

2. Data

The population under study is the general adult population of Australia. A national permission based internet panel was used to collect data. The panel contains 250 000 panel members who are representative of the Australian population with respect to Census statistics provided by the Australian Bureau of Statistics . A sample size of 1000 respondents was aimed for. This sample size was sufficient in terms of the precision of results, it ensured sufficient respondents in each cell where comparisons between commonsense segments were tested and it was the maximum number fundable through research grant funding available to the researchers. Data was collected in April 2006.

Based on prior experience with questionnaires of this length (30 minutes) and the members of the panel, a response rate of 40% was assumed and 2500 invitations were sent out by email to randomly selected panel members. The sample characteristics indicated an accurate representativity of the general Australian population with respect to gender and age. Only the age group of the 70 to 79 year old people was lower in our sample (3%) than it was in the general population (9%).

The questionnaire contained two questions on environmentally friendly behaviour. First respondents were asked to state how often they engage in each of a list of 30 environmentally friendly behaviours at home, then they were presented with the same

5

list of items and asked to assess how often they show these behaviours at a tourist

destination. The question format is provided in Figure 1 for the home context.

Figure 1: Question on environmentally friendly behaviour at home.

	Always	Often	Some-times	Rarely	Never	*Not applicable*
I switched off the light whenever leaving a room	☐4	☐3	☐2	☐1	☐0	☐999
I switched off the heating / air conditioning in unoccupied rooms	☐4	☐3	☐2	☐1	☐0	☐999
I sealed doors and windows to avoid heat / coolness escape	☐4	☐3	☐2	☐1	☐0	☐999
I read nature or environmental magazines	☐4	☐3	☐2	☐1	☐0	☐999
I engaged in outdoors leisure activities	☐4	☐3	☐2	☐1	☐0	☐999
I littered	☐4	☐3	☐2	☐1	☐0	☐999
I picked up litter that was not my own	☐4	☐3	☐2	☐1	☐0	☐999
I damaged trees or shrubs	☐4	☐3	☐2	☐1	☐0	☐999
I saved water	☐4	☐3	☐2	☐1	☐0	☐999
I repaired leaks or drips	☐4	☐3	☐2	☐1	☐0	☐999
I washed the car	☐4	☐3	☐2	☐1	☐0	☐999
I watered the lawn	☐4	☐3	☐2	☐1	☐0	☐999
I looked for ways to reuse things	☐4	☐3	☐2	☐1	☐0	☐999
I recycled newspapers	☐4	☐3	☐2	☐1	☐0	☐999
I recycled cans or bottles	☐4	☐3	☐2	☐1	☐0	☐999
I composted food scraps	☐4	☐3	☐2	☐1	☐0	☐999
I bought products that protect the environment	☐4	☐3	☐2	☐1	☐0	☐999
I bought household goods that save energy	☐4	☐3	☐2	☐1	☐0	☐999
I purchased refillable products	☐4	☐3	☐2	☐1	☐0	☐999
I purchased bio-degradable products	☐4	☐3	☐2	☐1	☐0	☐999
I took bags from home when going shopping	☐4	☐3	☐2	☐1	☐0	☐999
I walked instead of using the car	☐4	☐3	☐2	☐1	☐0	☐999
I used public transport instead of the car	☐4	☐3	☐2	☐1	☐0	☐999
I used my bicycle instead of the car	☐4	☐3	☐2	☐1	☐0	☐999
I drove at 90 km/h to save fuel	☐4	☐3	☐2	☐1	☐0	☐999
I donated money for an environmental group	☐4	☐3	☐2	☐1	☐0	☐999
I volunteered time to an environmental group or project	☐4	☐3	☐2	☐1	☐0	☐999
I wrote a letter supporting an environmental issues	☐4	☐3	☐2	☐1	☐0	☐999
I voted for a candidate who supported environmental issues	☐4	☐3	☐2	☐1	☐0	☐999

The 30 behaviours were a selection of relevant items from prior studies investigating the environmentally friendly behaviour of individuals (Corraliza and Berenguer, 2000; Johnson, Bowker and Cordell, 2004; Trumbo and O'Keefe, 2001).

Note that respondents had the option – both in the home and the vacation setting – to tick a "not applicable" option. This was necessary because pre-tests of the questionnaire

revealed that it was not possible to develop a list that would contain behaviours relevant to each of the respondents.

In addition to the behavioural question, a number of attitudinal questions were asked to gain more insight into the personal characteristics of individuals with certain tendencies of environmentally friendly behaviour: a moral obligation question was included asking respondents "To what extent do you consider yourself morally obliged to carry out the following behaviours?". This precise wording was suggested and used by Berenguer, Corraliza and Martin (2005). The same list of behaviours was presented and the following answer options were available to respondents: Totally obliged, Mildly obliged, Unsure, Rather not obliged, and Not at all obliged.

Furthermore, respondents were asked to complete the New Ecological Paradigm scale (Dunlap & Van Liere, 1978, 1984; Dunlap, Van Liere, Mertig & Jones, 2000) which is the most widely accepted measure of pro-environmental attitudes. It was used to list a number of statements about the environment and ask respondents to indicate their agreement on a five point scale.

An altruism scale developed by Clark et al. (2003) was also included in the questionnaire because Clarke et al. found altruism to be significantly associated with one particular kind of pro-environmental behaviour: subscribing to a green electricity program. The altruism scale contained nine items, three of which related to personal norms, three represented awareness of consequences and three ascription of responsibility. The five answer options ranged from Strongly agree to Strongly disagree.

Furthermore travel-related information was collected: frequency of travel, accommodation choice, information sources used, and vacation preferences. The item battery of vacation preferences has been developed by the Institut fuer Grundlagenforschung and the Austrian Society for Applied Research in Tourism. It was successfully used in many waves of the Austrian National Guest survey and was therefore included in our study due to its managerial relevance. The full list of statements as well as the actual question that respondents were asked is provided in Figure 2.

Figure 2: Vacation preference statements

You will now see statements about what is important to people during their holidays.
Please check all statements you agree with regarding a vacation.
❒ I want to rest and relax
❒ I am looking for luxury and want to be spoilt
❒ I want to do sports
❒ This holiday means excitement, a challenge and special experience to me
❒ I try not to exceed my planned budget for this holiday
❒ I want to realise my creativity
❒ I am looking for a variety of fun and entertainment
❒ Good company and getting to know people is important to me
❒ I use my holiday for the health and beauty of my body
❒ I put much emphasis on free-and-easy-going
❒ I spend my holiday at a destination, because there are many entertainment facilities
❒ Being on holiday I do not pay attention to prices and money
❒ I am interested in the life style of the local people
❒ The special thing about my holiday is an intense experience of nature
❒ I am looking for cosiness and a familiar atmosphere
❒ On holiday the efforts to maintain unspoilt surroundings play a major role for me
❒ It is important to me that everything is organised and I do not have to care about anything
❒ When I choose a holiday-resort, an unspoilt nature and a natural landscape plays a major role for me
❒ Cultural offers and sights are a crucial factor
❒ I go on holiday for a change to my usual surroundings
❒ When I chose a destination, I put much emphasis on a romantic and nostalgic atmosphere
❒ When I choose this destination, the overall offer of the village / town is a crucial factor
❒ When I choose a destination, it is important to me that there are offers and care for children
❒ When I choose a destination, it is important to me that I can feel safe
❒ When I choose a destination, it is important to me that there is little traffic in the village / town

Finally, a number of questions were included at the end of the questionnaire requesting information about socio-demographic and media behaviour characteristics of respondents.

It should be noted that a number of additional questions were included in the survey which were not directly related to the current study and are not reported here. It was necessary to include those questions because such large scale data collection could not otherwise have been funded. The additional questions related to recycled and desalinated water. The combined survey was efficient as the same constructs were hypothesized to affect pro-environmental behaviour on vacation and the acceptance of alternative water sources. All respondents completed the questionnaire in less than 30 minutes, which lies well within the permission-based internet panel company's recommended range for questionnaire length.

3. Methodology

Data was analysed in two stages. First, three segments of tourists were specified by splitting respondents into three approximately equally sized groups. This was achieved by splitting the frequency distribution of scores on the scale measuring past environmental behaviours at the destination at the tertiles. Respondents who scored in the upper third of the distribution were named "Small Environmental Footprint Tourists", respondents who scored in the lower third of the distribution were named "Large Environmental Footprint Tourists", and respondents who scored in the middle third of the distribution were named "Medium Environmental Footprint Tourists". The

number of behaviours was reduced from the original list of 30 to only include behaviours relevant to the vacation context. Variable selection was informed by respondents' answers: 12 behaviours with high frequencies (28 percent or more) of "not applicable" answer for the vacation context were excluded.

The characteristics of these three segments were then compared using bivariate statistics: Chi-squared tests for ordinal and nominal variables and analyses of variance for metric variables. Corrections for multiple testing were performed using the family-wise discovery rate procedure (Benjamini & Hochberg, 1995). All computations were done using the statistical computing environment R (R Core Development Team, 2006).

Second, to account for multiple testing and correlations between the explanatory variables, a linear regression model was computed to determine which of the independent variables were significantly associated with pro-environmental behaviour when interactions between variables were taken into consideration. For example, it is possible that the three market segments differ significantly both in income and gender when tested separately, but because income is actually strongly related to gender, it may occur that only gender is included in the model. Including income in addition to gender may not in fact add much to the explanation of pro-environmental behaviour (or vice versa). The model results can thus be interpreted as providing the main linearly independent explanatory variables (among those included in the survey) for pro-environmental behaviour at the destination.

The summated scales for selected pro-environmental behaviours during the vacation were used as the dependent variable for the model. Note that this dependent variable

11

was the original metric quantity because – for the collected data - using this variable

provided better model fit than using the categorized version and allowed the use of the

simpler model (standard linear regression rather than ordered probit). Summated scales

for altruism, environmental attitude, and moral obligation as well as binary vacation

preference items and metric and nominal socio-demographic variables were included as

explanatory variables for the model.

4. Results

4.1 Segment profiles

Profiles of segments (Small, Large and Medium Environmental Footprint Tourists)

were produced by testing differences in socio-demographic, travel related and media

usage behaviour. Tables 1 and 2 contain segment-wise profiles and values for nominal

and ordinal variables. Frequencies have been reported for each category for each

segment and Chi-squared tests results have been provided. Table 3 contains information

regarding variables which are metric in nature. Mean values have been reported for each

segment and p-values resulting from the analysis of variance have been reported.

Table 1: Segment profiles (ordinal and nominal variables), in percent of segment

members. Test statistics, degrees of freedom and p-values are for chi-square tests.

FOOTPRINT SIZE	Large	Medium	Small
GENDER (chisq=27.1, df=2, p=0.00000129)			
Male	60.7%	53.9%	40.7%
Female	39.3%	46.1%	59.3%
INCOME (chisq=32.3, df=16, p=0.00917)			
Less than $30,000	11.5%	13.9%	21.9%
$30,001 to $60,000	28.2%	25.4%	30.0%
$60,001 to $90,000	26.2%	28.1%	21.3%
$90,001 to $120,000	19.0%	18.3%	10.3%
$120,001 to $150,000	7.9%	6.4%	9.4%
$150,001 to $180,000	3.3%	4.7%	2.6%
$180,001 to $210,000	1.3%	1.0%	2.3%
$210,001 to $240,000	1.6%	1.0%	0.6%
More than $240,001	1.0%	1.0%	1.6%
OCUPATION (chisq=37.5, df=20, p=0.010138)			
Clerical or service worker	10.7%	11.0%	10.6%
Professional	30.0%	30.0%	23.8%
Unemployed	4.2%	4.3%	2.9%
Retired	5.9%	9.7%	13.2%
Manager or administrator	22.1%	20.3%	16.7%
Sales	7.5%	4.7%	7.7%
Tradesperson	4.6%	1.3%	2.9%
Small business owner	5.2%	7.0%	6.1%
Home-duties	6.5%	6.7%	11.6%
Transport worker	0.7%	3.7%	2.3%
Labourer	2.6%	1.3%	2.3%
RELATIONSHIP STATUS (chisq=12.4., df=8, p=0.13399)			
Single	23.2%	19.2%	20.6%
Married	54.1%	51.9%	51.1%
Separated or divorced	9.8%	9.4%	12.6%
Living with a partner	12.2%	17.9%	12.9%
Widowed	0.6%	1.6%	2.8%
NEWSPAPERS READ (chisq=22.7, df=8, p=0.0037264)			
Broad Sheets	22.9%	28.5%	22.6%
Capital City	11.6%	11.9%	12.2%
Other paper	4.9%	8.5%	7.6%
Tabloids	41.8%	29.2%	29.4%
The local paper	18.9%	21.9%	28.1%
FAVORITE TV CHANNELS (chisq=23.7, df=12, p=0.022007)			

Channel 4 WIN	6.7%	6.3%	3.7%
Channel 5 ABC	14.3%	13.8%	20.5%
Channel 7 PRIME	25.3%	24.1%	27.5%
Channel 8 SBS	3.7%	4.4%	7.0%
Channel 10 ten	23.5%	21.6%	15.3%
Other channel	20.7%	21.9%	17.1%
I do not watch TV frequently	5.8%	7.8%	8.9%
ACCOMMODATION TYPE (chisq=45.1, df=14, test p=0.0000392)			
Hotel	41.5%	32.0%	26.0%
Bed & Breakfast	5.2%	6.0%	7.0%
Holiday apartment	24.7%	29.5%	21.4%
Private room	1.5%	0.6%	2.1%
Camping site	5.2%	9.7%	15.0%
Youth hostel / backpackers	0.9%	3.1%	1.5%
With friends / relatives	17.1%	15.7%	21.4%
Other	4.0 %	3.4%	5.5%

As can be seen from Tables 1, 2 and 3 the three segments differed significantly in a number of characteristics: in terms of socio-demographic characteristics, Small Environmental Footprint Tourists were the oldest group, contained a large proportion of women, they mostly earned a lower income and were more frequently retired or engaging in home duties than members of the other groups. No differences could be identified between the segments with respect to their education and their family status.

A number of differences also existed with respect to the travel-related behaviour of various groups. Small Environmental Footprint Tourists differed significantly from Large Environmental Footprint Tourists in their choice of accommodation: they stayed at camping sites and with friends relatively more frequently and were less likely to typically patronize hotels.

Table 2: Segment profiles (vacation preferences and travel information sources), in

percent of segment members. p-values are corrected for multiple testing.

FOOTPRINT SIZE	Large	Medium	Small	p-value
MOTIVATION				
I want to rest and relax	33.3%	33.5%	33.3%	0.995
I am looking for luxury and want to be spoilt	40.1%	33.8%	26.1%	0.051
I want to do sports	29.5%	34.8%	35.6%	0.835
This holiday means excitement, a challenge and special experience to me	29.5%	34.0%	36.5%	0.515
I try not to exceed my planned budget for this holiday	29.8%	33.7%	36.5%	0.400
I want to realise my creativity	22.1%	23.4%	54.5%	0.003
I am looking for a variety of fun and entertainment	35.9%	33.8%	30.2%	0.513
Good company and getting to know people is important to me	27.6%	34.2%	38.2%	0.051
I use my holiday for the health and beauty of my body	21.6%	32.8%	45.6%	0.021
I put much emphasis on free-and-easy-going	30.4%	36.4%	33.3%	0.513
I spend my holiday at a destination, because there are many entertainment facilities	35.1%	35.6%	29.3%	0.725
Being on holiday I do not pay attention to prices and money	44.1%	31.3%	24.6%	0.021
I am interested in the lifestyle of the local people	28.4%	32.4%	39.2%	0.051
The special thing about my holiday is the intense experience of nature	19.3%	25.9%	54.7%	0.0001
I am looking for cosiness and a familiar atmosphere	30.3%	35.1%	34.6%	0.835
On holiday the efforts to maintain unspoilt surroundings play a major role for me	21.3%	32.0%	46.7%	0.00002
It is important to me that everything is organised and I do not have to care about anything	34.2%	31.6%	34.2%	0.982
When I choose a holiday resort, an unspoilt nature and a natural landscape plays a major role for me	25.2%	33.2%	41.6%	0.021
Culture offers and sites are a crucial factor	30.5%	32.3%	37.3%	0.587
I go on holiday for a change to my usual surroundings	33.2%	33.7%	33.1%	0.995
When I choose a destination, I put much emphasis on a romantic and nostalgic atmosphere	32.8%	35.2%	32.0%	0.982
When I choose this destination, the overall offer of the village/ town is a crucial factor	31.1%	33.5%	35.4%	0.835
When I choose a destination, it is important to me that there are offers and care for children	37.4%	35.0%	27.6%	0.604
When I choose a destination, it is important to me that I can feel safe	31.4%	35.0%	33.6%	0.786
When I choose a destination, it is important to me that there is little traffic in the village/ town	28.8%	26.5%	44.7%	0.051
INFORMATION SOURCE				
Don't need any information	32.1	29.8	38.2	0.680

15

Brochures of village/ region/ province	31.0	34.3	34.6	0.680
Brochures from tour operator	36.0	29.8	34.3	0.680
Information from travel agent	38.3	31.0	30.7	0.600
Articles in the media	29.1	34.8	36.0	0.680
Advertisements in the media	37.2	32.2	30.6	0.680
Information/ reports from friends, relatives	31.4	34.1	34.5	0.680
Information from local or regional tourist office	27.5	31.1	41.4	0.165
Information from tourist offices in my home country	29.7	30.3	40.0	0.600
Brochures about places of accommodation	35.3	30.1	34.6	0.680
Guide books	28.5	36.8	34.8	0.600
Trade fairs	16.7	46.7	36.7	0.600
Internet	34.0	34.3	31.7	0.680
Slide nights	37.5	12.5	50.0	0.680

Different vacation factors have been found to be important to Small Environmental Footprint Tourists, especially realising creativity, experiencing nature, maintaining unspoilt surroundings, having little traffic at the destinations, using the vacation for health and beauty, learning about the local people and having good company and getting to know people. Two factors were significantly less important to Small Environmental Footprint Tourists: looking for luxury and wanting to be spoilt and not paying attention to prices and money. No differences existed with respect to the number of vacation trips each of the three segments undertakes on average per year, both in terms of domestic and overseas holidays. Also, no differences existed in the kind of sources the three segments used to obtain information about possible destinations for their vacation.

Table 3: Segment profiles (metric variables)

FOOTPRINT:	Large	Medium	Small
AGE (ANOVA p=0.00013)			
Mean	42.0	43.8	46.7
DOMESTIC HOLIDAYS (ANOVA p=0.77)			
Mean	3.5	3.4	3.2
OVERSEAS HOLIDAYS (ANOVA p=0.86)			
Mean	0.5	0.5	0.4

In terms of reachability of the segments, significant differences in media behaviour are of particular interest. Among Small Environmental Footprint Tourists, one third read tabloids and the local newspaper, which makes these avenues efficient communication channels for advertising and public relations work. No difference existed between the segments regarding their reading behaviour of broadsheets. Specific TV channels also emerged as particularly suitable for targeting Small Environmental Footprint Tourists. They stated to use public channels (ABC and SBS) significantly more often than the other segments while watching two of the private channels (Ten and Nine) less frequently.

Using Kotler's (1997) criteria for evaluating the managerial usefulness of market segments[1] to this study, it can be concluded that Small Environmental Footprint Tourists represent a viable way for tourism destinations to apply selective marketing techniques. In terms of substantiality it has been found that a larger or smaller proportion of the

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[1] Actionability (in terms of marketing programs suitable to target the segment), accessibility (of segment with respect to identifying them and being able to select channels to communicate with them), differentiability (of segments with respect to segment characteristics and responses to marketing stimuli), measurability (of the size and attractiveness of segments), and substantiality (of segments in terms of size and profitability).

market could be chosen (we chose the 30% most environmentally friendly tourists in our study, but this percentage could be increased or reduced). The smaller the proportion the more homogeneous the members of the low footprint will be with respect to their environmentally friendly behaviour. Resulting segments were differentiable and actionable as they differed in a large number of personal characteristics in the areas of socio-demographics, travel related behaviour and media usage. It can consequently be legitimately assumed that they will respond differently to different marketing activities and messages at the very least due to differences in media usage patterns. The difference in vacation preferences has given particularly useful guidance as to which vacation aspects should be emphasized to communicate with low footprint tourists more effectively. Low environmental footprint tourists are also accessible given their distinct socio-demographic profiles and differences in media usage. Finally, measurability has been demonstrated in the empirical study presented.

4.2 Main factors of pro-environmental behaviour

A linear regression model using pro-environmental behaviour at the destination as the dependent variable and all socio-demographic criteria as well as a selection of psychographic constructs hypothesized to be associated with pro-environmental behaviour (altruism, pro-environmental attitude, moral obligation and vacation preferences) as explanatory variables were fitted to the data. As expected, many explanatory variables were not significant. Backward model selection using the Akaike information criterion (AIC) was applied to eliminate non-significant variables.

18

The resulting smaller model produced a model fit of 0.36 (adjusted R-squared) indicating that the independent variables included in the model did not explain pro-environmental behaviour at the destination entirely, but contributed significantly (F-statistic: 38.43 on 13 and 854 DF, p-value < 0.001) to the explanation. Table 4 contains the model coefficients.

Table 4: Model coefficients

	Estimate	Std.Err.	t value	p-value
(Intercept)	1.337	0.145	9.200	0.000
I am looking for luxury and want to be spoilt	-0.092	0.041	-2.224	0.026
I want to do sports	0.129	0.052	2.479	0.013
I am looking for a variety of fun and entertainment	-0.087	0.038	-2.314	0.021
Good company and getting to know people is important to me	0.100	0.036	2.796	0.005
Being on holiday I do not pay attention to prices and money	-0.101	0.046	-2.186	0.029
The special thing about my holiday is the intense experience of nature	0.131	0.046	2.863	0.004
I am looking for cosiness and a familiar atmosphere	-0.081	0.046	-1.766	0.078
On holiday the efforts to maintain unspoilt surroundings play a major role for me	0.099	0.042	2.378	0.018
When I choose a destination, I put much emphasis on a romantic and nostalgic atmosphere	0.080	0.054	1.478	0.140
Obligation	0.015	0.001	15.056	0.000
Environmental attitude (NEP)	0.005	0.002	2.138	0.033
Gender (Female)	0.106	0.036	2.954	0.003
Age	0.002	0.001	1.868	0.062

As can be seen, a number of vacation preferences emerged as significantly contributing to the explanation of pro-environmental behaviour: playing sports, enjoying good company and getting to know people, experiencing nature, wanting to maintain unspoilt environment, emphasis on a romantic and nostalgic atmosphere are associated with high levels of past pro-environmental behaviour. Contrastingly, looking for luxury

and wanting to be spoilt, looking for a variety of fun and entertainment, not paying attention to prices and money, and looking for cosiness and a familiar atmosphere are associated with lower levels of pro-environmental behaviour at the destination.

Two of the psychographic constructs hypothesized to explain pro-environmental behaviour at the destination did so: moral obligation to behave in environmentally friendly ways and pro-environmental attitudes. Altruism did not contribute to explaining pro-environmental behaviour at the destinations, thus contradicting the findings of Clark et al. (2003).

Two socio-demographic variables were included in the model and thus can be interpreted as the main causes for many of the differences that were identified between profiles of the three segments. Firstly, gender was found to be a key variable, with women demonstrating more environmentally friendly behaviour than men. Secondly, age was found to be significant, with older respondents having higher levels of pro-environmental behaviour at the destination.

5. Conclusions

This study contributes to sustainable tourism research by investigating the usefulness of using selective marketing techniques in sustainable destination management. Selective marketing has been proposed by a number of authors in the past but its feasibility has never been empirically investigated. The fundamental idea of the selective marketing approach is to attract a certain kind of tourists to the destination, those who behave in an environmentally friendly manner.

Three segments of tourists were constructed based on their total score of pro-environmental behaviour on past vacations. Profiles for Small, Medium and Large Environmental Footprint Tourists were developed and differences between them tested using bivariate statistics. Results indicated that the segments were distinctly different in travel-related variables, socio-demographics and media behaviour, thus making them viable segments for marketing action based on Kotler's (1997) criteria for the evaluation of the managerial usefulness of segments.

In addition to the segment profiles a linear regression model was computed with pro-environmental behaviour scores as dependent variables and all constructs and variables assumed to explain pro-environmental behaviour as independent variables. This model was computed to account for interactions between variables and identify the factors that most contribute to pro-environmental behaviour on vacation. Model results supported the core finding that systematic differences do exist between tourists with different levels of pro-environmental behaviour at the destination. Motives, moral obligation and pro-environmental attitudes emerged as main psychometric explanatory variables, age and gender emerged as the central socio-demographic personal characteristic associated with pro-environmental behaviour with women and older respondents representing the most attractive group.

Based on the findings of this study it can be concluded that segments which are defined by having different levels of pro-environmental behaviour at the tourist destination are distinct segments of the population which differ in a range of other personal characteristics as well. They can consequently be used to implement selective marketing approaches aiming at attracting Small Environmental Footprint Tourists.

In times of major ecological changes where the global negative impact of human behaviour on the environment can no longer be denied, any additional measure that can help reduce negative environmental impacts is valuable. Selective marketing is one additional tool that can be included in the environmentally sustainable management toolbox, but many other tools could be developed. Spotts and Mahoney (1991) profile light, medium and heavy spenders in an attempt to assess whether an expenditure-based segmentation approach could be beneficial to regional travel marketers. Although they do not discuss the value of this approach for environmental protection specifically, they mention the possibility that heavy spenders may be the segment of choice when regions reach their capacity limits. Continuing along this line of argumentation leads to the conclusion that targeting heavy spenders could in fact be use to take pressure off natural resources through reducing the number of visitors without reducing the tourism revenues proportionately. Even if heavy spenders have a large individual ecological footprint, a smaller number of such tourists may still reduce the total environmental footprint of tourism at the destination.

Further research investigating alternative ways of promoting pro-environmental behaviour at tourist destinations could contribute valuable new insights not emerging from the current study which was limited both geographically and in the questions asked. For instance, other tourism aspects with environmental impact should be investigated, such as the aspect of transportation and the detailed study of vacation activities that different kinds of tourists engage in.

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