Article

Market segmentation, activities and environmental behaviour in rural tourism

Carlos Fernández-Hernández
University of La Laguna, Spain

Carmelo J. León
University of Las Palmas de Gran Canaria, Spain

Jorge E. Araña
University of Las Palmas de Gran Canaria, Spain

Flora Díaz-Pére
University of La Laguna, Spain

Abstract

Rural tourism has developed in recent decades with an increase in the activities available to tourists. In this article, the authors apply a cluster analysis for the segmentation of rural tourism in La Palma, Canary Islands. They consider the level of environmental attitudes of tourists as a variable explaining market segmentation. The results show that there is a large heterogeneity of market segments and that the traditional activity of agro-tourism represents a small share of the total market. The segments with a greater economic impact and producing greater tourist satisfaction are those in which tourists also exhibit higher levels of environmental behaviour. Thus, rural tourist destinations can improve their economic performance by focusing on those segments attracting tourists with higher environmental concern and by adopting policies that enhance the environmental profile of the segments.

Keywords

environmental behaviour, market segmentation, rural tourism

Corresponding author:
Carmelo J. León, Faculty of Economics, University of Las Palmas de Gran Canaria, Las Palmas 35017, Spain.
Email: cleon@daea.ulpgc.es

Introduction

Market segmentation is recognized as essential for marketing research and market positioning (Cha et al., 1995; Chon et al., 1991; Jang et al., 2002; Jurowski et al., 1993). There has been a large amount of research on tourist market segmentation that has been useful to define tourists' profiles from visitors' data (Hudson and Ritchie, 2002; Laesser and Crouch, 2006). Market segmentation techniques have also been successfully applied to the segmentation of rural tourism (Albaladejo Pina and Díaz Delfa, 2005; Frochot, 2005; Kastenholz et al., 1999; Molera and Albaladejo, 2007; Park and Yoon, 2009). However, these studies are yet scarce and do not allow for a full understanding of the efficacy and efficiency of marketing policies and promotions in rural tourism. The question is what are the segmentation strategies that are appropriate for the specific characteristics of the rural segment. Most rural tourism demand analyses have considered it as a homogenous segment. However, some studies show that rural tourism demand includes individuals with different characteristics, needs and aspirations (Frochot, 2005; Lane, 1994; Roberts and Hall, 2001; Sharpley and Sharpley, 1997).

The idea that rural destinations offer only one attraction to potential tourists is not validated by research that shows that only a small proportion of rural tourists have interest in the rural culture and agro-tourism (Frochot, 2005; Getz and Page, 1997; Oppermann, 1996). This evidence suggests there might be other motivations and activities playing a significant role in the attraction of rural tourists (Yagüe Perales, 2002). Thus, in addition to agricultural activities in the rural environment, there can be other leisure and cultural activities that can be relevant for market segmentation (Carballo et al., 2015; Frochot, 2005). The consideration of a multiple activity segmentation approach to rural tourism demand could be useful for destination marketing and the definition of product strategies.

Therefore, in this article, we focus on rural tourism segmentation based on the activities realized by tourists in the destination, for the case study of the island of La Palma (Canary Islands). Rural tourism in the Canary Islands has become increasingly important in the last two decades. The total number of tourists of the island of La Palma in 2010 was 125,976, of which it is estimated that there were 47,619 rural tourists. These tourists have available a wide range of activities that could differ in their economic potential and their environmental profile. Segmentation by the type of activities that tourists undertake allows us to estimate the economic contribution of the segments as well as the environmental profile of their specific demands. This provides decision-makers useful results for the design of policies for the activities offered by the rural tourism supply. In this article, we show that rural tourism demand can be segmented by the activities that tourists undertake. This type of segmentation provides useful insights for managing the attributes that increase tourists' satisfaction and their economic contribution to the destination.

The environmental profile of tourists has become an important aspect that influences tourists' behaviour in their decisions at the destinations (Crouch et al., 2005; Dolnicar, 2004b; Dolnicar Crouch, et al., 2008; Fairweather et al., 2005; Jurowski et al., 1995; Kim et al., 2006; Silverberg et al., 1996; Uysal et al., 1994). Since rural tourism is based to large extent on the use of natural assets, in this article, we also address the question of what could be the relationships between market segmentation and tourists' behaviour with respect to the environment. That is tourists behave in different ways with respect to the environment and have different environmental profiles, so the question is what is the role that tourists' environmental profiles play on their allocation to different segments of rural tourism. Some segments might be more environmentally oriented

than others, and this information may be useful to define policy actions that improve the environmental profiles of the rural tourism supply.

Focusing on general tourists, Dolnicar and Leisch (2008) found that segments with different environmental behaviours are distinct segments of the population identified by specific socio-economic characteristics. These authors also suggest that further investigation on the behaviour of those tourists with different environmental profiles can be useful for selective marketing purposes, since it allows policy makers to focus on those segments of tourists that lead to smaller environmental impacts and larger economic impact. In this article, we find that those segments of rural tourism demand with larger economic impacts are also characterized by higher environmental profiles.

The main purpose of the article is to provide a rural tourism segmentation analysis based on the activities realized by tourists in the island of La Palma (Canary Islands). Since La Palma is mainly a rural destination, this analysis is crucial to shape marketing efforts of destination management organizations in the island.

Market segmentation in tourism

The importance of market segmentation in tourism

Market segmentation involves the separation of a heterogeneous market into homogeneous groups of consumers with similar preferences and profiles. Reaching tourists with a personal and individualized message is a complex task because it implies high costs and a substantial amount of skills and resources (Kotler et al., 2004; Middleton, 1994). However, segmentation is able to provide more effective results from marketing, by enabling the design, promotion and provision of products oriented to the target groups. The identification of market segments is important for the competitive advantage (Porter, 1990, 1996) since it introduces new segments or relocates existing segments, facilitating new channels to reach consumers.

Since modern consumers are increasingly sophisticated and specialized, Poon (1993) suggests the need for considering tourists as the centre of policy actions. The economic returns of marketing actions depend on the consideration of segmented markets for vacations that need to be personalized and specifically designed to fit the target tourists (Kastenholz et al., 1999; Mudambi and Baum, 1997; Poon, 2003). Market segmentation involves high technical skills (Dolnicar and Leisch, 2003) for accurately identifying the market segments that are more interesting for a destination, leading to improvements in its competitive advantage (Dolnicar, 2002).

Market segmentation identifies groups of tourists that react in a similar way to marketing actions (Bieger and Laesser, 2002; Cha et al., 1995; Dolnicar and Mazanec, 2000; Frochot, 2005; Tkaczynsky et al., 2009). In general, there can be two ways of classifying tourists: (i) a priori segmentation: this generates a classification based on a particular criteria that is known beforehand; and (ii) post hoc segmentation or *a posteriori*: this identifies heterogeneous segments of tourists based on market information about target groups (Dolnicar, 2004b; Mazanec, 2000) and by utilizing statistical techniques of inference, for example, *cluster segmentation*. The latter method collects information from tourists in order to predict their behaviour, and the results can be influenced by the decisions taken in data collection and analysis (Dolnicar and Grün, 2008).

Segmentation criteria

Segmentation can be based on various criteria, such as geography, demography, psychology (personality, life style), behaviour (motivations, benefits aimed with the trip), needs of the

consumer, duration, fidelity, price, trip organization, activities realised and so on (Kotler, 1980, Middleton, 1994; Park and Yoon, 2009). Some authors have criticized the use of demographic and geographic factors for segmentation because of their relationship with the intention to purchase and their limited capacity to predict future behaviour (Johns and Gyimóthy, 2002; Kastenholz et al., 1999; Letho et al., 2002; Tkaczynsky et al., 2009). Psychographic and behavioural factors are the most commonly utilized by practitioners of segmentation (Dolnicar, 2002). These factors can be compared with the aim of determining the most accurate method of predicting tourists' behaviour (Formica and Uysal, 1998; Johns and Gyimóthy, 2002; Keng and Cheng, 1999; Meric and Hunt, 1998). The segments based on the benefits aimed by tourists have been combined with behavioural information in order to identify 'vacation styles' (Dolnicar and Leisch, 2003).

In the literature, there are examples of segmentation analysis based on different factors such as motivation (Beh and Bruyere, 2007; Bieger and Laesser, 2002; Devesa et al., 2010; Oh et al., 1995; Lee et al., 2004; Park and Yoon, 2009), tourists' characteristics (Dolnicar et al., 2008; Formica and Uysal, 1998; Lehto et al. 2001), behaviour based on the benefits aimed with the vacation (Frochot, 2005; Frochot and Morrison, 2000; Jang et al., 2002; Kastenholz et al., 1999; Loker and Perdue, 1992), behaviour based on tourists' expenditure, psychographic aspects (Füller and Matzler, 2008; Galloway, 2002; Galloway et al., 2008; Mazanec et al., 1998), image of the destination (Leisen, 2001), geographical origin (Esteban Talaya, 2004; Moscardo et al., 2001) and more recently using economic variables like Price elasticity or responsiveness to price (Masiero and Nicolau, 2012), expenditure patterns (Lew and Ng, 2012) or discretionary income spending (Dolnicar et al., 2008).

The large majority of studies have utilized two or more factors for segmentation (Johns and Gyimóthy, 2002; Tkaczynsky et al., 2009), predominating the combination of socio-demographic, psychographic and behavioural aspects. Some authors have pointed out that there is need of good information sources (Dolnicar, 2002; Frochot, 2005; Hudson and Ritchie, 2002). The most common sources of information are based on tourist surveys, although there are some examples of secondary sources (Carmichael and Smith, 2004; Cha et al., 1995).

Methodology

A relevant discussion in the segmentation literature is whether or not to conduct a 'factor-cluster segmentation' approach (Smith, 1989). This is probably the most common procedure to estimate market segments in the tourism literature. It consists of implementing a factor analysis to the list of variables utilized for segmentation and then utilizing the resulting factor scores in the cluster analysis. However, there is a recent but extensive literature showing that factor-cluster analysis is inefficient in the sense that it significantly reduces the statistical power of the analysis (Arabie and Hubert, 1994; Dolnicar and Grün, 2008; Melián-González et al., 2011; Sheppard, 1996; among others). By using simulations and real datasets, these authors show that this procedure is likely to misrepresent heterogeneity by estimating unidentified and unstable clusters. It is important to note that the optimal clustering algorithm is context dependent, in the sense that it is affected by aspects like the relationship between the number of variables and simple size (Dolnicar et al., 2012). Based on this evidence, in this article, a cluster analysis was directly applied to the list of activities that constitute the segmentation variables for rural tourism.

How to evaluate market segments?

The evaluation of market segments should follow marketing objectives in order to select the most appropriate target segments. Even though there is no unique criteria for selecting the most appropriate segment for a destination (Hu and Yu, 2007; Jang et al., 2002; Moscardo et al., 2001), there can be proposed the following factors (Loker and Perdue, 1992): (i) the *accessibility*, which is related to geographical concentration (McQueen and Miller, 1985; Smith, 1995); (ii) the absolute or relative size of the segment, that is, *profitability* (Jang et al., 2002; McQueen and Miller, 1985; Smith, 1995) and (iii) the *reachability* of the segment, that is, its capacity to be influenced through marketing actions (Smith, 1995).

It is important to note that choosing segmentation solutions with very few market segments would benefit some of these properties (i.e. relative size) but will negatively affect to others (i.e. accessibility and reachability). Therefore, the final decision on the number of segments should not come from a mere statistical analysis, but a combination of statistical and managerial aspects. Based on this, in this article, we propose the use of an efficient statistical analysis resulting in a somewhat large number of segments and the use of managerial relevant aspects like average expenditure and environmental behaviour to choose the segments that the destination wants to target.

Rural tourism and market segmentation

Rural tourism has not relied as much as other tourist markets on the use of market segmentation. This is not in accordance with the importance of rural tourism, its multi-attribute nature and its capacity to attend various needs and expectations. Segmentation can be important in rural tourism because it can be consumed in many different ways and different occasions (Lane, 1995; Roberts and Hall, 2001; Sharpley, 2004). In addition, segmentation can also contribute to the design of strategies that improve tourists' satisfaction, thereby increasing the benefits of rural tourism regions. To these aims, rural tourism destinations should look for balance and diversity of the segments, preventing the potential influence of non-desirable segments that could reduce the benefits to the destination (Clarke, 2005).

Although marketing in rural tourism has had a short development, there are some examples of segmentation based on tourists' motivations (Frochot, 2005; Kastenholz et al., 1999; Molera and Albaladejo, 2007; Park and Yoon, 2009; Román González et al., 2000). For instance, Kastenholz et al. (1999) found four types of segments: *environmental ruralists* (21%), that is, those interested in contact with nature; traditional ruralists (30%), that is, those valuing peace and quite in the rural environment, hospitality and the rural life style; *want-it-all* (25%), that is, those seeking socialization, leisure, sports and culture and independent *ruralists* (24%), that is, seeking relaxing vacations but with an eye on the characteristics and pricing of accommodation facilities. In another study of rural tourists in Spain, Molera and Albaladejo (2007) obtained five segments based on the benefits aimed by tourists: *family rural tourists* (30.45%) interested in a pleasant time with family in the rural environment; *relax rural tourists* (25.37%) searching for tranquillity in nature and relaxation; *active rural tourists* (17.31%) organized in family trips and interested in culture and outdoors; *rural life tourists* (15.52%) interested in searching for encounters with the rural population and *tourists of rural accommodation* (11.34%) looking for getting involved in relationships with friends.

In a similar segmentation study conducted in Korea by Park and Yoon (2009) based on tourists' motivations, it is found four segments: *family togetherness* (37.0%) that includes tourists enjoying family roots and traditional culture in family; *passive tourists* (19.3%) grouping those tourists with a low motivation in all the factors considered; *want-it-all* (25.1%) is the opposite to the latter, since tourists in this segment present all types of motivations and *learning and excitement* (18.4%) that seek socialization, leisure and learning from the traditional culture. In a study of rural tourists in Scotland, Frochot (2005) found four market segments: *actives* (39%), that is, those who value positively the sports and are interested in all benefits of rural tourism; *relaxers* (13%) seeking relax; *gazers* (35%) interested in observation and the enjoyment of outdoors and *rurals* (13%) searching for the cultural dimension of the vacation such as appreciating the rural life and the cultural difference.

Even though available segmentation studies of rural tourism demand provide useful information for marketing policies, there is little evidence on the role of the activities that are offered to tourists in the market segments. That is, there is no available analysis of segmentation based on activities for rural tourism, as it is the case for general tourism (Dolnicar and Leisch, 2003; Dolnicar and Mazanec, 2000; Hvenegaard, 2002; Lang and O'Leary, 1997; MacKay et al., 2002; Meh-metoglu, 2007; Moscardo et al., 2000). In addition, rural tourists demand an increasing number of activities at the rural destinations. The services of these activities should fit tourists' profiles and interests (Recio Menéndez et al., 2002; Román González et al., 2000; Sharpley, 1996, 2004). The analysis of market segmentation based on activities can arise market niches that improve the profile of the destination. This provides decision makers with useful information for improving the supply of activities in order to match the needs of the target segments (Roberts and Hall, 2001).

Method

Sample

The fieldwork was carried out in 2007 in the island of La Palma (Canary Islands). La Palma is a tourist destination that started to invest in rural tourism in the early 1990s reaching a total capacity in 2008 of 5337 beds, which represents a 37.8% of the total tourist supply of the island. It was a pioneer in rural tourism in the Canary Islands and Spain, traditionally basing its pulling attractors on a green natural environment that includes the Taburient National Park and on favourable climatic conditions. Over the last two decades, the tourism industry in La Palma has developed all types of segments and activities related to various aspects and infrastructures, such gastronomy, cultural heritage, landscape, sun and beach, boating and so on that confluence with the implementation of a high quality and differentiated supply of rural tourism lodging infrastructure. Thus, rural tourists in La Palma can enjoy a large number of activities during their stay in the island, and the question is to what extent these activities can set the base for a useful market segmentation considering the role of the environmental profile of tourists' behaviour.

Survey instrument

The survey was designed with the aim of studying the activity segmentation of tourists that had made use of some of the rural tourist accommodation facilities on the island. Focus groups with tourists and professionals revealed that those tourists staying in rural tourist accommodations had only a rural motivation for their travel to La Palma. On the other hand, the characteristics offered by rural accommodations (e.g. isolation, privacy and scattered in rural environments) make them

appropriate for the motivations of rural tourists and not for other types of tourists. Thus, we are certain that the sample selection criteria correctly recruited rural tourists for the study.

Data collection

The tourists were interviewed in person at the airport in the last day of their stay and before leaving for their place of residence. The interview lasted for about 30 min and was based on a structured questionnaire containing 35 questions. There were questions about the activities that tourists had undertaken at the destination, their environmental attitudes and behaviour with the destination, the level of expenditure and socioeconomic characteristics. Interviewers were trained in the specifics of the questionnaire and received various debriefing sessions in which all the potential reactions of the respondents were discussed and anticipated. Tourists were approached for interviewing by random sampling from all tourists at the airport and located at key meeting points before passing through the boarding controls. A total number of 328 subjects were chosen by random sampling for interviewing. The sample selection method consisted in two steps. In the first step, a specific plane was selected based on random number generators to the list of planes in the only airport at the island. In the second step, once the plane was selected, each interviewer selected the first visitor randomly. Then, a systematic process of selecting one respondent every fourth visitors was employed. Starting points for interviewer 'routes' were different to minimize starting point effects on sample selection. The final sample size was determined because research budget restrictions and the limited number of tourists flow at La Palma airport. However, it allows for a 5.41% sampling error assuming that the population study is infinite. Fixed quotas by nationality based on market shares were also adopted in order to ensure a fair representation of the main source markets of the island. About 12 of the interviews were not valid because incoherent or incomplete responses. The final number of valid interviews was 316, which provided the information utilized in the segmentation analysis.

For market segmentation purposes, we defined a set of classification variables related with the sport activities, leisure and recreation in the vacation period. There were 36 potential activities that were shown to tourists (14 sport activities and 22 leisure and recreational). These activities were chosen because they cover the range of potential activities that tourists could practice in their rural vacation in La Palma, and following previous literature (Betz and Perdue, 1993; Bote Gómez, 1988; Cals et al., 1995; Díaz Pérez et al., 2003; García Henche, 2003; Sayadi and Calatrava, 2001). In addition, we included some activities that were specific to the destination and the rural environment. Tourists could answer the realization of multiple activities from the list or include some other activities not enumerated. From the list of activities, nine of them were excluded for the segmentation analysis because they had none or very little involvement. In addition, two activities were merged because their similarity. For the final analysis, we considered 26 activities (Table 1) including 5 sport activities and 21 leisure and recreation activities. All the activities can be practiced all the year around. The segmentation analysis with the cluster analysis has taken into account that the addition or exclusion of relevant variables could have an important impact on the cluster solution, since this depends on the variables utilized for measuring similarity (Hair et al., 1999).

The profile of environmental behaviour of tourists was measured utilizing a scale based on six questions that were formulated to consider various aspects of the environmental involvement of tourists in their consumption at the destination. Environmental profiles of tourists are commonly measured with various types of attitudinal and behavioural questions (Dolnicar, 2004a; Dolnicar

Table 1. Percentage of rural tourists by activities in La Palma.

Activities	N	%
To get to know local gastronomy	293	92.72
Rest/relax	292	92.41
Swim/sunbathing	284	89.87
To get to know local wines	282	89.24
Hiking	266	84.18
Star watching	254	80.38
Knowledge of places in the island	236	74.68
Get to know 'flora and fauna'	232	73.42
Visit monuments (churchers, historical heritage, etc.)	203	64.24
Visit cultural parks (archaeological, 'fauna and flora', etc.)	170	53.80
Visit traditional arts and crafts centre (ceramic, tobacco, silk and embroidery)	137	43.35
Swimming	134	42.41
Practice sport activities	131	41.46
Enjoying recreative and picnic areas	118	37.34
Visit museums (insular, vineyards, etc.)	89	28.16
Participate in local fiestas	68	21.52
Participate in boat trips	65	20.57
Participate in cultural events (music, theatre, etc.)	54	17.09
Enjoy nightlife (pubs, bars, discos, etc.)	50	15.82
Participate in guided tours (wine routes, etc.)	36	11.39
Visit farms and agriculture plantations (banana plantations, ecological farms, etc.)	32	10.13
Diving	28	8.86
Trekking	19	6.01
Participate in traditional arts and crafts activities, agriculture and or farming	13	4.11
Other activities	12	3.79
Participate in activities offered by the rural house staff	9	2.85
Total	316	100.00

et al., 2008; Crouch et al., 2005; Fairweather et al., 2005; Kim et al., 2006), to which it should be added the utilization of the scale of the new environmental paradigm (NEP) to measure a wide range of general attitudes towards the environment (Dolnicar and Leisch, 2008; Jurowski et al., 1995; Luo and Deng, 2008; Silverberg et al., 1996; Uysal et al., 1994; Zografos and Allcroft, 2007). Even though we considered the utilization of NEP in our study, we decided to utilize a smaller scale referring to key aspects of tourists' behaviour at the destination and that are relevant for the case of rural tourism in La Palma. The scale was tested in focus groups, finding that tourists understood the questions and their answers were appropriate to capture their environmental attitudes and behaviour in rural tourism.[1] Table 2 presents the statements that were posed to interviewees, to which they were asked if they agreed with these behaviours by using a Likert scale that ranged from 1 (*never*) to 5 (*always*).

Data analysis

In order to obtain market segments with homogeneous characteristics, we utilized a cluster analysis method directly to the answers on the activities practiced by tourists. Based on the existing

Table 2. Environmental behaviour scale for rural tourists.

Statement	Mean	Standard error
I usually choose to spend my vacations in less overcrowded places, instead of choosing rural destinations that are popular and known for being an important tourist attraction.	4.72	0.712
I always try to be responsible with the environment when I am on holidays, in aspects such as the use of public transport, managing waste, recycling, saving energy and water, and choosing non-polluting consumption options.	4.89	0.436
I often contribute with environmental organizations and institutions, as a member or by any other means or support.	1.96	0.586
I prefer 'not to see' a natural resource of great importance and attraction if this reduces the impact caused to fragile, valuable or attractive resources and environments.	4.14	0.343
I try to make sure that the money I spend on holidays goes to improve the living standards and environmental conditions of the local community of the visited destination.	4.55	0.971
I consider that the denomination of a 'World Reserve of Biosphere' is an important factor of tourist attraction and contributes very much to my interest in a tourist destination.	3.82	0.514

evidence in the segmentation literature in tourism discussed in the Section 2, the cluster analysis in this research was based on the (i) selection of the variables for the segmentation analysis, (ii) the decision upon the cluster method, (iii) the determination of the number of clusters and (iv) the interpretation of the clusters and the market segment profiles. All the analysis was supported with the Statistical Package for the Social Sciences.

The variables to be included in the cluster analysis were first identified by utilizing a descriptive statistical approach of their potential relationships with socioeconomic variables, such as nationality, sex and age. This allowed us to identify similarities and differences that were useful for the selection of the variables that should integrate the 'cluster value'.

Thus, cluster analysis was directly applied to the full list of activities that rural tourists undertook during their trip to La Palma. To this aim, we first conduced an exploratory cluster analysis in order to determine the appropriate number of clusters that best fitted the data. A hierarchical cluster analysis was employed, utilizing the Ward method and the squared Euclid distance as the interval measure. The analysis was repeated for different numbers of clusters, from 3 to 15, in order to determine the appropriate number utilizing the (i) Elbow method and explained variance, (ii) dendogram analysis and (iii) the Akaike and Bayesian Information Criteria statistics.

Results

The results show that there are nine clusters that represent the segments of the market of rural tourism based on activities. The results are statistically robust and reflect the heterogeneity that can be observed in tourists' profiles when looking at the kind of activities that they undertake at the destination. It is important to note that, although the final number of cluster are the result of applying statistically efficient analysis, most market segmentation studies try to reduce the number of cluster by using more flexible statistical criteria that result in pooling some of the present cluster

into few but more heterogeneous clusters. In this application, we propose that the relatively large number of segments should allow researchers and managers to work together and investigating more thoroughly the potential economic contribution of the specific niches that the market for rural tourism offers to the destination. In other words, economic and touristic relevant variables like environmental behaviour, average expenditure, and so on should be the base to reduce the number of cluster of interest for the destination rather than pure statistical indexes. This information could be useful for the definition of policies focusing on the most important segments of the rural tourism market, following the idea of concentrating on specific segments (Aaker and Shansby, 1982).

Hence, once the number of clusters was determined utilizing the methods explained above, we applied *K*-means cluster (Hartigan and Wong, 1979) analysis to the list of activities in order to allocate the tourists in the sample to the clusters. Table 3 presents the results of the *K*-means cluster analysis. The names of the clusters were given according to the value of the weights of the activities explaining each cluster. Only those activities with larger weights were considered for the definition of the clusters. Some clusters present one activity that has a larger weight than the others, while other clusters are identified by various activities. The possibility of clusters with various explanatory variables has been also found in other studies of cluster segmentation according to tourists' activities (Frochot, 2005; Frochot and Morrison, 2000; Kastenholz et al., 1999; Mackay et al., 2002; Park and Yoon, 2009, among others), and Dolnicar and Mazanec (2000) consider that this can be accepted as a satisfactory solution to cluster analysis.

The identified clusters are also significantly different in socioeconomic and economic impact variables. Table 4 presents the means of the socioeconomic and economic impact variables for each of the identified segments. The table also presents the non-parametric Kruskal–Wallis statistics for the null hypotheses of equality of the means of the variables across cluster segments for $J = 9$ random samples. The cluster segments and their characterization according to the socioeconomic and impact variables are now discussed following their rank in the share of the total market for rural tourism based on the activities conducted in the rural environment:

1. *Sea lovers* (19.11%): This is the largest segment identified in the sample of respondents. This segment is explained by three activities: *participate in boat trips*, *swim/sunbathing* and *diving*.
2. *Museum lovers* (16.91%): This segment is explained by the activity *visit museums*, although it is also less contributed by the activities of *enjoy the night-life* and *visit traditional arts and crafts centres*.
3. *Relax* (15.65%): This segment is explained by the activity of rest and relax, although it is also contributed by knowledge of places in the island, participate in guided tours, participate in sport activities and swimming.
4. *Fiesta lovers* (9.8%): This segment is explained by the activities of participate in local fiestas and cultural events, participate in cultural events, participate in traditional arts and craft activities, enjoy the night-life and participate in recreation and picnic areas.
5. *Traditional culture* (10.4%): This segment is formed by tourists that show a strong preference for the activity of *visit cultural parks*, together with the activities of *visit traditional arts and craft centres*, *visit monuments* and *participate in recreation and picnic areas*.
6. *Gastronomy and entertainment* (8.3%): This segment is explained by the activities of to get to know local gastronomy and to get to know local wines together with other social activities such as visit traditional arts and crafts centres and visit monuments.

Table 3. Clusters loading of activities of rural tourists in La Palma.

Activities	Cluster 1 Sea lovers (19.11%)	Cluster 2 Museum lovers (16.91%)	Cluster 3 Relax (15.65%)	Cluster 4 Fiesta lovers (9.8%)	Cluster 5 Traditional culture (10.4%)	Cluster 6 Gastronomy and entertainment (8.3%)	Cluster 7 Stars lovers (8.13%)	Cluster 8 Rural environment lovers (6.8%)	Cluster 9 Trekking lovers (4.9%)
Trekking	0.053	-0.051	0.081	-0.012	-0.107	-0.182	-0.177	-0.025	0.747
Swimming	0.194	-0.083	0.272	-0.143	-0.038	0.117	-0.068	0.179	0.145
Hiking	0.018	0.014	0.079	0.047	-0.042	-0.068	-0.014	0.074	-0.156
Diving	0.219	-0.072	-0.024	-0.058	0.097	-0.041	0.051	0.019	-0.027
Visit cultural parks (archaeological, 'fauna and flora', etc.)	-0.073	0.063	0.189	0.063	0.782	-0.072	-0.086	0.052	0.039
Visit traditional arts and crafts centre (ceramic, tobacco, silk and embroidery)	0.128	0.296	0.038	0.392	0.395	0.289	-0.216	-0.017	0.002
Visit farms and agriculture plantations (banana plantations, ecological farms, etc.)	0.141	0.191	0.007	0.177	0.062	-0.093	-0.062	0.405	0.149
Visit museums (insular, vineyards, etc.)	0.092	0.877	0.096	-0.016	0.059	0.165	-0.009	0.068	-0.002
Visit monuments (churchers, historical heritage, etc.)	-0.187	0.248	-0.063	-0.034	0.212	0.352	0.157	0.021	0.419
Participate in cultural events (music, theatre, etc.)	-0.021	0.129	0.049	0.696	0.111	-0.067	0.265	0.177	0.141
Practice sport activities	-0.065	-0.078	0.221	0.248	-0.137	0.019	-0.118	0.244	0.139
Participate in activities offered by the rural house staff	-0.105	-0.026	-0.017	-0.063	-0.059	0.082	0.179	0.793	-0.098
Participate in recreative and picnic areas	-0.083	0.017	-0.068	0.229	0.316	0.077	0.197	0.129	0.435
Swim/sunbathing	0.439	-0.102	0.040	-0.174	0.486	0.284	0.434	0.121	0.017
Get to know 'flora and fauna'	0.103	-0.082	0.413	-0.026	0.049	0.085	0.383	-0.006	0.246
Enjoy night-life (pubs, bars, discos, etc.)	-0.092	0.351	0.141	0.375	-0.021	-0.078	0.375	0.066	0.003
Knowledge of places in the island	-0.021	0.139	0.755	0.152	0.050	0.026	0.001	0.074	0.046

(continued)

Table 3. (continued)

Activities	Cluster 1 Sea lovers (19.11%)	Cluster 2 Museum lovers (16.91%)	Cluster 3 Relax (15.65%)	Cluster 4 Fiesta lovers (9.8%)	Cluster 5 Traditional culture (10.4%)	Cluster 6 Gastronomy and entertainment (8.3%)	Cluster 7 Stars lovers (8.13%)	Cluster 8 Rural environment lovers (6.8%)	Cluster 9 Trekking lovers (4.9%)
Star watching	0.011	0.002	0.066	0.051	-0.090	0.195	0.789	-0.022	-0.012
Participate in local fiestas	0.082	-0.164	0.018	0.789	-0.042	0.173	-0.112	0.087	-0.069
Participate in traditional arts and crafts activities, agriculture and or farming	-0.019	-0.014	0.012	0.82	0.077	0.051	-0.050	0.719	0.065
Participate in boat trips	0.799	0.092	-0.043	0.058	-0.047	0.028	0.006	-0.072	0.028
Participate in guided tours (wine routes, etc.)	0.231	-0.142	0.209	-0.160	-0.077	0.078	0.048	0.221	0.241
To get to know local gastronomy	0.013	0.048	0.114	0.067	0.069	0.783	0.039	0.067	0.037
To get to know local wines	0.068	0.052	0.105	0.099	-0.093	0.661	0.221	0.015	-0.148
Rest and relax	-0.091	-0.018	0.720	-0.049	0.215	0.193	0.124	-0.073	-0.056
Other activities	0.108	-0.128	0.102	0.071	0.128	-0.387	0.159	0.303	-0.152

Table 4. Socioeconomic profile of clusters.

Characteristics (Standard error in brackets)	Cluster 1 (n = 60) Sea lovers	Cluster 2 (n = 53) Museums lovers	Cluster 3 (n = 50) Relax	Cluster 4 (n = 31) Fiesta lovers	Cluster 5 (n = 33) Traditional culture	Cluster 6 (n = 27) Gastronomy and entertainment	Cluster 7 (n = 26) Stars lovers	Cluster 8 (n = 21) Rural environment lovers	Cluster 9 (n = 15) Trekking lovers	Total (n = 316)	χ^2	Significant
Age	41.29	40.32	43.25	40.92	41.31	41.92	42.12	41.58	42.84	41.69	47.12	0.014*
(Desv. est.)	(7.73)	(6.74)	(8.93)	(8.31)	(7.33)	(7.92)	(10.31)	(9.68)	(9.33)	(8.44)		
Woman	63.4%	45.6%	44.9%	45.7%	41.2%	49.3%	45.1%	50.3%	69.5%	50.1%	0.45	0.000*
(Desv. est.)	(0.47)	(0.52)	(0.51)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.49)	(0.50)		
Origin												
Spain	58.3%	65.4%	21.9%	67.2%	49.2%	16.3%	27.1%	59.7%	53.6%	49.31%	43.92	0.000*
(Desv. est.)	(0.52)	(0.49)	(0.50)	(0.49)	(0.52)	(0.48)	(0.47)	(0.51)	(0.50)	(0.50)		
Germany	23.2%	27.1%	67.4%	12.9%	48.4%	80.0%	54.6%	20.0%	33.3%	38.9%	63.12	0.000*
(Desv. est.)	(0.41)	(0.44)	(0.47)	(0.34)	(0.50)	(0.40)	(0.50)	(0.41)	(0.48)	(0.48)		
Rest of countries	19.7%	8.3%	10.9%	19.4%	3.2%	4.0%	18.2%	20.0%	13.3%	13.0%	0.387	0.492
(Desv. est.)	(0.45)	(0.27)	(0.31)	(0.40)	(0.17)	(0.20)	(0.39)	(0.41)	(0.35)	(0.33)		
Monthly family income	3615	3528	3679	3465	3467	3892	3831	3589	3512	3597	79.89	0.113
(Desv. est.)	(1912.11)	(1501.92)	(1058.13)	(1624.71)	(1658.14)	(816.35)	(1558.14)	(2283.19)	(1737.92)	(1560.33)		
Number of nights	10.4	11.0	12.3	12.3	10.8	13.1	11.9	9.4	11.5	11.3	299.57	0.006*
(Desv. est.)	(4.46)	(4.77)	(4.4)	(7.40)	(6.20)	(3.50)	(4.73)	(5.7)	(3.62)	(5.12)		
(Desv. est.)	(0.47)	(0.24)	(0.36)							(0.39)		
Group size	2.8	3.1	2.5	3.2	4.0	2.8	2.8	3.4	3.1	3.0	119.88	0.518
(Desv. est.)	(1.37)	(1.77)	(1.22)	(01.51)	(2.25)	(1.43)	(1.37)	(3.12)	(2.33)	(1.79)		
(Desv. est.)	(1.34)	(1.68)	(1.18)	(1.45)	(2.27)	(1.49)	(1.34)	(3.03)	(2.42)	(1.72)		
Number of month since travel decision before travelling	9.74	10.31	14.82	11.33	13.61	14.93	11.13	8.59	10.22	11.60	93.31	0.012*
(Desv. est.)	(6.89)	(7.17)	(6.70)	(07.33)	(7.58)	(6.66)	(7.72)	(7.58)	(8.15)	(7.39)		
(Desv. est.)	-6.84	-7.11	-6.7					-7.52		-7.34		
Have been before in the island	35.7%	40.2%	45.2%	54.1%	61.8%	32.3%	45.9%	55.0%	46.8%	43.1%	47.28	0.000*
(Desv. est.)	(0.48)	(0.47)	(0.50)	(0.50)	(0.49)	(0.47)	(0.50)	(0.51)	(0.47)	(0.50)		
(Desv. est.)	(.48)	(.49)	(.50)	(0.50)	(0.49)	(0.47)	(0.51)	(.51)	(0.51)	(.49)		

(continued)

Table 4. (continued)

Characteristics (Standard error in brackets)	Cluster 1 (n = 60) Sea lovers	Cluster 2 (n = 53) Museums lovers	Cluster 3 (n = 50) Relax	Cluster 4 (n = 31) Fiesta lovers	Cluster 5 (n = 33) Traditional culture	Cluster 6 (n = 27) Gastronomy and entertainment	Cluster 7 (n = 26) Stars lovers	Cluster 8 (n = 21) Rural environment lovers	Cluster 9 (n = 15) Trekking lovers	Total (n = 316) Total	χ^2	Signifcant
Number of times before	1.06	1.48	1.42	2.18	2.87	1.14	0.83	2.04	1.54	1.51	3.27	0.000*
(Desv. est.)	(2.08)	(2.02)	(2.07)	(2.18)	(3.15)	(1.90)	(1.11)	(2.44)	(2.22)	(2.3)		
(Desv. est.)												
Have been before in rural tourism	92.8	87.3	93.7	91.9	83.1	91.7	96.33	70.6	81.2	89.2	87.79	0.010*
(Desv. est.)	(0.22)	(0.34)	(0.29)	(0.28)	(0.32)	(0.31)	(0.28)	(0.48)	(0.52)	(0.35)		
(Desv. est.)												
Indicator of environmental attitude	4.18	4.25	3.79	4.25	3.95	3.54	3.96	4.10	4.04	4.00	42.92	0.000*
(Desv. est.)												
Satisfaction	4.37	4.42	4.31	4.40	4.36	4.15	4.18	4.44	4.32	4.22	27.35	0.003*
(Desv. est.)												
Average expenditure per person	443.19	495.77	469.92	537.19	487.03	458.62	487.35	519.18	554.34	472.91	7.93	0.731
(Desv. est.)												

*$p < 0.05$.
**$p < 0.1$. Desv. est.: Standard Deviation.

7. *Stars lovers* (8.13%): This segment is mainly explained by the activity of star watching together with some other activities such as swim/sunbathing, get to know flora and fauna, enjoy the night-life, participate in cultural events and get to know local wines.
8. *Rural environment lovers* (6.8%): This segment is explained by the activities of participate in traditional arts and crafts activities, agriculture or farming, together with participate in activities offered by the rural house staff, visit farms and agricultural plantations, participate in sport activities and participate in guided tours.
9. *Trekking lovers* (4.9%): This segment is strongly impacted by those tourists practicing trekking, although it is also relevant the activities of participate in guided tours, visit monuments, participate in recreation and picnic areas, and to know flora and fauna.

Thus, there is a relatively large heterogeneity in the market segments of rural tourism in this case study, with all segments explained by a combination of various activities. In addition, there is some concentration in a few segments since the largest three segments (*sea lovers*, *museum lovers* and *relax*) share a 51.67% of the market for rural tourism. Thus, some segments are relatively less important in terms of market share than others, with smaller shares for the segments of *trekking lovers and rural environment lovers*. The fact that *rural environment lovers* holds only a small share of the market shows the relatively less importance that traditional motivations of rural tourism, such as the involvement with the rural community and agricultural society, have become to play in terms of the number of tourists that can be allocated to this segment.

On the other hand, the results in Table 3 indicate that there are some variables coming out from the cluster analysis that although are not the main explanatory variable in any cluster, they are nevertheless relevant in explaining various market segments. These are the variables of *visit traditional arts and craft centres*, *get to know flora and fauna*, *swim/sunbathing*, *visit monuments* and *participate in guided tours*. The implication is that by working through improving these activities it can be also improved the performance and results of various market segments.

Economic impact analysis and environmental behaviour

The cluster analysis has led to a relatively large number of rural tourism market segments that reveal a strong heterogeneity in the activities that rural tourists practice at the destination. This information can be utilized to identify 'tourists with special interests' (Trauer, 2006) that can improve the economic performance of the destination. The differences between the segments can be explained because of the socioeconomic variables of tourists and their behaviour at the destination.

However, from a policy point of view, it is relevant to assess the differences in the potential economic impact of the heterogeneous segments identified with the cluster analysis. The economic impact (i.e. average expenditure) has been traditionally employed as the fundamental measure to choose among segments, since it is considered to represent how attractive is a segment for a destination. However, since rural tourist market segments also differ significantly in terms of the environmental behaviour of the tourists in each segment, it is interesting to identify the relationships between the environmental behaviour and the economic impact in each of the segments. In addition to this, here we also evaluate each segment with a measure of average satisfaction levels. The idea behind the inclusion of this index is to approximate how competitive is La Palma to attract each segment. Although the ultimate choice of where to travel would depend on the comparison of different destinations for each visitor – and therefore it would require a more in depth study – it can

Table 5. Average expenditure in the destination by satisfaction and environmental attitude index (normalized values).

Rural market segments	Environmental attitude index	Average expenditure	Satisfaction
Gastronomy and entertainment	1.97	1.16	0.93
Sea lovers	1.19	1.84	0.46
Fiesta lovers	0.36	0.25	1.56
Stars lovers	0.08	0.15	0.79
Rural environment lovers	−0.43	−0.06	−1.54
Trekking lovers	−0.66	−2.26	−0.79
Traditional culture	−0.90	−0.21	−0.08
Museum lovers	−0.94	−0.22	−0.45
Relax	−1.09	−0.82	−1.45

be assumed that the more satisfied the members of a specific segment the easier would be for the destination to attract them. Thus, in this subsection we focus on the relationships between the economic impacts of the segments as measured by the tourist expenditure and the environmental behaviour and satisfaction of the tourists in each segment.

The variables have been defined as follows:

1. *Average total tourist expenditure*: This is the total tourist expenditure at the destination per tourist.
2. *Satisfaction*: This is obtained from the evaluation using a Likert-type scale of 1–5 of the satisfaction received by tourists from a number of 18 attributes of general aspects of the destination, including infrastructures, services and activities. Table A1 in the appendix presents the average values of the responses to the satisfaction questions. A general index is calculated by averaging over the responses to the category questions.
3. *Environmental behaviour*: In order to measure tourists' environmental behaviour with tourist destinations we posed respondents with six questions about various situations that involved some action with some impact on the environment (Weaver and Lawton, 2005). As explained in section 'Method', the questions about the likelihood of adopting the specific environmental behaviours were answered following a Likert-type scale of 1–5. Table 2 presents the average responses for each of the items of the environmental scale.

Table 5 shows the relationships between total tourist expenditure, satisfaction and environmental behaviour for all the market segments that came out from the cluster analysis. The Kendall rank correlation coefficient is 0.87, which shows a high and positive linear relationship between both variables. Based on the detailed information of these variables, market segments can be classified in two different groups: (i) those that present a higher than the average performance of the three indicators and (ii) those that present a lower than the average performance. For the first group, it can be seen that the segment of gastronomy and entertainment presents the largest environmental attitude index and the second levels of average expenditure and satisfaction. In addition, the segment sea lovers present the second level of environmental attitude index and the largest average expenditure. This segment ranks fourth in terms of satisfaction level.

Similarly, those segments with lowest environmental attitude index also have lower average expenditure and satisfaction levels. For instance, the segments of rural environmental lovers and

trekking lovers have, respectively, the lowest level of satisfaction and the lowest level of average expenditure, and they show a lower than average environmental attitude indexes. Those segments further down in the ranking for environmental attitudes also have lower than the average performance ranks in terms of average expenditure and satisfaction levels.

Thus, the level of tourist environmental behaviour is related with the overall satisfaction that tourists experience from rural tourism, and those segments that work with a major emphasis on environment assets might increase the satisfaction and attractiveness of the destination.

Discussion and conclusions

Rural tourism is an increasingly important area of the tourism industry that has been subject to important changes in the last decades. The segmentation of rural tourism in other studies has been based on the motivations and expected benefits that tourists anticipate when taking the decision to undertake a trip to a rural destination. In this article, we have considered the segmentation of rural tourists based on the activities that tourists actually undertake at the rural destination. This type of segmentation is relevant because rural tourism destinations have become more diverse in terms of the activities offered to tourists. That is, modern and developed rural tourist destinations offer a wide range of activities and experiences in conjunction with the traditional activity of experiencing the rural environment and the contact with nature.

Thus, a segmentation approach based on rural tourist activities can provide useful information from a policy perspective, since it allows decision makers to focus on the development and promotion of products and experiences based on the activities with higher expected potential returns. In addition, there can be some differences between what tourists expect and what tourists find at a destination. The implication is that by working through the activities offered to tourists at a destination it can be improved the experience and satisfaction of tourists, thereby increasing potential returns. Further, since the environmental behaviour that tourists have at the destination can be an important determinant of the activities that tourists undertake and are of their interests, in this article, we have considered how environmental behaviour might explain the performance of the market segments of rural tourism.

The results of the application of a cluster analysis for the definition of the rural tourism market segments have raised a large heterogeneity in the market segments based on the types of activities practiced by tourists at the destination. All segments result from a combination of various activities. The relatively large number of clusters obtained in this study is justified by the statistical results of the cluster analysis, and allows market researchers to assess the potential of market niches that cannot be appreciated in more aggregated market segmentation results.

Traditional activities of rural tourism based on agro-tourism are linked to a market segment that represents a small share of the market in comparison with those activities that rely on the use of environmental assets (sea, sky and landscapes), cultural infrastructures (museums) and social activities (fiestas and gastronomy). Thus, traditional rural tourism has evolved to a more integrated form of tourism that is based on the use of accommodation in the rural environment but with involvement in a wide range of activities in which the presence of nature and environmental attributes becomes relevant. The investigation of the environmental attitudes of tourists has shown that there is a significant level of concern with the environmental impacts that can be caused by tourist behaviour and a preference for less congested destinations. However, the environmental concern is not homogeneous across market segments. The results showed that there were

significant differences in the level of environmental behaviour between segments, with the lowest level for the segment of *gastronomy and entertainment*.

Since heterogeneity in market segments can be linked to heterogeneity in environmental behaviour, and also to differences in the levels of satisfaction and the economic impacts of the segments, then from a policy point of view, it becomes relevant to ascertain what are the segments with most potential for the destination. That is, improving and enhancing the management of environmental assets, the rural tourism destination can increase the profile of those segments that cause higher satisfaction and higher economic impacts. Our results show that those market segments with higher satisfaction and higher economic impacts are also those with higher tourists environmental behaviour levels. In addition, a market segment with a low environmental behaviour is associated with a lower satisfaction.

Thus, rural tourist destinations should explore the advantages of focusing on market segments with higher environmental profiles in order to raise more benefits to the local economy and increase the satisfaction that tourists receive from their visit. Some limitations of the analysis are related with the fact that responses to satisfaction surveys can be confounding perceptions and expectations (Araña and León, 2012, 2013; Dolnicar et al., 2014; León et al., 2003). Some recent developments in the area of measuring techniques in tourism could potentially disentangle out these effects providing more disaggregated, and therefore informative, segmentation analysis (Araña and León, 2007; León and Araña, 2014a, 2014b; León et al., 2014).

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Note

1. Cronbach's α was of 0.87 what can be interpreted as a sign that the scale is very reliable, that is, it produces consistent results if the measurements are repeated.

Supplemental material

The appendix is available at: http://teu.sagepub.com/content/by/supplemental-data.

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