

Hierarchical **Travel-Market** Segmentation Based on **Travel Expenses**. The case of San Martin de los Andes, Patagonia, Argentina

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Abstract | Travel-market segmentation can help tourist-destination managers to have a better understanding of tourists' needs and, consequently, to address more accurately their tourist offers. In order to identify the main market segments of San Martin de los Andes in the south of Argentina, an empirical study was made utilizing a sample of 276 tourists who visited this site during the 2004 summer season. To identify the main market segments of this tourist site, the AID (Automatic Interaction Detection) technique was utilized considering daily-tourist expenses as dependent variable. The results of the study showed that segments entitled "Gasoleros", "Sightseeing singles and couples", "Active couples", "High-income small families", "Mid-income families", and "Low-income families" can be considered as constituting a whole the target tourist-market of San Martín de los Andes. With the study, tourism managers can assess more accurately the tourist demands of this destination; the findings in this study can thus contribute to the effective implantation of the Operative Marketing Program Strategies contained in the "Masterful Plan of Tourism 2003-2007".

Keywords | Travel-Market Segmentation, Automatic Interaction Detection (AID), Travel Expenses Average.

Resumo | A segmentação do mercado turístico pode ajudar os responsáveis pela gestão e desenvolvimento dos destinos a compreenderem melhor as necessidades dos turistas e consequentemente a direcionarem mais correctamente as suas ofertas. De forma a se identificarem os principais segmentos de mercado existentes em San Martin de los Andes, no Sul da Argentina, foi conduzido um estudo empírico, utilizando uma amostra de 276 turistas, que visitaram o local durante o Verão de 2004. Para se identificarem os principais segmentos de mercado deste destino turístico foi utilizado o método AID (*Automatic Interaction Detection*), considerando-se a despesa turística diária como a variável dependente.

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Os resultados do estudo mostraram que pode-se considerar que os segmentos designados como "Gasoleros", "Sightseeing singles and couples", "Active couples", "High-income small families", "Mid-income families" e "Low-income families" constituem a totalidade do mercado-alvo de San Martin de los Andes. Com este estudo, os gestores turísticos podem avaliar com maior precisão a procura deste destino turístico, e as conclusões deste trabalho podem, assim, contribuir para a implementação efectiva do Programa Operacional de Estratégias de Marketing, incluído no "Plano de Turismo 2003-2007".

Palavras-chave | Segmentação do Mercado Turístico, Método AID (*Automatic Interaction Detection*), Despesas Turísticas.

1. Introduction

In order to increase its competitiveness and thus gain an advantageous market position, one of the basic conditions required by a tourist destination is to adapt its product supply to the market demand in order to generate suitable tourist products that are accurately focused on the demand requirements.

In order to gain an advantageous competitive positioning, companies and non-profit organizations have become motivated to collect and employ extensive data concerning purchase habits and consumer profiles from surveys conducted under different approaches and techniques of market segmentation. Certainly, market segmentation can be a very effective tool for increasing business profitability by means of more accurate marketing decisions. On this point, Dolnicar and Leisch (2003) conclude:

"Twenty-four percent of the publications investigated are from the 1980s, 76% from the 90s. It is clear that the purpose of segmentation is almost exclusively to identify or construct groups of customers, as only 2 out of 47 studies state a different aim." (p. 282)

Tourism is an economic sector characterized by an extremely heterogeneous supply of products and a demand that is in constant evolution. Varying tendencies of tourist consumers, greater sensitivity towards environmental aspects, increasing experience, and search for different tourist-products

in terms of the quality of services are only some of the aspects that allow the identification of differentiated consumer groups within the markets. For these reasons, the utilization of more appropriate market-segmentation processes can help tourist destinations managers to address more accurately their tourist offers.

Segmentation means dividing the destinations of the tourist market into several homogenous sub-groups of consumers, taking into consideration as a partition basis characteristics called segmentation criteria. To segment a tourist market means to recognize that this market is composed of a set of consumers that is not homogeneous, but rather a sum of individuals with different needs and desires (Valls, 2003).

Serra Cantalops (2002) specifies additional benefits derived from the segmentation process, remarking that this process allows the identification of business opportunities, or "market gaps", that help to establish priorities and enable managers to utilize more easily the tools of competitive-business analysis.

In the field of tourism, the evolution of segmentation-market techniques is emphasized by Dolnicar (2004), who assures that by the utilization of more advanced methods, suppliers of tourist products and services can identify more accurately new and more profitable market segments.

It is important to establish that the appropriate conditions for applying the segmentation process are not always present in a market context. To be

suitable, segments necessarily need to be identifiable, measurable, accessible, and important, with a clear capacity of response to marketing stimuli. (Loudon and Della Bitta, 1995)

2. The segmentation market process

To segment the markets implies following a process that consists of different steps, which can vary according to different products and organizations. Kotler *et al.* (1999) contend that, in general, to segment a market it is necessary to follow at least three steps. Starting with the identification of the potential market, the process begins with a division of the market into the different consumer sub-groups that could require differentiated products associated with their respective specific-marketing mixes. This market partition can be made using different criteria or variables as a differentiation basis (Lanquar, 2001; Valls, 2000). The second step is to identify the target market(s) in order to assess the attractions of each segment and enable the selection of those that are more appropriate to encourage. The final step is to establish a competitive position in the selected segment(s), which implies positioning in each one a specific product, a specific communication mix, a specific distribution strategy and a correct price system.

The three steps of the market-segmentation process were originally made, one by one, following a rigid sequence. Now, however, Bowen (1998) establishes that due to the application of new techniques of data analysis, the steps of the process can be mixed and superimposed, turning the segmentation into an integral and not-necessarily sequential process. On this point, in particular, Bowen (1998) writes:

“Now, some of the data analysis techniques identify more valuable segments as they segment the market. Thus, there is a blurring of these functions.” (p. 294)

Structural equations models (Gundersen *et al.*, 1996), neuronal networks (Mazanec, 1992), conjoint analysis (Shaw *et al.*, 1991; Hu and Hiemstra, 1996) and multidimensional scaling techniques (Dev *et al.*, 1995), among others, allow the identification of differentiated consumer segments, assessing simultaneously their value and desirability in terms of business opportunities. In addition, modern data-analysis techniques make it possible to reduce the human-judgment risk throughout the segmentation process.

2.1. Different segmentation criteria

Traditionally, by utilizing different segmentation approaches, companies and organizations have tried to adapt their supply of products and services to consumers' consumption habits, thus identifying their more relevant differences or similarities. Normally, these differences or similarities can be identified through variables called “segmentation criteria”, which allow an entire and heterogeneous market to be divided into smaller and more recognizable homogenous groups of consumers.

Different kinds of segmentation criteria have been employed throughout the development of different periods of consumer-behavior research. Different authors classify segmentation criteria into different categories such as general, specific, objective and subjective variables (see Table 1). However, these variables cannot reliably predict the real consumer behavior; consequently, researchers of necessity need to utilize more effective segmentation criteria. (Diaz-Martín *et al.*, 2000)

There are many segmentation techniques that can be utilized to identify homogeneous groups of consumers. The best strategy is always the one that enables the identification of the most valuable consumer segments for a certain tourist destination, illustrating the relative capability of that destination to satisfy the needs of individuals pertaining to these segments (Mykletun *et al.*, 2001). A flexible

Table 1 | Tourist market segmentation criteria

Criteria	General	Specific
Objective	<ul style="list-style-type: none"> – Demographics: age, gender, marital state, family group, family lifecycle, habitat (urban/rural). – Socio-economics: available income, profession, social class. – Geographics: nationality, region, province. 	<ul style="list-style-type: none"> – Consumer behavior: travel frequency, use of service intensity, new visitor/frequent visitor, distribution channel, type of travel organization, previous-reservation time, travel group, transportation mean, final-destination activities, trip duration. – Travel motivation. – Destination patronizing. – Price-travel expense sensivity.
Subjective	<ul style="list-style-type: none"> – Personality. – Life style. 	<ul style="list-style-type: none"> – Search benefits. – Attitudes. – Perceptions. – Expectations. – Preferences.

Source: Adapted from Díaz-Martín, *et al.*, 2000.

segmentation approach allows the use of different criteria or variables, singly or combined, in order to better understand the specific structure of a market (Kotler *et al.*, 1999).

2.2. A priori and a posteriori segmentation methods

In the many studies published in the last two decades concerning market segmentation processes it is possible to identify two main approaches utilized by researchers to make a primary partition of entire populations into homogenous consumers’ groups. *A priori* segmentation methods identify groups or consumer segments, by taking for a start variables or criteria resulting from market observations and/or previous studies. Then, based on this initial segmentation, the process continues, re-grouping consumers in accordance with other characteristics.

On the other hand, *a posteriori* segmentation supposes a market partition without a previous delimitation, recognizing the tourist market as a homogenous identity; e.g., having a non-internal differentiation.

In her interesting analysis of the use of different approaches to the segmentation of tourist markets, Dolnicar (2004) says:

“Two approaches are recognized: *a priori* and data-driven (*a posteriori*, *post hoc* segmentation).

In tourism there is a long history of *a priori* segmentation studies in industry and academia. These lead to the identification of tourist groups derived from dividing the population according to prior knowledge (‘commonsense segmentation’).” (p. 244)

Miquel *et al.* (2000) consider two types of segmentation methods: the typological process and the hierarchical process. The typological process involves descriptive and composite techniques non-starting from previous conditions. The intention is to form homogenous groups that utilize all variables or segmentation criteria. It is a method of grouping bearing a strong similarity to the *a priori* methods already mentioned. On the other hand, the hierarchical segmentation process is a non-composite explanatory method that begins with the definition of a dependent variable, and then, utilizing this variable, tries to form homogenous groups based on independent explanatory variables.

2.3. Market segmentation by travel expenses

Mok and Iverson (2000) realized an *a priori* segmentation study based on the total expenses of Taiwanese travelers visiting Guam. The authors divided

the sample into three segments of travel expenses (high, medium and low), characterizing them on different variable bases. Results demonstrated that travelers with high levels of expenses show different attributes depending upon the individual's age, the size of the travel group, the tourist-stage duration, the reason for travel, the trip modality and the patterns of expenses.

The study developed by Mykletun *et al.* (2001), consists of a segmentation process utilizing a data bank with information about tourists visiting Bornholm Island (Sweden) in the Baltic Sea. Using a logistic regression analysis to discriminate between visitors with high expenses and those with low travel expenses, the authors found that a traveler's nationality is the best dependent variable to predict his travel expenses in a specific tourist destination.

Bethencourt *et al.* (2002) made a travel-market segmentation based on tourist expenses on Palma Island (Spain) using statistical analysis CHAID (Chi-squared Automatic Interaction Detection), a variation of AID method when the dependent variable is categorical. These authors found that the most accurate predictor variables for travel expenses at this destination are the tourists' nationalities, their income averages, the travel season, and the kind of shopping they look for. Also, using CHAID method, Chen (2003) identified different segments of tourist markets on the basis of sentiments expressed by visitors toward marketing activities.

3. The study

3.1. Scope of application

In comparison with other countries, tourism has not been considered in Argentina as a relevant economic-development factor. In 2003 Argentina received some 3,000,000 international arrivals. This number of visitors places Argentina in the seventh place of American countries, after U.S.A., Mexico, Ca-

nada, Brazil, the Dominican Republic and Puerto Rico (WTO-World Tourism Organization, 2003) for tourism.

The province of Neuquén is located in the geographic region denominated the Argentinean Patagonia, which consists of an extensive geographic region in the Mid-West of Argentina. This province is one of the regions with many variable natural attractions for rural-tourism development.

In its western extremity, Neuquén borders on Chile, sharing with this country the impressive Andes Mountains, whose eastern slopes with their beautiful landscapes of forests, plains and lakes, offer to visitors a wide variety of leisure and tourism activities.

In February 2005, during the summer tourist season, the province of Neuquén received 42,080 tourists, visiting three main destinations: a) San Martín de los Andes (24,391), b) Villa La Angostura (16,659), and c) Caviáhué (1,030). Of this total, Argentinean tourists represented 94.3% and foreigners 5.7%. It is important to emphasize that San Martín de los Andes (further denominated SMA) receives the greatest proportion of foreigners (11.71%) in comparison with the foreigners-tourist average of all other main tourist destinations of the province (Ministerio de Producción y Turismo, 2003).

The main tourist activity of the visitors in SMA is mountain skiing (75%). Other complementary tourist activities are horseback riding, bird-watching, fishing, hunting, and walking tours. Concerning the visitor's length of stay and his travel expenses, statistic data show an average of 6.7 nights and a daily *per capita* average-travel-expense of \$161.00 Argentinean pesos (Ministerio de Producción y Turismo, 2003).

SMA is the main tourist destination in the province of Neuquén (Patagonia) in Argentina. Located in a mountain environment near Lacar Lake, SMA offers a wide variety of tourist attractions and activities for both summer and winter seasons. Its tourist offerings are strongly related to landscape-sightseeing and nature-enjoyment, due to its location in Lanin National Park (Ministerio de Producción y Turismo, 2003).

At the present time, and due to the increasing importance of tourism as an economic development factor, the government of the province of Neuquén has created the Ministry of Production and Tourism, whose main function is the design and implementation of the Provincial Master Tourism Plan 2003-2007. The main programs of this plan must be focused upon improving the tourist value of leisure attractions, upon implementing effective environmental-management programs, upon providing sites with tourism facilities and communications infrastructure, and upon evaluating tourist-services quality and other complementary programs and actions that enable tourism authorities to increase the arrival rate of visitors (see Figure 1).

In the particular case of SMA, the Provincial Tourism Plan emphasizes the promotion of sport tourism, nature tourism, and adventure tourism, as well as the creation of database and management systems to improve the quality of lodging, food and beverage outlets, travel agencies and transportation services.

The tourism office of SMA has carried out, for several years, systematic data-gathering activities that outline a consumer profile of visitors by means of two annual data surveys: a) the summer-season

survey, and b) the winter-season survey. The content of both surveys include data concerning specific objective variables such as type-and-category of lodging, transportation means, type-and-size of travel groups, forecasted group expenses during the tourist stage, tourist activities realized, previous visits to specific destinations, main travel reasons, average length of stay, type of stage reservation, etc.

To a lesser extent, both surveys also include some general-objective variables such as current residence and socio-economic level of visitors and, more recently, specific subjective variables such as tourists’ opinions and attitudes about a destination, its environment, its local population, and their perceptions of the quality of the site’s services (customer satisfaction), etc.

In spite of efforts realized by the tourism office of SMA, however, in the rest of Argentina there are few extensive studies concerning specific behavioral aspects of tourists such as visitors’ attitudes, reasons for travel, consumption habits, and perception of service quality. SMA has been selected as a case study in this work because it is a destination that, in a systematic and reliable way, has established an important precedent in tourism-statistics-analysis in Argentina, a country little sensible to the importance of a Tourist Information System (Gobierno Provincial de San Martín de los Andes, 2006).



Figure 1 | Provincial Master Tourism Plan 2003-2007.

3.2. The data

The data analyzed in this study pertain to the 2004 Summer Tourist Survey. These data come from a structured questionnaire applied to a sample of 1059 tourists who visited SMA during the period between January and February. From this total, only 276 questionnaires were utilizable but, considering that 276 individuals represent some 10% of total tourists visiting SMA during the summer season, this amount was accepted as a segmentation tool in the AID method. The survey was carried

out in all tourist-lodging establishments, and the interviewed tourists were selected following a stratified sampling method. The profile of individuals within each stratum was defined by the opinion of experts of SMA Tourism Bureau on the basis of the consumption behavior of visitors.

3.3. Segmentation method

The hierarchical segmentation method (*a priori* approach) was chosen considering tourist expenses as a dependent variable. This procedure was selected taking into account two important considerations: a) in Argentina there are no previous studies utilizing this methodological approach, so perhaps this study can establish the beginnings of the employment of multivariate segmentation procedures in the tourism-analysis field, and b) the study considers several important variables related to tourist-consumption behavior, so the SMA tourism office can eventually utilize the results of the study to implement more accurate tourist market segmentations focused on improving the marketing strategies of the site.

The "tourist expense" (GT) variable was defined as the "daily expense occurred by tourists". Although this variable was not directly measured throughout the survey procedures, it could be indirectly estimated by means of the analysis of other variables already measured. Also, the "group expense" (GG) variable was defined as the "total expense of travel group", the "lodging nights" (P) variable was defined as the "number of lodging nights of the tourists", and finally, the "travel group" (TG) variable was defined as "the size of travel group". Tourist expense (GT) was measured by the formula:

$$GT = \frac{GG}{P \times TG}$$

GT is expressed in Argentine pesos (\$2.95 Argentinean pesos = \$1 USD).

The segmentation process was carried out by means of a statistical technique called AID (Automatic Interaction Detection) algorithm. The AID technique supposes that a given population is heterogeneous with respect to a dependent variable and, additionally, that population can be partitioned into mutually-excluding groups using different combinations of independent or explanatory variables (Luque-Martinez, 2000). The AID technique is mainly employed in markets segmentation since it allows the division of groups of individuals in agreement with a specific attribute that is considered as a dependent variable (Santesmases, 2001).

Kass (1975) explains the AID method as follows:

"The aim of the method is to split the data successively by binary divisions into a number of subgroups. At each stage, the division of a group into two parts is defined by one of the predictor variables, a subset of its categories defining one of the parts, and the remaining categories the other part." (p.178)

In this work, the dependent variable is "daily expense occurred by tourists" (GT) and the independent or explanatory variables are "lodging type", "travel group", "home residence", "transportation means" and "group category". The segmentation process was carried out by applying the AID technique and using software called DYANE 2, which operates as follows:

Step 1: DYANE 2 begins with the total sample cases, making dichotomic divisions based on the variable that best explains differences related to dependent variable behavior (individual travel expenses).

Step 2: Each group from Step 1 is then sub-divided following the previous criteria.

Step 3: The sub-division process continues until groups have a pre-established size and/or groups have no significant differences.

4. Results

The results of AID analysis are shown graphically in the "segmentation tree" or dendrogram, where we can clearly identify 6 differentiated market segments, denoted by groups 3, 6, 7, 8, 10 and 11 (see Figure 2).

The first segmentation criterion was based on the "type of lodging". As a result, the sample (Group 1) is divided into Groups 2 and 3. Travelers classified as Group 2 have an average-travel-expense of \$128.04, and lodge normally in hotels, inns, cabins, hotel apartments or tourist-rent houses. Travelers classified as Group 3 have a low average-travel-expense (\$31.14) and lodge in camps or lodging houses. This group has no sub-divisions. It can be considered as an unique market segment.

The second division was made using the "travel group" variable as its segmentation criterion. As a result, Groups 4 and 5 were identified. Group 4 is composed of couples or individuals having an average-travel-expense of \$188.85. On the other hand, Group 5, with an average-travel-expense of \$100.64, is composed of families traveling with families and friends, and of tourists traveling with family members, friends, and others.

Continuing the process, Groups 4 and 5 were both sub-divided. For Group 4, the segmentation criterion was the "home residence" variable, and for Group 5, the criterion used was "transportation mean".

The sub-divisions of Group 4 were called groups 6 and 7, whereas the sub-divisions of Group 5 were called Groups 8 and 9.

Tourists having an average-travel-expense of \$229.67 compose Group 6. They come from the city of Buenos Aires, from the city of Santa Fe, from Chile and from Spain; whereas Group 7, having an average-travel-expense of \$144.31, is essentially composed of tourists coming from the province of Buenos Aires, the city of Buenos Aires, the Rio Negro Valley, the city of Neuquén, the city of Cordoba, the Pampas region, the province of Misiones, from Brazil or from the United States. Having no sub-divisions, Groups 6 and 7 were considered as distinctive market segments.

Tourists spending \$183.33 as a daily average compose Group 8. These travelers arrive at SMA in regular flights or charters. Having no sub-segments, this group was also considered as another distinctive market.

Tourists pertaining to Group 9 have an average-travel-expense of \$100.97. They arrive at SMA in automobiles, on bus lines, or on tourism buses.

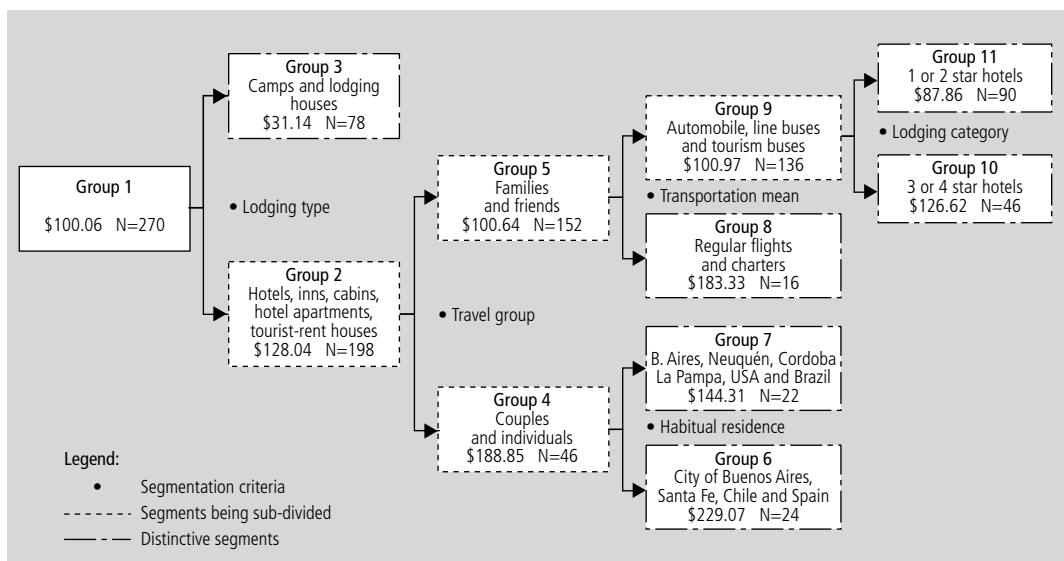


Figure 2 | SMA Market segmentation dendrogram.

The last step of the segmentation process produced the sub-division of Group 9. This group was sub-divided using the "lodging category" variable as a segmentation criterion. As a result, Groups 10 and 11 were identified. These two groups have no sub-divisions.

Group 10 is composed of travelers who spend \$126.62 as a daily average, lodging in hotels of medium category (3 or 4 stars). Finally, Group 11 is composed of tourists spending a daily average of \$87.86; its members lodge in hotels of one or two stars or in other non-classified lodging establishments.

4.1. Segments profile

The AID analysis creates a new nominal variable called "segments". As the AID technique performs cross-tabulations comparing this new variable with other variables, the tourist behavior of visitors at SMA can be more clearly outlined.

A Chi-squared analysis (χ^2) was performed in order to obtain the segments' profiles according to their explanatory variables. Table 2 shows the results of Chi-squared analysis for nominal variables corresponding to answers having only

Table 2 | Cross tabulation: SMA market segments vs. nominal variables (one-option responses)

Variable	Sample	Identified market segments (%)						Chi-squared χ^2	Sig.
		Gasoleros	Sightseeing singles and couples	Active couples	High-income small families	Mid-income families	Low-income families		
Lodging type	N=276	N=78	N=24	N=22	N=16	N=46	N=90	346.901	0.000*
Hotel		0.0	37.5	36.4	50.0	13.0	21.1		
Inn		0.0	25.0	31.8	18.8	13.0	2.2		
Cabins		0.0	25.0	18.2	6.3	52.2	48.9		
Apartment-hotel		0.0	8.3	9.1	25.0	21.7	16.7		
VAT/lodging/houses		2.6	4.2	4.5	0.0	0.0	11.1	246.967	0.000*
Travel group									
Family		41.0	0.0	0.0	81.3	89.1	67.8		
Family and/or friends		11.5	0.0	0.0	12.5	8.7	11.1	224.355	0.000*
Friends		32.1	0.0	0.0	6.3	2.2	21.1		
Transportation means									
Automobile		65.4	66.7	63.6	0.0	95.7	78.9	162.468	0.000*
Bus lines		26.9	8.3	27.3	0.0	4.3	16.7		
Tourism bus		2.6	0.0	4.5	0.0	0.0	3.3		
Other		0.0	0.0	0.0	0.0	0.0	1.1		
Home residence								490.819	0.000*
Argentina									
City of B. Aires		17.9	54.2	0.0	43.8	23.9	28.9		
Region of B. Aires		9.0	0.0	22.7	12.5	13.0	10.0		
Province of B. Aires		23.1	0.0	31.8	43.8	6.5	16.7		
La Pampa		2.6	0.0	4.5	0.0	0.0	6.7		
Rest of Rio Negro		5.1	0.0	0.0	0.0	2.2	1.1		
Córdoba		9.0	0.0	9.1	0.0	4.3	10.0		
Santa Fe		5.1	4.2	0.0	0.0	6.5	2.2		
Foreigners									
Chile		3.8	37.5	0.0	0.0	19.6	18.9	176.191	0.000*
Lodging category									
1 star		0.0	12.5	18.2	0.0	0.0	14.4		
2 star		0.0	29.2	40.9	31.3	0.0	67.8	79.2	0.000*
Non/categorized		6.4	8.3	9.1	6.3	0.0	17.8		
Previous reservation								92.3	12.5
Yes		7.7	79.2	59.1	87.5	93.5	86.7		
Tourist package		0.0	8.3	9.1	6.3	0.0	4.4		
No		92.3	12.5	31.8	6.3	6.5	8.9		

* $\chi^2 \leq 0.05$.

one response, whereas Table 3 shows the results of the same analysis performed for nominal variables corresponding to answers having multiple responses. In order to make a bi-variated cross-tabulation analysis with variables measured by ratio scales, an ANOVA analysis was performed (see Table 4).

Group 3 is the segment having the smallest daily travel-expense average (\$31.14). The tourists lodge

in camps, lodging houses and tourist rent houses. They make practically no lodging reservations, as they are frequent visitors to SMA. They are tourists with low spending power. For these reasons, this segment was called "Gasoleros" (gas-oil purchasers) that in Argentinean argot means people having little money.

Group 11 (Low-income families) is the largest segment. Tourists classified in this group have a

Table 3 | Cross tabulation: SMA market segments vs. nominal variables (multiple response)

Variable	Sample	Identified market segments (%)						Chi-squared χ^2	Sig.
		Gasoleros	Sightseeing singles and couples	Active couples	High-income small families	Mid-income families	Low-income families		
Destination visit motives	N=276	N=78	N=24	N=22	N=16	N=46	N=90	71.341	0.025*
Knowing the site		48.72	41.67	50.00	25.00	52.17	53.33		
Relaxation		28.21	33.33	18.18	50.00	47.83	28.89		
In search of adventure		14.10	4.17	13.64	0.00	4.35	5.56		
Enjoying SMA		42.31	29.17	36.36	62.50	34.78	41.11		
Favorable money-exchange rate		2.56	29.17	9.09	6.25	13.04	11.11		
Honeymoon		0.00	16.67	4.55	0.00	0.00	0.00		
Other		5.13	16.67	4.55	0.00	0.00	4.44		
Destination activities								126.298	0.000*
Walking		60.26	33.33	63.64	31.25	36.96	45.56		
Casino		16.67	33.33	45.45	12.50	15.22	30.00		
Movie/theatre		7.69	4.17	4.55	0.00	0.00	2.22		
Bar/pubs		23.08	16.67	31.82	37.50	13.04	21.11		
Disco		16.67	25.00	13.64	6.25	4.35	15.56		
Electronic games		6.41	0.00	4.55	0.00	8.70	15.56		
Relaxation		48.72	83.33	59.09	43.75	41.30	52.22		
Lake excursions		8.97	50.00	31.82	50.00	39.13	30.00		
Nature excursions		32.05	29.17	40.91	62.50	58.70	47.78		
Rafting		1.28	0.00	9.09	0.00	8.70	2.22		
Nautical activities		2.56	0.00	0.00	0.00	10.87	5.56		
Fishing		10.26	4.17	9.09	0.00	23.91	7.78		
Beach (lakeshore)		65.38	41.67	50.00	18.75	65.22	61.11		
Horseback riding		6.41	4.17	4.55	6.25	6.52	3.33		
Nature sightseeing		20.51	12.50	22.73	25.00	17.39	10.00		
Shopping		30.77	33.33	36.36	75.00	54.35	47.78		
Others		0.00	0.00	0.00	0.00	2.17	1.11		

* $\chi^2 \leq 0.05$.

Table 4 | ANOVA Analysis: tourism market segments vs. ratio variables

Variable	Sample	Identified market segments						F	Sig.*
		Gasoleros	Sightseeing singles and couples	Active couples	High-income small families	Mid-income families	Low-income families		
Number of days before reservation	N=276	N=78	N=24	N=22	N=16	N=46	N=90	18.480	0.000*
Number of group members		2.1	19.6	13.9	40.6	23.0	27.3		
		4.3	1.8	1.8	2.5	4.3	4.5	19.165	0.000*

* $F \leq 0.05$.

daily travel-expense average of \$87.86. They are people who like to travel by automobile, lodging in low-category establishments, mainly cabins. It is the segment with the greatest number of travel-group members. It is a segment that is not geographically concentrated; there is a greater dispersion of the home residences of its members.

Group 10 (Mid-income families). Although these tourists prefer the same type of lodging as Group 11, the category of the lodging increases (3-star hotels). The daily travel-expense average is \$126.62. The home residence of these tourists is in regions or cities with a high concentration of population. These travelers make lodging reservations in advance, and their preferred activities are excursions, site explorations and shopping.

Group 7 (Active couples) is the segment composed of couples coming from important urban centers, and arriving at SMA on bus lines or by automobile. They are young people looking for adventure tourism, or for nature-enjoyment activities such as long walking tours and excursions. Group 7 has a daily travel-expense average per person of \$144.31.

Group 8 (High-income small families) represents the smallest segment (6%) of the sample. In this group, tourists normally arrive at SMA on regular flights (94%). The travel group usually consists of a small family (3 people). These tourists lodge in hotels (4 stars or more) or hotel apartments. They are people coming from the city of Buenos Aires and from the Province of Buenos Aires. They plan their trips with anticipation and constitute a repetitive demand. Their daily travel-expense average is \$183.33. These visitors look for the high-quality services and products offered by the site.

Group 6 (Sightseeing singles and couples) is the group with the highest daily travel-expense average (\$229.67). They are mainly singles, lodging in sub-utilized, medium-categorized hotels, inns and cabins. These travelers arrive at SMA from the city of Buenos Aires and from Chile (this segment has the greatest proportion of Chilean tourists). Honeymoons are one of their principal travel motivations and they

mainly seek restful activities, such as fishing or nature-sightseeing excursions.

5. Conclusions and marketing implications

The primary results of this study conclude that the variables that best explain the different levels of daily travel expenses of tourists are "lodging type" and "travel group". In second place, "home residence", "transportation mean" and "lodging category" are variables that also contribute to this purpose. To obtain a better consumer profile of the different tourist segments visiting San Martin de los Andes, however, it is also necessary to consider complementary variables such as travel motivation, on-site tourist activities, lodging types, and advance-lodging reservations.

"Low-income families" and "Gasoleros" (Groups 11 and 3 respectively) – the greater segments in terms of tourist quantity – have the lowest daily travel-expense average. On the other hand, Group 6 (Sightseeing singles and couples) – ranked fourth in size - has the greatest daily travel-expense average in the sample.

The segment corresponding to Group 10 (Mid-income families) represents an intermediate situation. Having a daily travel-expense average ranked fourth, its size cannot be neglected (16.6% of the sample). On the other hand, with their high daily travel-expense average, segments represented by Groups 7 (7.9% of the sample) and 8 (5.7%) (Active couples and High-income small families respectively) are composed of small groups of individuals.

The individuals integrating these segments share other similarities, such as a preference for the same lodging establishments (two or three star hotels), traveling in familiar groups, and coming from the same place of residence (Chilean, Brazilian). Most Argentines come from Buenos Aires or Cordoba.

By analyzing the consumption profile of these different segments, previously identified by AID

analysis, SMA tourism managers can assess more accurately the tourist demands of a destination and, consequently, will be able to focus their marketing strategies on the more attractive segments in terms of the total expenditures of the tourists during their stay in the site. For example, they can follow a selective market strategy by concentrating promotional efforts on the segments having the highest daily expenditures, or they can select an undifferentiated market strategy, design a particular marketing mix for each one of differentiated segments, or even choose a "negative marketing strategy" oriented toward discouraging tourists in segments with lower daily travel expenses.

It is necessary, however, to mention that any one of these strategic decisions must be conditioned by the regional socio-economic context, and by the goals and policies of San Martín de los Andes as a tourist destination previously established by the provincial authorities and the Argentinean government. Any strategic decision that could eventually be adopted must necessarily be based, on essential operational aspects such as the tourist capacity offered by the site as well as its possibility to confront future economic scenarios, in order to synchronize the growth of the tourist-services infrastructure with respect to the market segments.

Findings of this study can contribute to the effective implantation of the Operative Marketing Program Strategies contained in the "Master Plan of Tourism 2003-2007", where objectives are focused on obtaining an advantageous competitive positioning of Neuquén's tourist products in regional, national and international tourist markets.

6. Limitations and suggestions for future research

It is pertinent to establish that the results of this study are based on the statistical analysis of secondary data previously collected. Analyzed

database information sometimes lacks variables that presumably could be tied to tourist expenditures. In this sense, for future studies, it is recommended that data be included concerning other important tourist-profile variables such as personal income, age, and occupation. The results of this study allow us to identify the variables that best explain the different levels of daily travel expenses of tourists visiting San Martín de los Andes, but, in order to obtain a better consumer profile of these, it is also necessary to consider complementary variables such as travel motivation, on-site tourist activities, types of lodging, and advance lodging reservations.

The database provided by the San Martín de los Andes Tourism Office contains information concerning tourists who visit the site during the summer season only. It would be advisable to complement this study with data collected in the winter season, in order to analyze a greater sample and be able to make an integral diagnosis of all types of travelers visiting this tourist destination so that AID method could be more appropriately applied.

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