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A MARKET SEGMENTATION ANALYSIS USING ATTITUDES TOWARDS TRANSPORT

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Abstract:

Using attitudes toward travel an exploratory factor analysis was performed followed by a confirmatory factor analysis, showing good validity and reliability indices. Cluster analysis was then used to identify similar respondents based on their travel attitudes. Six distinct groups were extracted: transit enthusiasts, status seekers, car addicts, car-less riders, calm riders and obstinate drivers. The segments showed unique combinations of attitudes with distinct travel behaviors and varying degrees of intention to use public transport. The results show evidence that the design of strategies to influence public transport usage should be targeted at the market segments that are most motivated to change and increase their frequency of use.

Keywords:

Market segmentation, travel attitudes, cluster analysis, mode choice, travel behavior, public transport.

1. Introduction

In the last decades the levels of mobility have increased substantially in all European countries (MOTIF, 1998). This raises concern about increasing car use and the implications of this in terms of congestion and pollution. Another important feature to be considered in decision-making concerning transport is the current and changing nature of society and lifestyles. It is necessary to promote measures that can reduce private transport dependence. This is not an easy task because, there is an underlying resistance to move from private to public transport (STIMULUS, 1999).

Public transport systems need to become more market oriented and competitive. Understanding travel behavior and the reasons for choosing one mode of transport over another is an essential issue. However, travel behavior is complex. For each journey, people have the choice between different transport modes, each one having specific characteristics, advantages and disadvantages, and costs. Additionally the choice of one specific transport mode can vary over time and with the type of journey. Thus, there are many people that use both public transport and private cars. So, in order to reduce car use it is necessary to understand the underlying patterns of travel behavior. In general, the car is the most attractive mode of transport (STIMULUS, 1999). The identification of the psychological factors that influence mode choice is a critical requirement for developing measures to reduce car dependence and attract more users to public transport system.

Attitude towards transport is one of those factors. Thus, acknowledging the differences in tastes, preferences and behaviors expressed by travelers is also needed for the development of strategies and measures to increase public transport usage. In fact, different people must be addressed in different ways, since they are motivated by different factors. Market segmentation analysis can be used for the identification of potential segments sharing similar attitudes and preferences towards travel choices. The understanding of what motivate and drive these groups is valuable to public transport management and authorities in the designing of strategies. For instance, segments showing positive feelings towards public transport could be primarily targeted.

This study aims at identifying distinct groups with similar attitudes towards transport modes, their current travel behavior and if they can be influenced to use alternative modes. The results of a telephone survey of 3009 residents in the Porto region, Portugal are presented. The study use cluster analysis to extract groups with homogenous attitudes and motivations regarding their travel choices. The paper is organized as follows. It begins with a brief review of the literature. The methodology used in the study will be outlined in the second section. Next, the results are presented and the market segments extracted profiled and analyzed. Finally, the authors discuss the results and their implications for public transport management.

2. Literature Review

Market segmentation attempts to identify homogeneous consumer groups within a heterogeneous population. There are two basic approaches to segmentation,

either a priori, where a sample of the population is segmented based on known characteristics, such as socio-demographic or frequency of use, or post hoc, in which rather than specifying in advance a known variable, one looks for natural clusters occurring within the population. The objective is to isolate salient characteristics specific to a particular segment, allowing the development of strategies that focus on important characteristics unique to the segment.

In travel market research the market has been segmented almost exclusively according to socio-demographic variables such as income, gender and car ownership, or behavioral characteristics such as frequency of use of a mode (Anable, 2005). However, it seems that very few differences exist when only socio-demographic segmentation are taken into consideration (Anable, 2005), or when groups are segmented according to transport use (STIMULUS, 1999). This indicates the need for carefully identifying new segments of users according to the underlying psychological constraints, incorporating perceptions and attitudes. Several studies, using different approaches and techniques have made interesting advances in travel market segmentation. Anable (2005) segmented a population of day trip travelers into potential 'mode switchers' using cluster analysis, and showed evidence that the same behavior can be undertaken for different reasons and that the same attitudes can lead to different behaviors. Redmond (2000) explored the differences and similarities from clusters derived from attitude, personality and lifestyle variables and found distinct differences in travel behavior between the clusters. Using qualitative interviews Jensen (1999) identified six mobility types based on behavior and attitudes: the passionate car drivers, the daily life car drivers, the leisure time car drivers, the cyclists/public transport users of heart, the cyclists/public transport users of convenience and the

cyclists/public transport users of necessity. This study points out that one strategy alone is not sufficient to change transport behavior of the population in general. Also, stated that the expansion and improvement of public transport system is not going to make car users in general to change from driving a car to using public transport. Although service quality is perceived as an important determinant of users' travel demand (Prioni and Hensher, 2000), this not directly related to the objective service level, but is influenced by psychological factors (Fujii and Kitamura, 2003). Psychological factors include perceptions, attitudes and habits (Ajzen, 1991; Fujii and Kitamura, 2003). So, changing the psychological factors may also change travel mode choice, although the level of service remains the same (Fujii and Kitamura, 2003).

Hence, to attract more users to public transport system it is important to know about the psychological factors that influence mode choice and the measures needed to reduce car dependence. Fujii and Kitamura (2003) study the influence of offering a one-month free bus ticket on drivers' attitudes towards bus and it seems to have the potential to change habit, attitude, and travel mode choice. Yet, other measures to reduce car use, like economic discentives do not directly lead to car use reduction, although it affects the motivation to plan car use reduction (Jakobsson et al., 2002). Therefore, in order to reduce car use and increase public transport usage it is necessary to understand the underlying patterns of travel behavior

3. Methodology

3.1. Questionnaire design

The research instrument was developed based on a previous qualitative study and by an extensive literature review. In the qualitative study 24 in-depth interviews with the general public, including regular and occasional users of public transport and car users were conducted in the Porto region, Portugal. These qualitative procedures enable us to gain insight into the underlying customer evaluations and attitudes towards transport (Beirão and Cabral, 2005).

The questionnaire included 35 attitude questions measured on a Likert scale ranging from 0 ("totally disagree") to 10 ("totally agree"). Attitudinal questions included aspects related to time spent on traveling, attachment to the car, feelings towards public transport, travel stress, cost and the environment. The questionnaire also gathered general information about the respondent travel behavior (focusing on the regular trip), such as mode of transportation, reasons for the trip and frequency. Additionally ratings on overall satisfaction with the transport used on regular trip were asked. The last section covered questions regarding socioeconomic information including household characteristics, employment, education, income and occupation. The study focuses on the trip respondents undertaken regularly during the week.

Before the survey administration, pre-test of the questionnaire with a small group of respondents was conducted to check its adequacy.

3.2. Sample

The data was collected during the fall of 2005 (September-November). In all, 3009 telephone interviews were conducted by trained interviewers. The sample population consisted of individuals who reside in the Porto region, in Portugal.

[The sample was representative in terms of city of residence.](#)

After screening the data from the sample of 3009 respondents, 2812 usable responses were obtained. The sample comprised 49.5% of public transport users, 38.6% of private car users, 4.7% of both public and private transport users and 6.2% walk. The demographics of the sample indicate that 38 percent of the respondents were male and 62 percent of them were female. Respondents ranged in age from 16 to 79 years. Only 16 percent had completed undergraduate or postgraduate studies. Half of the respondents were employed (53.6%), and a further 8.9% were currently studying. More than seventy per cent reported monthly incomes of €1,000 or less.

3.3. Statistical Analysis

The statistical analysis involved two stages: a factor analysis of the attitudinal questions followed by a cluster analysis of the factors, described in the sections above.

3.3.1 Factor Analysis

A two step process was used in the exploration of the factorial structure of the attitude items. First an exploratory factor analysis (EFA) was used as an initial strategy to provide insight into the interrelationships among the attitudinal

variables and the underlying structure of the data. Confirmatory factor analysis (CFA) is then used to evaluate the model derived from EFA (Gerbing and Anderson, 1988). To implement this process the sample was randomly split into two equally sized samples: a calibration and holdout sample. EFA was performed with the calibration sample, whereas CFA was performed with the holdout sample.

In the first stage of analysis, after removing unsuitable items due to their lack of variability, EFA using principal component extraction with oblique rotation were conducted on the remaining items until a satisfactory model of the factorial structure of the questionnaire items was determined. In the second stage, the responses from the second independent group of participants were employed in CFA analysis. Although the attitude variables were measured on a Likert scale they were treated as continuous, following Bentler and Chou (1987) advice that when a variable has four or more categories continuous methods can be used with little worry.

Model fit was assessed according to recommended cutoff values for several fit measures (Hair et al., 2006; Hu and Bentler, 1999). The indices used to measure the descriptive fit of the models were the Chi-Square statistic χ^2 , the goodness-of-fit index (GFI), the normed fit index (NFI), the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). The cutoff values should be based on the model characteristics, like the sample size and model complexity (Hair et al., 2006). So following this authors guidelines the cutoff value for GFI is 0.90 and for both NFI and CFI > 0.92 . For the RMSEA, it has been suggested that values < 0.06 constitute good fit, (Hu and Bentler 1999).

3.3.2. Cluster Analysis

Next the attitude factors from the factor analysis were entered as variables on which the respondents were clustered. The goal of the cluster analysis is to arrive at clusters of homogeneous people which differ in meaningful ways and display small within cluster variation. Following Hair et al. (2006), a combination approach using a hierarchical technique (average linkage with squared Euclidean distance) followed by a nonhierarchical approach (*K*-means) was used. In this approach a preliminary set of clusters solutions is identified using a hierarchical procedure, then to further improve the cluster solution this data is used on a more robust nonhierarchical procedure. To establish the number of clusters to extract, jumps in the coefficient values in the Agglomeration schedule were examined (Hair et al., 2006).

Once a final solution was chosen each cluster was profiled on their attitudes and then explored for differences in socio-demographics characteristics and its relationship with travel behavior and intention to use alternative modes.

4. Results

4.1. Exploratory Factor Analysis

In the first stage of analysis, the 35 attitudinal variables were subjected to principal component analysis with Oblimin rotation. In order to improve construct reliability, the factor solutions, construct reliabilities and item-to-total correlations were analyzed. Items which loaded highly on more than one factor

and had low item-to-total correlations were deleted. The analysis yielded an eight factor solution with eigenvalues greater than 1.0. The analysis of a scree test indicated that this number of factors was appropriated.

In the end, 31 items and eight factors emerge from EFA representing constructs including attitudes towards the car and public transport, need for control, desire to change the form of transportation, cost, travel stress, social status and the environment. Each factor name was based on the characteristics of its composing variables (Table 1). The eight factors accounted for 63.2% of the total variance. All scales have been found to be sufficiently reliable, with coefficients of internal consistency (Cronbach's alpha) ranging from 0.68 to 0.88.

Insert Table 1

4.2. Confirmatory Factor Analysis

In the second stage, the final EFA solution was tested through CFA using the responses from the holdout sample, to assess the measurement model fit (Gerbing and Anderson 1988). The CFA was undertaken using LISREL 8.72 and using Maximum Likelihood estimation. Normal scores were calculated for the data using LISREL.

The model present a good model fit, according to recommended cutoff values (Hair et al., 2006; Hu and Bentler, 1999). Chi-Square (χ^2) is significant ($\chi^2 = 2466$, d.f. = 406, $p = 0.0$), but this can be justified by the large sample size used.

The other fit indices indicate a good fit for the model: goodness-of-fit index (GFI)

= 0.90, comparative fit index (CFI) = 0.95, the normed fit index (NFI) = 0.94 and a root mean square error of approximation (RMSEA) = 0.060.

All indicators have significant and high loadings (>0.5) on the correspondent factor, which provides evidence of construct convergent validity. The constructs composite reliability exceeds 0.8, and the variance extracted are above the 0.5 value (Hair et al., 2006). Collectively, these tests indicated that the measures of continuous variables were reliable and valid reflectors of intended constructs.

4.3. Cluster Analysis Results

4.3.1. Psychographic profiles of the segments

The cluster analysis was done using SPSS 14.0. Because the cluster analysis is known to be sensitive to the outliers (Hair et al., 2006), the data were first examined for outlying observations and sixty observations were excluded. The cluster analysis indicate that a six-cluster solution seemed best based on cluster size, the relative distance between the cluster centroids and the values of cluster centroids. Each cluster was then profiled and given a name that represent its characteristics. Table 2 shows those labels and the relative sizes of the clusters.

Insert Table 2

The mean scores on each of the variables were compared to determine how the clusters differed in their attitudes. Table 2 displays the results of the analysis and the mean scores for each of the segments identified. Factor scores are the

standardized variables with a mean of zero and a variance of one across the sample. The analysis of variance (ANOVA) procedures were then used to determine whether statistically significant differences existed between the factor mean scores among cluster groups (shown in superscript in Table 2). All means differences are significant at $p < 0.05$.

The first cluster, the *Transit Enthusiasts*, had the highest favorable attitude towards public transport and desire to help the environment. They are willing to pay more and use the car less to help the environment. The car does not appear to be essential to their lifestyles, although they think the car gives some control and freedom. They show high insensitivity to transport cost and feel some stress on their regular trips. The *Obstinate Drivers*, on the other hand, had the strongest negative feelings towards public transport and would only ride it if they did not have a choice. This group despite the highest psychological car dependency, as well as the highest need for control and freedom given from car usage. They love to drive and are very fond of their cars and do not express any desire to change their form of transportation. Cost is not a determinant factor in choosing the mode of transportation. Also, they do not show environment concerns and do not think that using public transport helps to improve the environment.

The *Status Seekers* had the highest desire for social status. The car is seen as a symbol of social status and this group is highly influenced by what other people think. They display strong car dependency, and feel that the car is essential for their lifestyle. This group expressed the highest desire to change the form of transportation to save some time, but they perceive far higher difficulties with using public transport than all the other groups. Also, they are more sensitive to travel stress than all other groups. People in this group, on average, do not like to

ride near people they do not know and in crowded vehicles. For the members of this group as well as for the *Obstinate Drivers*, riding public transport is not a viable alternative and would only use it if they did not have a choice.

At the other extreme the *Car-less Riders* do not like to drive and do not feel that the car gives them freedom and control, showing the lowest car dependency. Members in this group like to ride the bus. Transport cost is very important for them as well as for the *Calm Riders*. This last cluster had the lowest scores for desire to help the environment, and for desire to change the form of transportation. They also, do not appear to experience travel stress.

In the next sections a number of cross-tabulation calculations were performed to provide not only a demographic profile of each cluster (see Table 4) but also to delineate findings on their travel behavior and intention to use more public transport (see Table 5).

4.3.2. Socio-demographic profiles of the clusters

Each segment was contrasted with all other segments in terms of socio-demographic characteristics, to gain a greater understanding concerning the types of people in each segment. It is important to verify if any changes in attitudes and differences in travel behavior is simply due to demographic characteristics. Characteristics such as gender and age have been found to explain attitudes, preferences and beliefs (Golob and Hensher, 1998). However, other suggests that for groups of equivalent vehicle availability, personal characteristics are not an important determinant of attitudes (Anable, 2005). As can be seen in Table 3,

demographic data did not clearly delineate differences among all clusters, although some differences between some of the groups emerged.

The *Car-less Riders* and the *Calm Riders* share some characteristics. They are mainly comprised of older and retired female with low income and low education. However, the *Calm Riders* tend to be more educated. The *Obstinate Drivers* comprise the most highly educated, with higher income, higher occupational category and with more kids at home. It must be noted that, when analyzing sex differences that the sample is comprised of more female than male. Nevertheless, the *Obstinate Drivers*, *Status Seekers* and *Car Addicts* groups had a lower percent of female. Interestingly, the *Transit Enthusiasts*, which showed the strongest preference for public transport, showed similar characteristics to the sample average.

Insert Table 3

4.3.3. Travel behavior Profiles of the clusters

It is important to know if travel behavior and the intention to use alternative modes differ between clusters and what segments exhibit higher potential to change their mode of transport.

Table 4 presents a selection of indicators regarding travel behavior, satisfaction with the mode of transport used on regular trip and intention to use public transport. The satisfaction indicator was only asked for the mode transport used on regular trips, and then they were asked their feelings if they had to use an alternative mode of transportation.

Insert Table 4

Different travel behaviors and intention to use more public transport emerge among the clusters. Two groups, the *Car-less Riders* and *Calm Riders* use mainly public transport on their regular trips and at the other extreme are the *Obstinate Drivers* who use principally private transport. The other three segments show different levels of public and private transport usage. When the private transport users were asked how they would feel if they have to use public transport, two groups the *Obstinate Drivers* and *Car Addicts* show they would dislike it. The *Obstinate Drivers* have no intention of using public transport and show very high car dependence. But, when considering the *Car Addicts* entire segment, near sixty percent stated having the intention of using more public transport. It should be noticed that the other members of the four clusters, who use car, show positive feelings if they would have to use public transport. Analyzing the intention of using more public transport shows that the *Transit Enthusiasts* demonstrate very high intention to change, consistent with their positive attitude towards public transport. The *Status Seekers* and *Car-less Riders* also show high intention to change. This point out that the intention to switch to public transport is related to the feelings towards that mode and the level of psychological attachment to the car.

5. Conclusions and implications

The cluster analysis revealed several points of interest. The *Obstinate Drivers* display very strong negative attitudes towards public transport and as expected very low intention of stop using their car, to which they have a very strong psychological attachment. At the other extreme are the *Transit Enthusiasts*, they show positive feelings towards public transport, high environmental concern and display high behavioral intention to use public transport.

Two of the groups, *Car-less Riders* and *Calm Riders*, show relatively similar patterns of travel behavior. However, some of their attitudes are different, the *Car-less Riders* have less need for control, less car dependence, are more sensible to travel stress and fonder of traveling by bus.

The *Status Seekers*, although they think the car is a symbol of status, also have high environment concerns and show high intention to change to alternative modes. Their behavior might be explained by their belief that there are too many obstacles to traveling by public transport, together with high car dependence and sensitivity to travel stress. This shows that despite the positive attitudes towards public transport and environment concern, these two aspects alone are not enough to change behavior. The strong necessity for control exhibited by this segment and their beliefs that alternatives would be difficult to use act as a barrier to change. This is consistent with the differences in behavior and intentions between *Status Seekers* and *Transit Enthusiasts*, who share the positive attitude towards public transport and environmental concern but exhibit different needs for control. The *Car Addicts*, on the other hand, have negative feelings towards public transport, and the members of this segment who use private car would dislike having to use public transport. Although, this segment express some desire to

change the form of transportation, perceived the public transport as difficult to use.

It should be noticed that only two segments, the *Transit Enthusiasts* and *Status Seekers* expressed environmental concerns. Even the two groups, the *Car-less Riders* and *Calm Riders*, which use mainly public transport, do not seem to do it for environmental concern. But some evidence exists that the inclusion of environmental concern measures provides additional beliefs that can be target in order to change behavior (Anable, 2005).

The data provided in this research can help transport operators and authorities to better understand how the population falls into different segments and how these groups are different in important identifiable ways. The design of strategies to influence public transport usage should be targeted at the market segments that are most motivated to change and increase their frequency of use. The segment that holds the greatest potential for attracting new customers was the *Transit Enthusiasts*, which displayed the highest intention to use more public transport.

The development of suitable strategies customized for these target segments imply a detailed knowledge of the attitudes and how behaviors and intentions are influenced by them. It is essential to find out the primary reasons for not using public transport, and see if any solution to change behavior can be implemented. One reason could be the usual negative image associated with public transport, specially the one associated with bus (Fujii et al., 2001). Private car users usually display an erroneous perception of public transport system performance (Beirão and Cabral, 2005). It has been showed that the use of public transport positively influences attitudes towards public transport and perceptions about its ability to fulfill one's transport needs (Thøgersen, 2006). In this study the segments with

low public transport usage, the *Obstinate Drivers* and *Car Addicts*, would hate if having to use public transport. This may be due to lack of knowledge about public transport performance, but other very important factor, psychological attachment to the car, emerged, particularly in the *Obstinate Drivers* segment. It is well known that the car gives a sense of freedom, power, independence, speed and control (Jensen, 1999). This shows that this segment would not be worthy to target, since they have no intention of change. Instead other segments, which already use public transport, and have less attachment to the car, should be encouraged to use more public transport, such as the *Transit Enthusiasts* and *Status Seekers*.

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Table 1
Exploratory factor analysis and reliability

Factor/ Variable	Factor Loadings	Cronbach's alpha (α)
Need for control		0.88
The car gives me the freedom to go wherever I want.	-0.80	
With the car I am in control of my trip.	-0.87	
Usually, the car is the fastest way to get where I need to go.	-0.77	
Car dependence		0.86
It would be very difficult for me to adapt my life to not use the car everyday.	0.84	
I have ridden the bus for many years, but now that I have a car I don't ride anymore.	0.82	
Only the car is adapted to my lifestyle.	0.81	
I like to drive and love my car.	0.64	
Status seeking		0.80
Public transport is only for the less fortunate.	0.84	
The type of car people drives says a lot about lifestyle and social status.	0.74	
I don't like to ride near people I don't know.	0.68	
Riding public transport is a waist of time.	0.62	
The people I know would think odd if I didn't have a car.	0.59	
I would only ride public transport if I didn't have a choice.	0.53	
Desire to change the form of transportation		0.72
I would change my form of transportation if it would save me some time.	-0.75	
I have already thought of changing my form of transportation in my frequent trips.	-0.74	
There are many problems and difficulties with using public transport.	-0.71	
Usually, I am tired and upset by the time I reach my destination.	-0.70	
Pro public transport		0.77
I think it is pleasant to ride the bus.	0.81	
My overall opinion about public transport is positive.	0.80	
When I ride public transport I can relax or read and enjoy my time better than if I use a car.	0.75	
A lot of times a get tired of the car and prefer to ride public transport.	0.67	
Desire to help the environment		0.75
I would change my form of transportation to help the environment.	-0.80	
Using public transport helps to improve the environment.	-0.77	
I am willing to pay more when I travel if it helps the environment.	-0.72	
I use the car less to help the environment.	-0.71	
Insensitivity to transport cost		0.71
I use the most convenient form of transportation regardless of the cost.	0.86	
I always use the fastest form of transportation even if I have a cheaper alternative.	0.81	
Sensitivity to travel stress		0.68
If I see a public transport full, I wait for another.	0.74	
When the trip is short I prefer to walk during the day.	0.74	
I avoid making some trips at certain times because it is too tiring.	0.70	
Making a relaxing and stress-free trip is more important than reaching my destination quickly.	0.64	

Table 2

Mean factor scores on variables used to derive the clusters and significant differences

	1. Transit Enthusiasts (21%)	2. Status Seekers (16%)	3. Car Addicts (21%)	4. Car-less Riders (11%)	5. Calm Riders (18%)	6. Obstinate Drivers (13%)
Car dependence	0.23 ^{2,3,4,5,6}	0.49 ^{1,3,4,5}	0.20 ^{1,2,4,5,6}	-1.90 ^{1,2,3,5,6}	-0.15 ^{1,2,3,4,6}	0.71 ^{1,3,4,5}
Need for control	-0.29 ^{4,6}	0.75 ^{4,5}	0.14 ^{4,6}	-1.09 ^{1,2,3,5,6}	-0.68 ^{2,4,6}	0.98 ^{1,3,4,5}
Status seeking	-0.29 ²	0.92 ^{1,3,4,5,6}	0.05 ^{2,4,5}	-0.45 ^{2,3,6}	-0.44 ^{2,3,6}	0.15 ^{2,4,5}
Desire to change the form of transportation	0.02 ^{2,5,6}	0.56 ^{1,4,5,6}	0.33 ^{4,5,6}	-0.25 ^{2,3}	-0.45 ^{1,2,3}	-0.42 ^{1,2,3}
Pro public transport	0.65 ^{3,4,5,6}	0.40 ^{3,6}	-0.39 ^{1,2}	-0.12 ¹	-0.12 ¹	-0.52 ^{1,2}
Desire to help the environment	0.68 ^{3,4,5,6}	0.49 ^{3,4,5,6}	-0.16 ^{1,2,5}	-0.21 ^{1,2}	-0.58 ^{1,2,3}	-0.33 ^{1,2}
Insensitivity to cost	0.39 ^{3,4,5}	0.49 ^{3,4,5}	-0.34 ^{1,2,6}	-0.48 ^{1,2,6}	-0.47 ^{1,2,6}	0.54 ^{3,4,5}
Sensitivity to travel stress	0.35 ^{3,4,5,6}	0.59 ^{3,4,5,6}	-0.22 ^{1,2}	-0.08 ^{1,2}	-0.30 ^{1,2}	-0.37 ^{1,2}

Numbers in superscript indicate which means are significantly different from each other (ANOVA post hoc analysis (Scheffe test) searching for differences among all combination of clusters)

Table 3
Demographic profiles of each segment

	1. Transit Enthusiasts (%)	2. Status Seekers (%)	3. Car Addicts (%)	4. Car-less Riders (%)	5. Calm Riders (%)	6. Obstinate Drivers (%)	Total (%)
Gender (females)	71.6	61.2	64.0	80.3	76.2	57.7	68.2
Age (years)							
<24	10.0	6.4	19.1	7.5	13.3	13.9	12.2
25-34	11.4	9.6	13.1	3.4	9.7	18.9	11.3
35-44	14.9	13.7	19.1	11.6	11.7	25.0	16.0
45-54	21.8	18.7	16.6	15.0	14.9	20.6	18.1
55-64	22.8	31.1	15.5	19.7	16.1	13.5	19.8
>65	19.0	20.5	16.6	42.9	34.3	8.3	22.7
Occupational category							
Management	13.5	15.5	19.1	3.4	9.3	32.2	15.6
Professionals	5.2	2.3	3.5	2.0	3.2	7.2	4.0
Administrative staff	10.4	5.9	16.3	7.5	8.1	11.7	10.3
Technicians	13.1	14.6	15.2	13.6	7.7	13.9	13.0
Non-specialized worker	12.5	10.0	8.8	12.2	13.7	6.7	10.8
Housewife	8.0	12.8	2.1	8.8	7.3	5.0	7.1
Student	9.0	4.6	13.1	5.4	10.1	8.3	8.9
Retired	23.5	28.8	16.3	42.9	33.5	11.7	25.2
Unemployed	4.8	5.5	5.7	4.1	7.3	3.3	5.3
Monthly income (Euros)							
< 1000	78.9	77.6	73.5	96.6	84.7	55.0	77.4
100-1999	14.5	15.5	20.5	1.4	12.1	28.3	15.9
>2000	6.6	6.8	6.0	2.0	3.2	16.7	6.7
Education							
Less than high school	52.6	66.7	41.3	81.6	58.1	32.2	54.0
High School	20.4	12.3	27.6	10.9	22.6	22.2	20.2
Some college	11.8	7.8	11.7	3.4	5.6	10.0	8.9
College or more	15.2	13.2	19.4	4.1	13.7	35.6	17.0
Single adult household	11.8	9.6	6.4	27.2	13.7	6.1	11.6
With kids at home	27.0	32.9	32.5	18.4	26.6	46.1	30.6

Table 4

Selected indicators of travel behavior, intention and satisfaction with mode of transportation used on regular trip

	1. Transit Enthusiasts	2. Status Seekers	3. Car Addicts	4. Car-less Riders	5. Calm Riders	6. Obstinate Drivers	Total
Resources							
Drivers license (%)	70.6	74.0	72.4	18.4	51.2	92.2	65.2
Vehicle availability ^a	0.66	0.73	0.66	0.42	0.52	0.79	0.67
Mode of transportation used on regular trip (%)							
Public Transport	56.4	36.5	45.9	85.0	70.6	6.7	50.1
Private Transport	29.4	53.9	44.5	0.7	14.9	86.1	38.2
Public and Private Transport	9.3	3.2	3.9	1.4	4.4	4.4	4.8
Walk	3.8	4.1	5.7	12.2	9.7	2.8	6.1
Reasons for doing the trip (%)							
Work	45.3	39.7	56.5	25.9	38.7	66.1	46.2
School	8.7	5.9	12.7	5.4	12.9	10.6	9.7
Shopping/ Leisure	24.3	22.8	15.2	26.5	25.0	12.2	20.9
Number of regular trips during a week (%)							
<5	37.4	42.5	25.1	37.4	33.1	23.9	33.1
5-9	18.7	16.9	19.8	25.2	21.4	10.0	18.7
10-14	33.9	25.1	44.9	29.9	37.9	52.8	37.6
>15	10.0	15.5	10.2	7.5	7.7	13.3	10.7
Last time of public transport usage (%)							
Current week	71.6	48.9	57.2	81.6	79.0	27.8	61.6
Last month	13.8	19.6	14.5	10.2	11.3	16.7	14.4
More than 2 months ago	14.5	31.5	28.3	8.2	9.7	55.6	23.9
% satisfied with public transport usage ^b	83.7	71.3	59.6	77.2	75.8	65.0	74.2
% satisfied with private transport usage ^c	78.6	83.2	80.3	66.7	93.8	92.0	84.9
% positive feelings if would have to use private transport ^b	58.4	62.1	64.5	50.4	48.9	75.0	56.7
% positive feelings if would have to use public transport ^c	65.6	54.6	33.6	55.0	65.3	28.0	46.4
% intend to use more public transport	83.0	70.3	59.4	68.0	64.1	28.3	63.8

^a The vehicle availability indicator measures the degree of car availability per car driver. It is calculated by dividing the number of vehicles per household by the number of adults with a drivers licence in the household.

^b Respondents that use public transport on regular trip only.

^c Respondents that use private transport on regular trip only.