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If we are tourists, why don't we behave as "tourists"? Segmentation in urban tourism demand

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**39th. Congress of the European Regional Science Association
Dublin, 23-27 August, 1999**

**IF WE ARE TOURISTS, WHY DON'T WE BEHAVE AS
"TOURISTS"?**
Segmentation in urban tourism demand.

COMPETITIVE AND SUSTAINABLE GROWTH

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Abstract: Contributions concerning tourism demand have often pointed out the importance of market segmentation. Nevertheless, at the moment there is not a theoretical development explaining this phenomenon, and most applied studies do not take into consideration demand segmentation. Motivational segmentation becomes specially important in urban tourism. Thus, and according to WTO (World Tourism Organisation) tourism definition, two very different shares of tourism demand in cities can be distinguished: leisure tourism and business tourism. This paper is concerned with the analysis of urban tourism demand on the basis of market segmentation. This analysis, which is included in a wider study carried out by the Research Unit "Anàlisi Quantitativa Regional", provides some brief theoretical considerations involving these issues, and econometric modelling of tourist expenditure applied to the case of Barcelona. The main goal is to show the existence of the two segments previously presented, their specific features and behaviour and the implications for tourist planning as improving the knowledge of tourist activity will contribute to urban regeneration, guaranteeing competitive and sustainable growth in urban system and generating all the spill-over effects upon surrounding regions.

Keywords: *Urban tourism, demand segmentation, tourist expenditure, econometric modelling, Barcelona.*

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IF WE ARE TOURISTS, WHY DON'T WE BEHAVE AS "TOURISTS"?

Segmentation in urban tourism demand.

1. Introduction

Tourism growth has been accompanied with tourism changes. The new parameters leading the individual making-decision process, such as leisure, culture, authenticity or environment have driven the diversification on tourism products as an answer to new demand requests. It is in this context that urban tourism has experienced an important boom.

Urban tourism, therefore, has become an important option to take into consideration in order to attract the new tourist clientele, but it is also important for the cities, in the post-industrial world. Urban role has changed: cities have a damaged image, with old and abandoned factories, pollution, noise, etc. Also unemployment and poverty have settled in some urban areas. Meanwhile, the cost of living in cities is everyday higher and higher, and people search for a new welfare situation. First movements back to the country side and to little villages have started. Cities face the future while they are losing population and are searching for economic renovation. Tourism appears as an important solution to this situation by capturing an expansive economic activity, and also justifying investments and the restoration of the cities: urban regeneration, as Law (1996) says. Thus urban tourism may play a very important role in today and future's cities, by contributing to their development, and also helping the vertebration of economic activity along the territory.

Nevertheless, urban tourism analysis has traditionally been neglected. After Ashworth (1990), tourism becomes just one of the multiple functions of the cities, so tourism studies do not consider urban space as a tourist resort; in the same way, urban analysis also forgets the consideration of tourism. So there is a double neglect. Nevertheless, tourism is nowadays a function of the cities, as cities are a tourism resource. Moreover, Page (1995) talks about a vicious circle involving urban tourism analysis. Whereas urban tourism analysis is neglected, urban policy makers do not get aware of its advantages, so

they do not promote data collection. Therefore, it becomes more and more difficult to analyse this activity. Researchers must break down this circle by highlighting the importance of tourism in cities. This is one of the main goals comprised in the present study.

On the other hand, most contributions to urban tourism, and also to tourism in general, discuss the importance of market segmentation. However, economic and econometric studies are the ones which have paid less attention to this phenomenon. Economic theory about tourist activity has been hardly developed. This fact taken jointly with the lack of suitable data has hindered applied studies in this sense. In spite of this, some economic analysis underline the importance of market segmentation¹.

Segmentation can be carried out according to different criteria. Most studies including segmentation refer to the geographical one. But in urban tourism motivational segmentation is the most relevant one, since multifunctional cities imply the coexistence of several types of users, including different types of tourists, with different necessities and behavioural patterns, most of them depending on the motivation of the visit².

It is important to remind the WTO definition of tourism, which includes people travelling for leisure, business or any other motivation. In this sense, after O'Hagan (1984), tourism demand can have a dual nature: as a private consumption, or as a part of production. Therefore, we can distinguish two important segments in urban tourism: business (including also fairs and congresses) and leisure tourists. These two segments, with different making-decision processes will result in different tourism behaviours. Thus, this paper is mainly concerned with the analysis of tourism expenditure once in the city, to provide empirical evidence in order to accept the existence of two different behaviours, not only in average terms, but also involving different elasticities, which would imply the need to estimate different demand curves³.

¹ See Bull (1994) and Morley (1995).

² See Ashworth (1990).

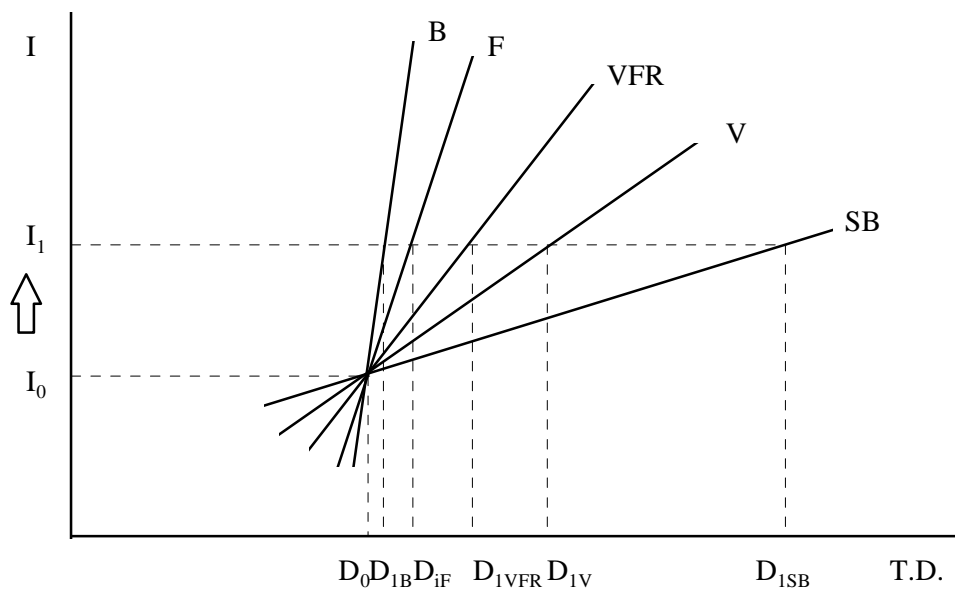
³ The title of this paper refers to this situation. Therefore, and according to WTO definition we, the congress' attendants, are tourists; however, when analysing our making-decision process it is very different from that one concerning leisure visitors. So the title is joking with the two meanings of the word "Tourist": according to the WTO wide definition, and according to the most common use of the word, which identifies tourism with leisure and vacation.

The study refers to the case of Barcelona during 1996 and micro data used have been provided by *Turisme de Barcelona*. They obtained them from a hotel customers survey. This paper is just an applied and brief version of a wider analysis concerned with the research upon urban tourism carried out by the Research Unit “Anàlisi Quantitativa Regional”, from University of Barcelona.

2. Some previous economic issues: the Making-Decision Process (MDP) and tourism utility functions

In spite of the lack of a deep theoretical development and applied studies, economic analysis has pointed out that different segments present different demand curves.

Figure 1. Demand elasticities and motivational segmentation



B=Business; F=Fairs and congresses; VFR=Visiting friends and relatives; V=Vacation; SB=Short breaks.

Source: Bull (1994)

Figure 1 represents the relationship between tourism demand and incomes, one of the main economic variables included in all consumption modelling. As it can be seen from the figure, the elasticity is supposed to be different depending on market motivational segmentation. Thus, business travellers are expected to receive less influence from

incomes movements than people on vacation, and the secondary vacation (such as short breaks, Easter, week ends, etc.) are expected to be the most fluctuating ones.

There is no theoretical development, not even empirical evidence in this sense. However, the analysis of MDP and utility functions may help to a better understanding of all these facts.

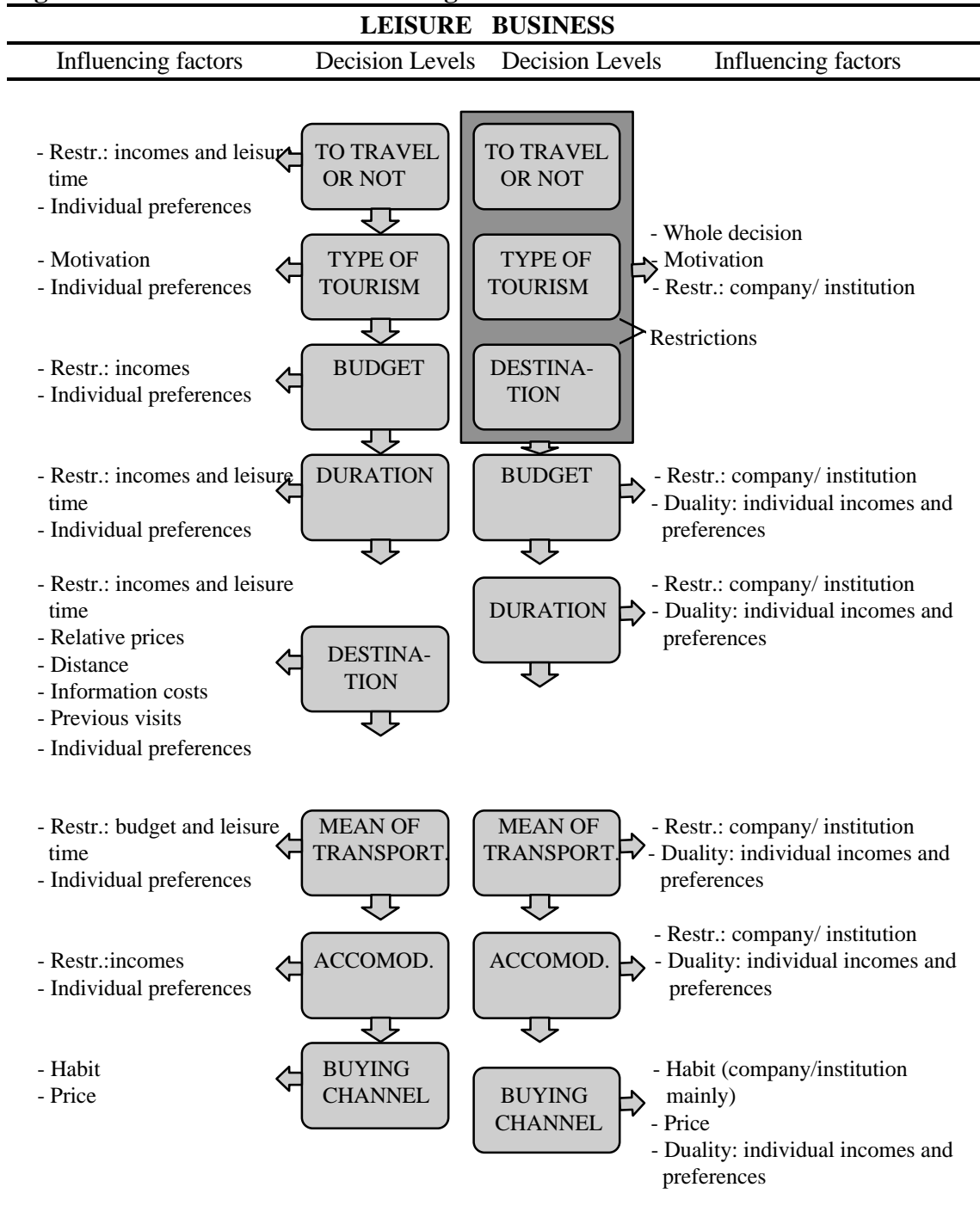
There is no complete consensus about the structure of the MDP, but everybody agrees that the special features of tourist product makes it different from all conventional ones, and much more similar to durable goods, involving a more complicated process. Figure 2 presents a typical tourist MDP, but stating the differences existing between two urban segments: business and leisure travellers.

In the central part of this figure the two different process structure are presented. The main difference is that the first three decisions become unique for business travellers, since the type of tourism and destination are process' restrictions. But there are much more differences when analysing the factors influencing the different levels of decision.

Basically, leisure tourists are faced with two individual restrictions: time and budget. Decisions will depend on the individual characteristics and his utility curves map, and preferences. However, on the other hand, business travellers are involved in a different context. When deciding whether to travel, or not, etc., there is no time or budget restriction for the individual: it is work time, and it is usually a decision of the company or institution sending him. The decisions are not made by the individual but by the institution or firm. Restriction will involve, therefore, the company. But in advanced decision levels (expenditure, etc.) it appears a dual behaviour. On one hand, the company is paying for everything, although on the other hand the tourist can start introducing his own criteria, choosing between destinations, and spending a part of his own budget, or taking an accompanying person with him, staying for more or less days, etc.⁴. So two utility functions are involved: individual's and company's.

⁴ If an agent decides for example to spend some of his money, he is detracting this from money available to go to another destination, so he is making an individual choice. Of course, he is taking advantage of the scale economy of being there with the transportation, catering and accommodation paid, so it will obviously change

Figure 2. MDP and urban tourism segmentation



Own elaboration from Pedreño (1996).

Therefore, two different utility functions can be distinguished when analysing tourism expenditure.

his utility curves map, generating feed-back effects between leisure and business expenditure.

Related to leisure travellers, and following the common theoretical modelling, the budget allocated to tourism (LT) would depend on:

$$LT_i^* = LT(p_h, p_t, T_A, \mu_i, w; \theta_i)$$

where

p_h = consumption prices (all products but tourism considered jointly: Hicks aggregation)

p_t = tourism prices

T_A = available time

μ_i = incomes but wages

w = wage level

θ_i = vector of individual socio-economic characteristics, considered as exogenous

On the other hand, for business travellers and following a first development by Sakai (1988), but introducing a dual behaviour, the utility function is expected to have more arguments, such as showed below:

$$BT_i^* = BT(p_h, p_t, \gamma, \lambda, T_A, \mu_i, p_Y, \theta_i)$$

where the new arguments are:

γ = productivity of the traveller when staying in the company site

λ = productivity of the traveller when travelling for the company

p_Y = input prices (considered all jointly but travels, and regarded as exogenous).

So there is a mixed function explaining behaviour. Individual will take into consideration p_h, p_t, T_A, μ_i , depending on his θ_i , and the company will allocate its budget depending on $p_h, p_t, \gamma, \lambda$, considering p_Y (wages are included in this aggregated).

Of course this is only a first approximation to the problem, but it is encouraging enough to get empirical evidence about this issue pointed out by tourist analysts, but never tested before.

3. Tourism in Barcelona

Since all the econometric modelling refers to the specific case of Barcelona, it is necessary to describe briefly the tourist activity in the city. First of all it is important to underline the rapid and enormous growth of tourism in this city, specially after the Olympic Games (OO.GG.) of 1992.

Barcelona has always had an important business tourism activity due to its geographical, economic and political situation. As a matter of fact, Barcelona had been a service city for centuries, a city whose main economic activity used to be commerce. However, in the last century the context changed the city, and it became an industrial capital. The factories installation and the important rural population movements to the town transformed the urban landscape and residents perceived the city as a working, grey, noisy and polluted place.

In the post industrial era, Barcelona's authorities were conscious of the need for regenerating the city, its landscape, its economic activity, to create new jobs, etc. In this sense, the city had to become attractive for he residents, by providing them a wide leisure and recreational supply.

In all this context tourism appeared as one of the most important tools to facilitate regeneration: attracting visitors (both, leisure and business, in a feed-back chain of users and uses of the city⁵) would provide the city with a new economic activity, one of the increasing ones, creating wealth in city and the surrounding area and helping to fight against unemployment. It would also help the residents to rediscover the city and the citizens' proud, and would provide incomes and the mean to justify all the investment the city needed. In this sense, the OO.GG. were not only the way to promote the city but also the mean to regenerate it.

All strategies on tourism have been managed by *Turisme de Barcelona*, an institution born under the co-operation between both private and public sectors. The criteria for

⁵ See Ashworth (1990).

designing policies are diversification under quality and identity priorities, trying to promote Barcelona as a shopping and culture centre, but taking into consideration segmentation. Thus, *Turisme de Barcelona* is working upon different segments, with different acting programmes and different specific products.

Another field where *Turisme de Barcelona* is working hard is about improving the knowledge of the tourist activity in the city, and also in urban space in general, in collaboration with several organisations. The goals of this institution include the collection of data about tourism in the city, and one of those data base is the one used in this study.

The following tables illustrate the changes in tourism demand and supply in the city of Barcelona.

Table 1. Tourism in Barcelona: evolution 1990-1998

	1990	1992	1994	1996	1998
Hotel Hotels	118	148	158	162	166
capacity Rooms	10.265	13.352	14.830	15.090	15.157
Beds	18.569	25.055	27.542	28.040	28.607
Tourists	1.732.902	1.874.734	2.663.887	3.061.994	2.969.490
Overnights	3.795.522	4.333.419	4.704.621	6.341.381	7.400.337
Occupation (%)	71.0	64.0	54.5	70.9	81.2

Source: Turisme de Barcelona

Table 2. Tourism in Barcelona: motivational composition (%)

	1990	1992	1994	1996	1998
Vacation	22.7	30.8	31.3	36.4	51.8
Business	53.8	53.7	47.4	43.2	35.0
Congress	4.5	5.3	5.4	6.3	8.6
Fairs	10.8	3.0	5.1	5.4	3.7
Family	4.5	4.7	3.9	2.2	0.5
Other	3.7	2.5	6.9	6.5	0.4

Source: Turisme de Barcelona

Table 1 shows the growth of tourist activity, both demand and supply sides, in the city of Barcelona, from 1990 until 1998. Supply experienced an earlier increase, to be prepared for the OO.GG., whereas demand boom took off after 1992. During all this period demand increased by 71%. However, it is important to analyse the motivational composition of this clientele. Table 2 shows the important change in the composition.

Before the OO.GG. tourism in Barcelona was basically business (including fairs and congresses) tourism. People coming for leisure represented only 22%. Nevertheless, with the OO.GG., the city with a new and regenerated landscape and infrastructures was incorporated to the tourist circuits. So vacation travellers increased enormously, almost by 300%. Business travellers also grew, but just by 17%. In 1998 leisure travellers exceeded business travellers, but both segments represented more or less the half of the whole tourism demand in the city. However, it is important to highlight that in spite of the weight loss in global demand, business travellers have continued growing in absolute figures, as *Turisme de Barcelona* is aware of the importance to attract new clientele, but also maintaining the previous one.

4. Econometric analysis of tourist expenditure in Barcelona

According to previous comments, the behavioural patterns ruling tourism demand would depend on the type of tourism analysed, so segmentation must be included in demand studies. In urban context, motivational segmentation becomes particularly relevant. So the econometric modelling which is going to be presented tries to explain one of the most important expressions of tourism demand, tourist expenditure, taking into consideration motivational segmentation.

4.1. Specification

The endogenous variable of the modelling is individual expenditure per night of Barcelona tourists, corresponding to 1996 survey. This variable includes hotel plus extra-hotel expenditure⁶.

Explanatory variables include economic (purchasing power parity -PPP- as a price proxy) and non economic ones, comprising those variables related to individual characteristics (gender, profession, nationality, age), trip characteristics (revisitation,

⁶ Data base only provides information about extra-hotel expenditure. Therefore, hotel expenditure has been approximated according to the average price of each hotel category, which implies an important restriction: hotel prices are supposed to be constant over the year.

type of contract, mean of transportation, whether the agent comes alone or accompanied, hotel category, duration, satisfaction, main activities, season) and motivation.

The most important data base restriction is that it doesn't inform about individual incomes. After some attempts to approximate it, the conclusion is that the best proxy are some individual characteristics, such as profession or nationality.

Obviously, qualitative variables are entered through dummies, with value 1 in presence of the characteristic analysed and 0 in its absence.

About the model specification, it may vary depending on the influence of motivation upon expenditure behaviour. Specification could be:

(1) Motivation is not an explanatory variable of the model,

$$\text{Ln}E = X\beta + Z\alpha + U$$

where E is expenditure and X and Z are quantitative and qualitative variables matrix.

(2) Motivation (M, equal to 0 for leisure travellers and equal to 1 for business travellers) cause changes in the intercept (additive effect),

$$\text{Ln}E = X\beta + Z\alpha + M\delta + U$$

(3) Motivation causes changes in the slope of the curve, so demand elasticities will differ from one segment to another (multiplicative effect),

$$\text{Ln}E_i = X_i\beta_i + Z_i\alpha_i + U_i \quad \text{for } i = 0, 1$$

Therefore, equations corresponding to each segment should be estimated separately. Alternatively the variable can be introduced in a single equation model, influencing the elasticities of the other variables:

$$\text{LnE} = X\beta + Z\alpha + M\delta + MX\beta' + MZ\alpha' + U$$

Which is the best specification to analyse tourist expenditure in cities? According to theoretical conclusions, empirical analysis will provide the answer.

4.2. Estimation with additive effect of motivational segmentation

Table 3 shows a test for equality of means in both segments expenditure. The null hypothesis is refused, so average expenditure will vary depending on the type of tourists. Analysing the results of the sample, in average terms, business travellers spend much more (22.873 PTA. per night) than leisure travellers (16.627).

Table 3. Test for equality of means in tourist expenditure

Variable	Number of Cases	Mean	SD	SE of Mean	
Leisure	921	16627.85	8816.057	290.499	
Business	797	22873.12	14050.194	497.683	

Mean Difference = -6245.2741					
Levene's Test for Equality of Variances: F= 95.808 P= .000					
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff

Equal	-11.18	1716	.000	558.434	(-7340.56, -5149.99)
Unequal	-10.84	1300	.000	576.262	(-7375.78, -5114.77)

Therefore, specification (1) should be rejected, whereas (2) will be tested. Table 4 presents the results of the Maximum Loglikelihood estimation. The table includes the explanatory variables and their categories, when polycotomic⁷; the parameter estimation; the t-value and its the significance; and the variation in endogenous variable when the explanatory variable increases by one unit (for qualitative variables, when dummy becomes equal to 1).

⁷ Categories excluded become the reference category of the model, to avoid perfect multicollinearity. Actually, the reference category excluded in the original specification was only the one with higher probability. Nevertheless, after previous estimations, those categories non significant have also been excluded, as their expenditure behaviour is shown to be not statistically different from the one corresponding to the reference category. Only those categories with a t-value over 1 have been maintained in the model, because in spite of being non significant, they imply a gain in mean square error terms.

Table 4. Expenditure estimation with motivation additive effect

Variable	Category	β	t	Sign. t	exp (β)-1
Profession	High Directive	0.172	6.922	0.000	0,188
	Intermediate Exec.	0.050	2.203	0.028	0,051
	Student	-0.069	-1.613	0.107	-0,067
	Employee	-0.045	-1.754	0.080	-0,044
	Retired	-0.082	-2.399	0.017	-0,079
Nationality	Europe(*)	-0.061	-3.663	0.000	-0,059
	USA	0.199	7.128	0.000	0,220
	Latin America	0.052	1.342	0.180	0,053
Age	18 - 24	-0.088	-2.196	0.028	-0,084
	25 - 34	-0.055	-3.329	0.001	-0,054
	50 - 64	0.086	3.755	0.000	0,090
Revisitation	First visit	-0.051	-2.883	0.004	-0,050
Contract	Accom.+Activ.	0.355	2.355	0.019	0,426
Mean of transportation	Car	-0.110	-6.185	0.000	-0,104
	Train	-0.127	-4.238	0.000	-0,119
	Bus	-0.183	-5.551	0.000	-0,167
Accompanied	Alone	0.032	1.727	0.084	0,033
Motivation	Business	0.067	3.305	0.001	0,069
Hotel category	1 *	-0.517	-17.001	0.000	-0,404
	2 *	-0.446	-17.787	0.000	-0,360
	3 *	-0.287	-18.036	0.000	-0,249
	5 *	0.357	13.923	0.000	0,429
Duration	N° nights	-0.076	-17.231	0.000	-0,073
Relative prices	PPP	0.092	2.387	0.017	0,096
Satisfaction	Global satisfaction	0.005	1.476	0.140	0,005
Activities	Shopping	0.070	3.974	0.000	0,073
	Tapas (snaking)	0.067	3.569	0.000	0,069
	Popular festivals	0.131	2.430	0.015	0,140
Intercept		9.942	175.748	0.000	20784,273

(*) Including Italy, Germany, Netherlands and Belgium.

Table 5. Model validation

Goodness of fit		$R^2 = 0.678$	Adjusted $R^2 = 0.672$	
H_0	Test	Statistic	Significance	Result
$\beta_i=0, \alpha_i=0 \forall i$	F	114.976	0.000	R H_0
Normality	K-S	0.022	0.068	A H_0
No Autocorr.	D-W	2.06	-	A H_0
	LM	0.872	0.665	A H_0
Homosc.	G-Q	1.20	0.012	A H_0^8

⁸ Homoscedasticity hypothesis can be accepted with a 1% significance level. Actually, when working with big samples, such as the current one, F values tend to 1. Therefore, even with almost perfectly constant residuals, it is difficult to accept homoscedasticity. The values of the current statistic is low enough, to accept the null hypothesis, and even more: graphical analysis and some other tests, such as Arch's, provide evidence of

The most relevant results are the following: motivation is significant, with business travellers spending 7% more than leisure ones. PPP has a positive parameter, meaning that when it increases by one unit, tourists spend much more money (9,6%). About profession, high skilled workers such as high executives present positive effects, whereas employees, students and retired spend less money when visiting the city. Nationality analysis reveals that the Americans are the ones spending more money in Barcelona, particularly visitors from the USA (22% over the reference category, Spanish and some other nationalities non significant). Obviously, this variable jointly with profession is approximating individual incomes. But it also involves some other meanings, such as the perception of the destination in the country of origin and a distance effect⁹. Revisitation analysis shows that people coming for the first time spend 5% less money than people revisiting the city. About the means of transportation, all categories involve less expenditure than the reference category (people travelling by plane). Duration also has a negative parameter, so when increasing the number of nights staying in the city, expenditure per night decreases.

Since it is not the main purpose of this paper to analyse the influence of explanatory variables upon tourist expenditure, but showing the need to include motivational segmentation and its influence upon demand elasticity, we are not going through interpretation of the model in very much detail. However, it is easy to analyse results by observing the last column in the table.

To go on with the specification chosen (2), a stability test has been carried out. It is included in table 6. Coherently with previous results, the null hypothesis of stability along the whole sample is refused, so motivation has to be included in the model, at least, through an additive dummy, as it has been presented.

However, is this enough? Is this specification the most suitable one? According to theoretical introduction, specification (3) should improve the results.

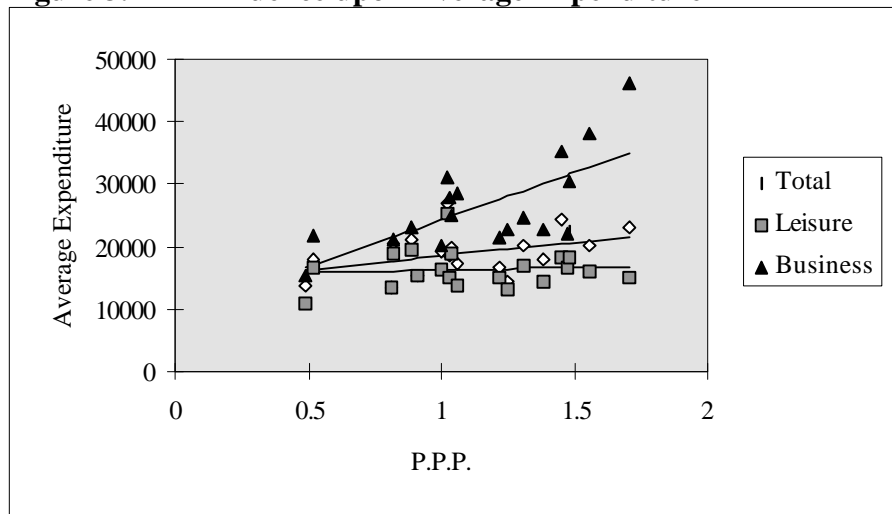
residuals homoscedasticity.

⁹ Probably, distance turns Barcelona into a luxury destination for people from the USA, meanwhile for Europeans it is a normal good.

4.3. Estimation with multiplicative and additive effects of motivational segmentation

When analysing the relationship between tourist expenditure and some explanatory variables, results show that the influence will depend on the demand segment analysed. One of the most evident results can be seen in figure 3. The figure shows the relationship between average expenditure and PPP, for the whole sample, and for both segments, leisure and business, separately. As it can be observed in the figure, slope of the simple linear regression vary enormously when taking segmentation into consideration.

Figure 3. PPP influence upon Average Expenditure



Therefore, a test of equality of slopes in tourism expenditure (analysis of covariance) is carried out. Table 6 shows the result of this test. The null hypothesis, involving equality in slopes is refused, so model must be specified according to form (3).

Table 6. Stability and equality of slopes tests

Model	S.S.E.	N	k
(1) SSE_1	100.19	1552	34
(2) SSE_2	99.32	1552	35
(3) $SSE_L + SSE_B$	94.21	1552	34
	Statistic	Sign.	
Stability test	2.61	0.000	RH_0
Equality of slopes test	2.46	0.000	RH_0

S.S.E.= Sum of Square Errors

Table 7 shows the results of the new model estimation considering both additive and multiplicative effects of motivation, providing, thus, two different expenditure curves.

Table is divided into two parts: the first one includes additive effect of variables and the second one includes multiplicative effect

Table 7. Expenditure estimation with motivation additive and multiplicative effects

ADDITIVE EFFECT					
Variable	Category	β	t	Sign. t	exp (β)-1
Profession	High Executive	0.152	6.219	0.000	0.164
	Student	-0.079	-1.939	0.053	-0.076
Nationality	France	-0.077	-2.241	0.025	-0.074
	United Kingdom	0.069	2.288	0.022	0.071
	Europe (*)	-0.082	-3.584	0.000	-0.079
	USA	0.270	8.120	0.000	0.310
	Latin America	0.109	2.654	0.008	0.115
Age	18 – 24	-0.065	-1.738	0.083	-0.063
Revisitation	First visit	-0.050	-2.674	0.008	-0.049
Contract	Accom.+Activ.	0.337	2.325	0.020	0.401
Mean of transportation	Car	-0.048	-1.915	0.056	-0.047
	Train	-0.102	-3.275	0.001	-0.097
	Bus	-0.144	-3.849	0.000	-0.134
Motivation	Business	0.457	4.881	0.000	0.579
Hotel category	1 *	-0.518	-16.533	0.000	-0.404
	2 *	-0.451	-18.554	0.000	-0.363
	3 *	-0.267	-13.528	0.000	-0.234
	5 *	0.376	15.078	0.000	0.456
Duration	Nº nights	-0.056	-9.641	0.000	-0.054
Relative prices	PPP	0.120	2.489	0.013	0.127
Activities	Shopping	0.064	3.412	0.001	0.066
	Tapas (snaking)	0.058	2.961	0.003	0.060
	Popular festivals	0.130	2.337	0.020	0.139
Season	Summer	-0.021	-1.083	0.279	-0.021
Intercept		9.850	157.119	0.000	18957.355
MULTIPLICATIVE EFFECT					
Variable	Category	β	t	Sign. t	exp (β)-1
Gender	Woman	-0.073	-2.527	0.012	-0.070
Profession	Intermediate Exec.	0.101	3.746	0.000	0.106
	Student	-0.149	-1.504	0.133	-0.138
Nationality	France	0.163	3.009	0.003	0.177
	United Kingdom	0.101	1.663	0.097	0.106
	Scandinavia	0.297	3.173	0.002	0.346
	Japan	0.333	3.104	0.002	0.395
	Europe (*)	0.059	1.254	0.210	0.061
	USA	-0.179	-3.094	0.002	-0.164
Age	25 – 34	-0.069	-2.901	0.004	-0.067
	50 - 64	0.142	4.988	0.000	0.153
Revisitation	First visit	-0.130	-2.992	0.003	-0.122
Mean of transportation	Car	-0.073	-2.122	0.034	-0.070
	Train	-0.319	-3.977	0.000	-0.273

Variable	Category	β	t	Sign. t	exp (β)-1
Hotel category	Bus	-0.095	-1.362	0.174	-0.091
	1 *	-0.266	-3.101	0.002	-0.234
	3 *	-0.044	-1.527	0.127	-0.043
Duration	N° nights	-0.037	-4.261	0.000	-0.036
Relative prices	PPP	-0.222	-2.593	0.010	-0.199
Activities	Shopping	0.092	2.037	0.042	0.096
	Tapas (snaking)	-0.176	-3.190	0.002	-0.161
	Popular festivals	0.440	2.773	0.006	0.553
Season	Summer	0.047	1.479	0.139	0.048

(*) Including Italy, Germany, Netherlands and Belgium.

Table 8. Parameters estimation for leisure and business tourists

Variable	Category	Leisure		Business	
		β	Exp (β)-1	β	exp (β)-1
Gender	Woman			-0.073	-0.070
Profession	High Executive	0.152	0.164	0.152	0.164
	Intermediate Exec.			0.101	0.106
Nationality	Student	-0.079	-0.076	-0.228	-0.204
	France	-0.077	-0.074	0.086	0.090
	United Kingdom	0.069	0.071	0.170	0.185
	Scandinavia			0.297	0.346
	Japan			0.333	0.395
	Europe (*)	-0.082	-0.079	-0.023	-0.023
	USA	0.270	0.310	0.091	0.095
	Latin America	0.109	0.115	0.109	0.115
Age	18 - 24	-0.065	-0.063	-0.065	-0.063
	25 - 34			-0.069	-0.067
	50 - 64			0.142	0.153
Revisitation	First visit	-0.050	-0.049	-0.180	-0.165
Contract	Accom.+Activ.	0.337	0.401	0.337	0.401
Mean of transportation	Car	-0.048	-0.047	-0.121	-0.114
	Train	-0.102	-0.097	-0.421	-0.344
	Bus	-0.144	-0.134	-0.239	-0.213
Motivation	Business			0.457	0.579
Hotel category	1 *	-0.518	-0.404	-0.784	-0.543
	2*	-0.451	-0.363	-0.451	-0.363
	3 *	-0.267	-0.234	-0.311	-0.267
	5*	0.376	0.456	0.376	0.456
Duration	N° nights	-0.056	-0.054	-0.093	-0.089
Relative prices	PPP	0.120	0.127	-0.102	-0.097
Activities	Shopping	0.064	0.066	0.156	0.169
	Tapas (snaking)	0.058	0.060	-0.118	-0.111
	Popular festivals	0.130	0.139	0.570	0.768
Season	Summer	-0.021	-0.021	0.026	0.026
Intercept		9.850	18957.355	9.850	18957.355

(*) Including Italy, Germany, Netherlands and Belgium.

Table 9. Model validation

Goodness of fit		$R^2 = 0.708$	Adjusted $R^2 = 0.699$	
H_0	Test	Statistic	Significance	Result
$\beta_i=0, \alpha_i=0 \forall i$	F	77.55	0.000	R H_0
Normality	K-S	0.210	0.106	A H_0
No Autocorr.	D-W	2.05	-	A H_0
	LM	1.51	0.212	A H_0
Homosc.	G-Q	1.02	0.406	A H_0

Results prove that motivational segmentation is very important when explaining urban tourism expenditure. Moreover: motivation is not only influencing average expenditure of both groups, but it is also causing different elasticities for the rest of the variables. This model has higher R-square (goodness of fit), and it is validated.

When separating both segments, some variables excluded from previous modelling because they were not significant, now they are to be included. So not only estimation results are different, but also specification. For example, gender. Women spend the same than men for leisure tourism, but spend less when they come for business.

About nationality, French appeared as non significant variable in the first modelling. Nevertheless, when estimating the current model, we find out that French are significant, but with different sign for each segment. So the previous specification distorted this effect. However, now French are shown to spend less money (7%) than Spanish - reference category- when visiting Barcelona for leisure, but they spend more (9%) when coming for business. On the other hand, USA tourists spend much more when visiting the city for leisure (31%) but spend less when coming for business (still more than Spanish: 9%), as they have to incur in a very high transportation cost. Japanese, non significant in previous model, now are shown to spend 39% more than Spanish visitors when coming for business. So this modelling clarifies much more than the previous one the behaviour of Barcelona tourists.

About revisitation, people coming for first time spend less money when coming for

business, and when analysing duration, business tourists spend less money per day too when increasing the length of stay. Results also corroborate that people coming for business spend 58% more than leisure visitors, but this value has to be interpreted carefully, because of multicollinearity. In the same way, PPP Results are not coherent with figure 3. That is again because multicollinearity, involving motivation and PPP¹⁰. The parameter cannot be interpreted, and a new modelling has been tested excluding motivation, only in order to be able to appreciate the sign and value of PPP parameters. The new estimation shows that PPP parameters behave as it was expected: for leisure travellers the parameter is non significant, meanwhile for business tourists it presents a positive sign (beta equal to 0.16).

Once more, we are not going to interpret results in detail, since the last column provides a very easy way to do this. However, the most important thing is that the modelling proves the need of taking motivational segmentation in consideration when analysing urban tourism behaviour.

5. Conclusions

Urban tourism is every day more and more important, not only for tourism expansion, but for cities and for all the surrounding areas. Nevertheless, its analysis has often been neglected. This paper has tried to show the need of urban tourism research. In this sense, the paper has deepened into a very relevant issue for tourism demand in cities: motivational segmentation.

Leisure and business travellers, the most important shares of urban tourists, involve a very different MDP, so their utility functions and behaviour become different too. Previous contributions had highlighted this fact; however at the moment there is little theoretical development and no empirical evidence about this.

This paper has shown some theoretical issues involving urban demand behaviour, and has

¹⁰ Of course when including motivation multiplied by all the variables, multicollinearity increases, but the main effect is involving PPP and duration, because they are quantitative variables (the Variance Inflation Factor (VIF) of PPP is near 50).

provided empirical evidence of the need of including motivational segmentation when analysing tourist behaviour in cities. Thus, tourist expenditure in Barcelona has been estimated, involving different curves, with different elasticities depending on the segment considered. This estimation has been shown to be better than the usual one, without segmentation. However, this kind of analysis is not possible if data are not available, so the first step to improve tourism knowledge is the collection of more and every day better data bases.

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