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Internet Usage for Travel and Tourism. The Case of Spain

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ABSTRACT

The importance of Internet for the travel and tourism industry has increased rapidly over the last few years. Understanding how travellers behave is of critical importance to travel suppliers and tourism authorities for formulating appropriate marketing strategies so as to fully exploit the potential of this channel. This study explores the factors influencing Internet usage for travel information and shopping by using representative annual panel data from 2003 to 2007 on the 17 Spanish Autonomous Communities. Our results indicate that the use of Internet for information reasons depends basically on the ICT penetration level in the regions and the demographic characteristics of the population. However, when considering the use of the Internet as a product-purchasing tool, variables related to characteristics of travel are also relevant.

Keywords: Internet usage; consumer behaviour; eCommerce; eTourism; panel data

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1. Introduction

Tourism as an information intensive industry can gain important synergies from the use of the Internet. The tourism sector has been a pioneer in adopting and developing ICT applications and today is rated among the top product or service categories purchased via the Internet in Spain and other countries (Garín-Muñoz and Pérez-Amaral, 2009; Marcussen, 2009).

Travel products and services appear to be well suited to online selling because they possess the characteristics that can function in the electronic environment. According to Peterson, Balasubramanian and Bronnenberg, 1997, products and services that have a low cost, are frequently purchased, have an intangible value proposition and/or are relatively high on differentiation are more amenable to be purchased over the Internet. Specifically, travel products are high involvement products that are less tangible and more differentiated than many other consumer goods, which make them suitable for sale through the Internet (Bonn et al., 1998; Lewis et al., 1998).

The possibilities introduced by the Internet have changed the agents' behaviour. Consumers, on one hand, are able to interact directly with tourism providers, which allows them to identify and satisfy their constantly changing needs for tourism products (Mills and Law, 2004; Gursoy and McCleary, 2004). Also, on the demand side, it is possible to reduce the uncertainty related to the products via forums, or to exert an instantaneous control over the quality of products supplied.

Tourism suppliers, on the other hand, are able to deal more effectively with the increasing complexity and diversity of consumer requirements. Tourism providers have been using the Internet to communicate, distribute and market their products to potential customers worldwide in a cost- and time-efficient way (Buhalis and Law, 2001).

But far beyond these effects linked to the working of the existing markets, the main effect is the revolution of industry organization. The efficiency of the Internet has been increased by the multiplication of infomediaries offering easier access to the information, the creation of shop bots comparing prices or the selection of sites according to different choice criteria (Buhalis and Licata, 2002;

O'Connor and Murphy, 2004) . A simple assessment of the effects of Internet use would suggest the reduction of information asymmetries on markets and the emergence of purely competitive markets. And that means that the Internet would contribute to lowering the prices of the tourist products.

The relevance of information and communication technologies in the field of travel and tourism is highlighted by the existence of a journal, "Information Technology & Tourism", dealing exclusively with this topic. International associations and bodies are also starting to deal with the topic, and a special federation IFIIT (International Federation for Information Technology and Tourism) has been founded to structure the activities in the field of eTourism. Finally, there is a broad field of research on this topic, as observed in Buhalis and Law, 2008.

The purpose of this study is to examine the effects of the Internet on the demand side of the tourism market. Specifically, our aim in this paper is to contribute to a better knowledge of consumer behaviour by identifying the determinants that influence potential travellers to use Internet for travel planning. To do so, we focus on the behaviour of Spanish consumers.

The rest of the work is organized as follows. In section 2 we show the penetration and evolution of B2C eTourism in Spain. In section 3 we present a brief review of the literature and the theoretical framework that we will use in order to explain the consumer behaviour of Spanish online tourism shoppers. Section 4 contains the data, and the empirical model and the results are explained in section 5. Finally, in section 6, we present the main conclusions.

2. eTourism in Spain

The penetration of the Internet in the Spanish travel industry has been historically lower than in other European countries. However, it is increasingly gaining ground to the detriment of traditional travel agents.

One of the possible reasons for the low level of penetration of eTourism in comparison with other European countries may be the weakness of eCommerce in Spain, which is well below the average of the 27 countries of the EU[1]. The lower degree of penetration of eCommerce in Spain when compared to other countries in Europe can be explained by the relative position of Spain in

the EU context in terms of IT penetration. When measuring availability of computers, rates of broadband penetration and use of the Internet, Spain is below the average of the European Union.

According to data from the National Statistics Institute of Spain (INE)[2], in 2007 53 percent of the Spanish population between the ages of 16 and 74 had access to the Internet in their homes and approximately 45 percent used it at least once a week. Out of all the Internet users of all ages, almost 40 percent went online to order or purchase services or goods for their own consumption during the first quarter of 2007 alone, thus engaging in B2C- eCommerce.

Although eCommerce was not very popular in Spain in 2007, travel related products were the most demanded via Internet. In 2007, 61.2 percent of online buyers in Spain purchased travel related products and services, of which the most important groups were airline tickets[3] and hotel accommodations.

However, the size of the online travel market in Spain is still small. According to data from FAMILITUR[4], just 16.3 percent of Spanish residents who travelled in 2007 used the Internet when planning the trips (either for gathering information, booking or purchasing). Of those who used the Internet for travel related purposes, 92.6 percent used it for information gathering, 65.6 percent for making reservations, and just 28.2 percent for purchasing purposes. That means that less than one third of online information searchers are finally buying online. Therefore, it is important for suppliers to have an in-depth knowledge of the different determinants of using the Internet for information reasons or as a booking or purchasing channel. Such knowledge would allow suppliers to design a strategy for converting the information searchers into buyers. According to Wolfe et al., 2004, the reasons why consumers do not purchase travel products online are the lack of personal service, security issues, lack of experience and the fact it is time consuming. In order to achieve that objective, website owners should take care to make customers feel comfortable and secure when making the reservations and to increase trust in the online environment (Bauernfeind and Zins, 2006; Chen, 2006).

There are also differences in the rate of usage depending on the sub-sector being considered. Previous studies (Beldona el al., 2005) have also identified the heterogeneity of travel products within the ambit of Internet commerce.

Table 1 shows the information for three sub-sectors: transportation, accommodation and complementary activities[5]. According to data on 2007, the sector with the highest propensity to be purchased online is transportation (3.6 percent of all travels were purchased via the Internet). However, when talking about the level of information search, the higher propensity belongs to the accommodation sector (11 percent of all travels use the Internet to search for information about accommodation). Thus it seems clear that the rate of conversion of lookers into buyers is much higher for the transportation sector. In fact, eCommerce has now emerged as possibly the most representative distribution channel in the airline industry.

Table 1. Percentage of travels using the Internet

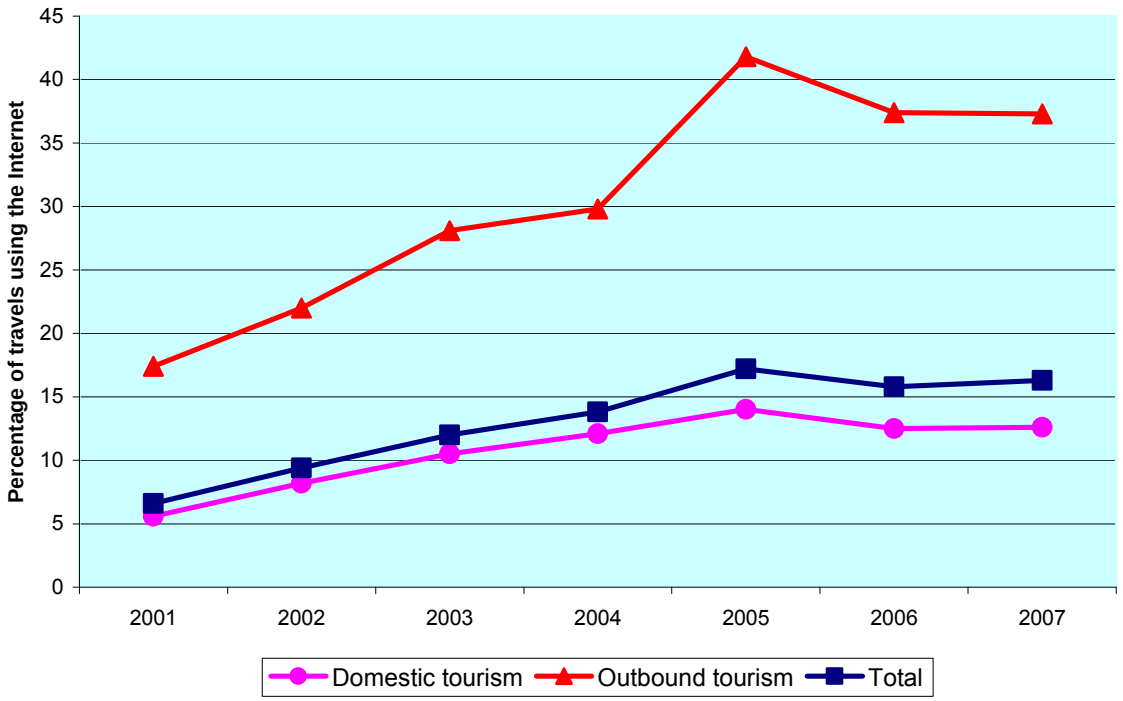
	Transportation	**Accommodation**	**Complementary activities**	**Total**
Information	8.0%	11%	3.6%	15.1%
Booking	5.9%	7.5%	0.4%	10.7%
Payment	3.6%	1.9%	0.3%	4.6%

Source: FAMILITUR (2007), Institute of Tourism Studies (IET).

But even though the Internet is still far from being a regular tool for travel planning in Spain, it has experienced significant growth during recent years, as seen in Figure 1. The boom of low-cost carriers has helped to develop Internet use among Spanish residents, as suggested by Oorni and Klein, 2003. The expansion of the new high-speed rail network also contributed to this, as online fares can be cheaper than regular fares. The development of mobile internet technologies is also expected to boost usage of the net in the travel industry.

Figure 1 shows the evolution from 2001 to 2007 and the different rates of usage of the Internet depending on the travel destination. We observe that the use of the Internet is much more intensive when planning a trip abroad than for domestic travel.

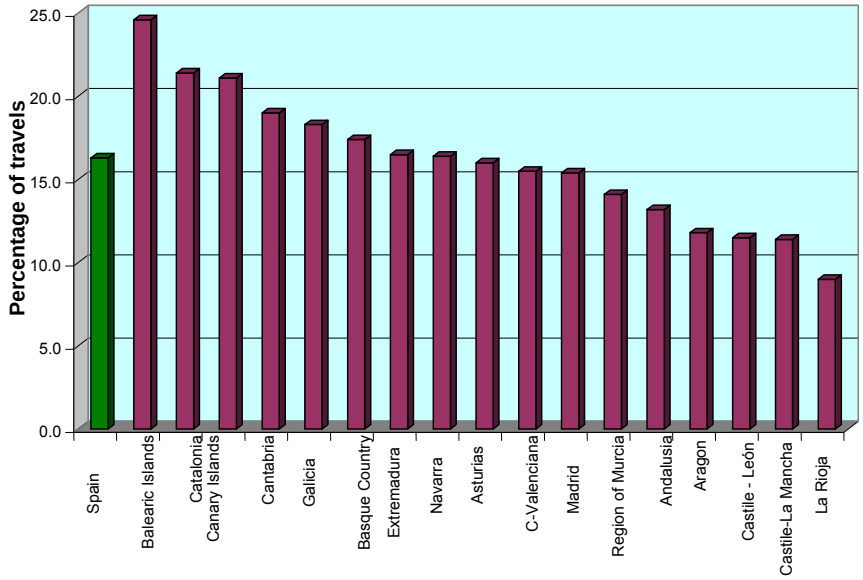
FIGURE 1. Internet usage for travel planning by Spanish residents



Source: FAMILITUR (2001 - 2007), Institute of Tourism Studies (IET).

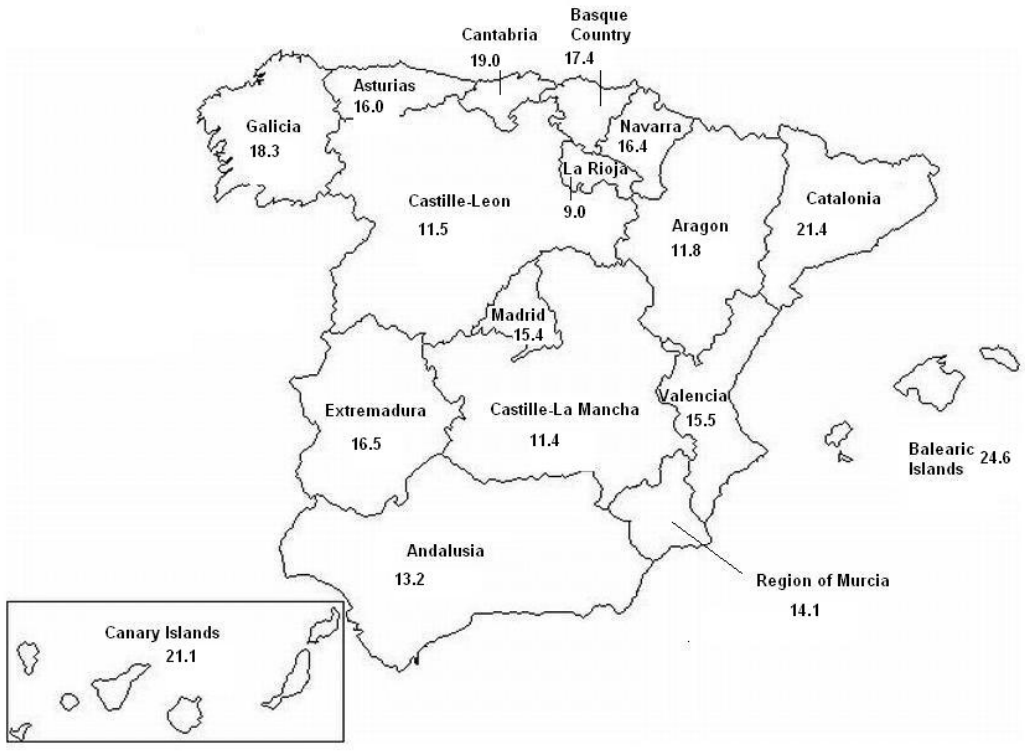
It is important to note that the average behaviour of the country as a whole is not representative of the level of acceptance or the evolution of the Internet as a travel planning tool in the different regions. The data for the year 2007 reveal significant heterogeneity across the 17 Autonomous Communities[6]. Figure 2 shows that differences across regions range from 24.6 percent for the Balearic Islands to the lowest value of 9 percent in the case of La Rioja. The observed heterogeneity can be used in order to explore the factors explaining the differences. In Figure 3 data are displayed on a map, which helps to determine whether geographic location has any influence on rates of usage of the Internet for travel planning. In that sense, it is important to note that two out of three of the highest values correspond to the two archipelagos: Balearic and Canary Islands.

FIGURE 2. Internet rates of usage for travel planning by Autonomous Communities.



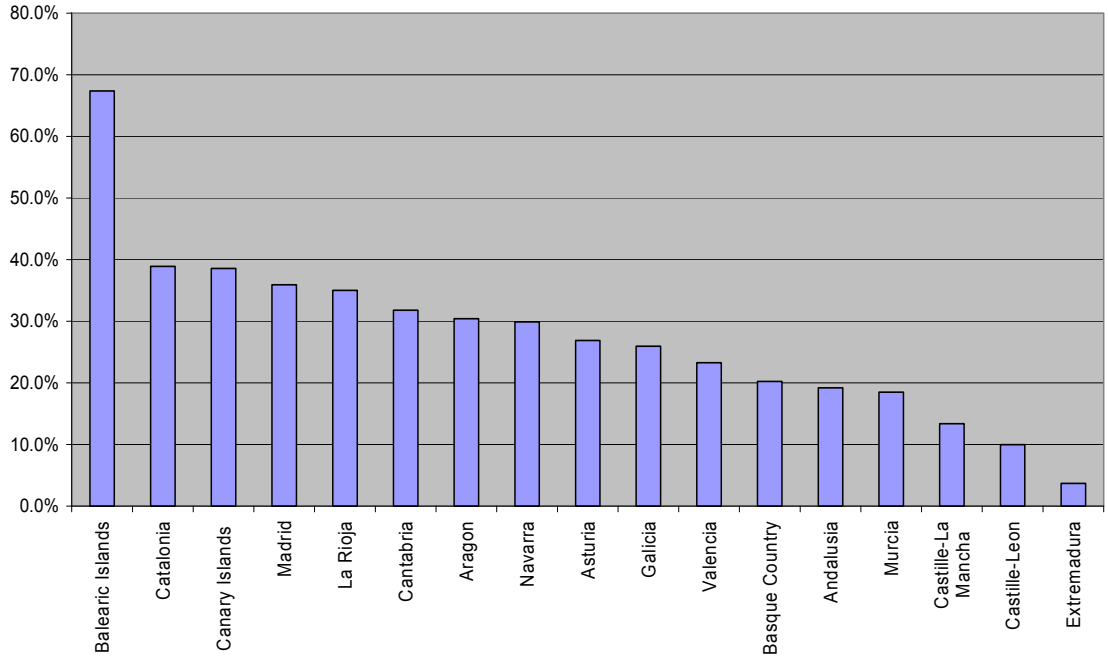
Source: FAMILITUR (2001 - 2007), Institute of Tourism Studies (IET).

FIGURE 3. Geographic distribution of rates of usage of the Internet for travel planning by Autonomous Communities



Also heterogeneous across the different regions is the rate of conversion of browsers into buyers. With an average rate of conversion for the whole country of about 33.5%, there is a huge gap between the corresponding rates of the autonomous communities. The Balearic Islands has the highest conversion rate with 67% and the lowest rate of conversion is in Extremadura, where just 3.7% of lookers ended up buying the product online. Those regional differences can be very helpful for understanding the reasons for the heterogeneous behaviour of tourism consumers.

FIGURE 4. Rate of Conversion of lookers into buyers.



Source: Self-elaborated from FAMILITUR 2007, Institute of Tourism Studies (IET).

3. Framework for the Analysis

When looking for the determinants influencing the use of the Internet for travel planning, it is important to bear in mind the previous models concerning the three relevant fields of research (Steinbauer and Werthner, 2007):

i) theories of consumer behaviour

ii) models of decision making in tourism

iii) theories of e-shopping acceptance

i) Theories of consumer behaviour are generally developed to better understand and explain consumer decisions. They aim to find principles in consumer behaviour to be able to derive practical implications and advice to predict consumer decisions. In this sense, there are studies (Middleton, 1994; Swarbrooke and Homer, 1999) explaining tourist behaviour during the decision making process. Stimuli within this context consist of endogenous and exogenous factors showing decision relevant characteristics of the consumer. These include the consumer's usage of new technologies, as well as variables describing his social and economic environment.

ii) Models of decision making in tourism commonly focus on identifying the various aspects of a tourist's decision. Pioneering papers in this field are: Wahab et al., 1976; Mathieson and Wall, 1982; Moutinho, 1987 and Swarbrooke and Homer, 1999. However, the theories of decision making in tourism are facing criticism because of the difficulties of meeting fast moving changes within the tourism and the communication and technology industries.

iii) Theories of e-shopping acceptance are of special interest when trying to study the behaviour of tourists while using the Internet as information, booking or purchasing channel. Theories addressing the issue of accepting the Internet as information and/or booking channel focus more on the consumer's evaluation of the system than on the process of adoption. Highly effective in this field of research was the "Information System Success Model" (IS Success Model) introduced by DeLone and McLean, 2003. The theory introduces six constructs to quantify the success of an information system in the eCommerce environment: system quality, information quality, service quality, usage, user's satisfaction and net benefits. Applying these theories to the subject of tourism, two useful empirically proven models have been published focusing first on travel website quality (Mills and Morrison, 2003; Sigala and Sakellaridis, 2004; DeLone and McLean, 2003) and also on usability (Essawy, 2005; DeLone and McLean, 2004; Kao, Louvieris, Powell-Perry and Buhalis, 2005).

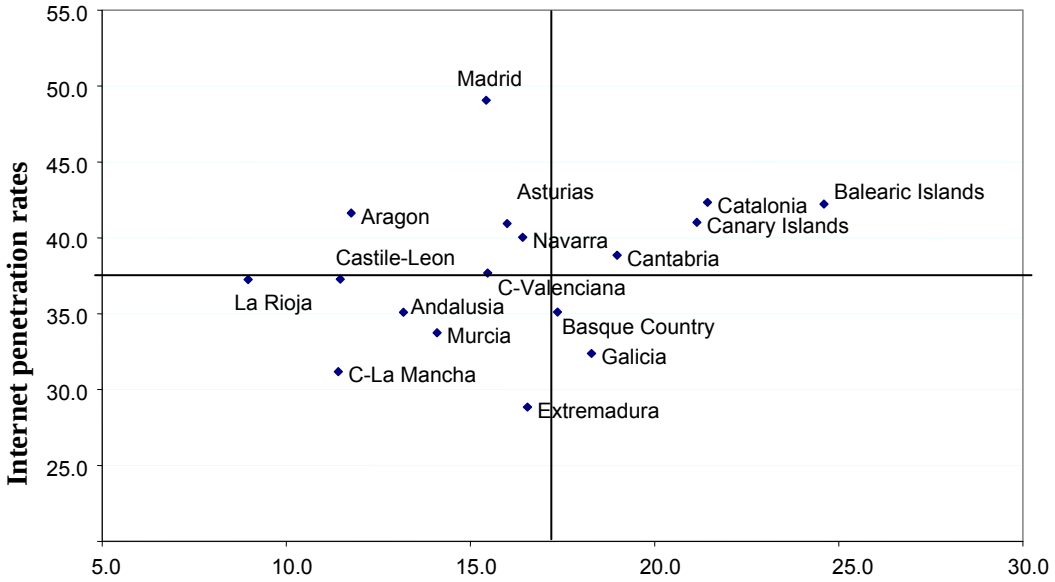
4. Data

Previous studies about the behaviour of tourists in terms of Internet use for travel planning have been based on individual data. Sometimes data have been collected from surveys elaborated ad hoc (Chiam et al., 2009; Hueng, 2003; Kamarulzaman, 2007; Steinbauer and Werthner, 2007) where the researcher includes questions about specific items that he wants to investigate. Some other studies use secondary surveys, with samples that turn out to be more representative but where there is a lack of certain items that could add relevant information for explaining the behaviour of the consumer. This is the case of Garín-Muñoz and Pérez-Amaral, 2009. These studies use socioeconomic, demographic and technological affinity of individuals as explanatory variables. It is common to find variables such as gender, age, education, level of income, computer literacy and Internet confidence, among others, as determinants of Internet usage for travel planning.

In this paper we use data from the Spanish Domestic and Outbound Tourism Survey (Familitur). The survey was conducted by the Institute of Tourism Studies (IET) and records monthly information on all the trips made by household residents. The sample size is 16248 households. From that survey the IET has provided us with aggregate annual data by Autonomous Communities. Our aim is to use the regional differences that have been shown in Figure 2 in order to explore Internet acceptance for travel planning. We are also adding a temporal dimension to our sample by considering not only a static survey but also a five year panel on the 17 Autonomous Communities.

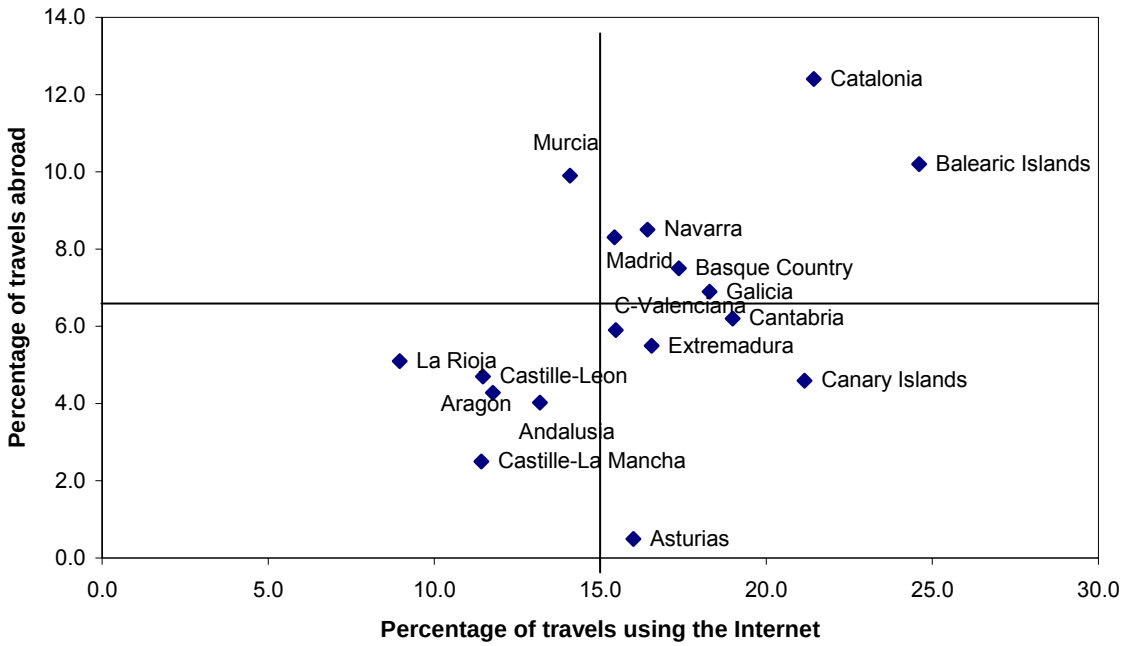
Before proposing a formal model, we perform a descriptive analysis. We study whether eTourism acceptance in each region can be explained by the corresponding Internet penetration rate. As can be observed in Figure 4, where both variables are mapped, there is no clear relationship between them. In fact, there are regions with very similar penetration rates of the Internet (Aragon and Balearic Islands, for instance) that have very different rates of usage of the Internet for travel purposes (11.8 and 24.6 percent, respectively). There are other factors, apart from technological implementation, that should also be used to explain the selection of the Internet as a channel for tourism.

Figure 4. Internet use for tourism vs. Internet penetration rate



One of the novelties of this study is that we also explore whether the level of eTourism can be explained by specific characteristics of travel. In fact, we explore whether the travel destination has an effect on Internet usage for planning purposes. The results appear in Figure 5 and show a positive relationship between the share of travels abroad over the total number of travels of each region of origin and the use of the Internet for travel planning. However, some exceptions are found, e.g. the case of Canary Islands with a level of Internet use higher than other regions with similar percentages of travels abroad (Asturias, for instance).

Figure 5. Internet use for tourism vs. travel destination



According to the results of our descriptive analysis, we can conclude that there may be positive relationships between Internet usage for travel and Internet penetration rates and travels abroad.

To analyse and measure these relationships, we add a time dimension to the data and use multivariate models of Internet use for tourism.

5. The Model and the Empirical Results

Taking into account the results of previous research, our proposed models explain the level of acceptance of the Internet for travel planning by using four types of variables. First, we explore the influence of socioeconomic variables of the autonomous community (including the average level of income, the level of education and the travel frequency). Second, variables measuring the level of implementation of the new technologies (the Internet penetration rate and the broadband penetration rate) are also considered as potential influential factors. Third, we study the potential influence of the average profile of the Internet users in the region (age, gender, frequency of use of the Internet). Finally,

specific features of the travels are also considered as explanatory variables (transportation mode and destination)[7].

The availability of data allows us to present three different models, one for each type of use of the Internet: information, booking and purchasing of travel services. The consideration of the three different uses of the Internet enriches the results of most of the previous works[8] which basically study the use of the Internet for gathering information.

Up to ten determinants were hypothesised to have an influence on the use of the Internet when searching for information, booking or purchasing travel related products or services. In this section we quantify the incidence of each one of the potential determinants of the travels generated by Spanish residents.

In doing so, we will use annual data on the 17 Autonomous Communities for the five-year period of 2003-2007. The socioeconomic data (income and education levels) are from the National Statistics Institute of Spain (INE). Data related to penetration of new technologies and characteristics of the Internet users are from the Survey on Information and Communication Technologies Equipment and Use in Households (INE). On the other hand, data for trip features are from the Survey on Tourist Movements of Spanish Residents -FAMILITUR (IET).

Next we provide a description of the variables considered in the study, for which we have information for each year and autonomous community. The dependent variables are alternatively the following:

Information: Percentage of travels using the Internet for gathering information.

Reservation: Percentage of travels using the Internet for booking.

Purchasing: Percentage of travels using the Internet for purchasing.

The explanatory variables are:

Income: Real GDP per capita.

Education: Percentage of people having a university degree.

Travel frequency: Average number of travels generated by each traveller.

Internet penetration: Percentage of population with access to the Internet.

Broadband penetration: Percentage of population with access to broadband connections.

Age: We consider 5 age groups of Internet users: ≤18; 19-29; 30-44; 45-64; ≥65.

Gender: 1 if female; 0 if male

Internet frequency: Percentage of people using the Internet at least 5 days a week.

Transportation mode: Percentage of car trips over the total travels.

Destination: percentage of travels abroad over the total.

We use a fixed effects panel data model, since the sample coincides with the population and the identity of each one of them is important (see Mundlak, 1978). We estimate the model using the covariance estimator, which is the best linear unbiased estimator, BLUE, under general conditions (see Hsiao, 2003). The individual effects would take care of the characteristics of each region that do not change over time and may be capturing factors such as the geographical location, extension and population.

For the estimation we assume a double-logarithmic functional form[9]. Alternative forms were also considered. By using STATA SE v.10, we obtained the results summarized in Table 2.

Table 2. Estimation results of the double logarithmic model

Explanatory variables	Dependent variables		
	Information	**Reservation**	**Purchasing**
Income	---	---	---
Education	---	---	---
Travel frequency	---	---	---
Internet penetration	0.61 (3.48)	2.92 (10.36)	2.09 (2.16)
Broadband penetration	---	---	---
Age 16-24	---	---	---
Age 25-34	---	---	---
Age 35-44	0.82 (3.28)	1.82 (4.15)	---
Age 45-54	---	---	---
Age 55-64	---	---	0.56 (1.51)
Gender	---	0.73 (1.87)	1.25 (1.36)
Internet frequency	---	---	---
Transportation mode	-0.30 (-1.54)	---	-2.02 (-2.57)
Destination	---	---	0.65 (2.12)
N. observations	85	85	81
R^2	0.47	0.80	0.61
Joint significance	$F_{3, 65}$= 18.88	$F_{3, 65}$= 62.57	$F_{5, 59}$= 18.50

t-statistics in parentheses. Dashes correspond to deleted variables because of insignificance in previous regressions. Above values of the t-statistics ≈ 1.96 correspond to significant coefficients at a 95 percent confidence level.

Our results suggest that the use of the Internet for travel related purposes is not related to *per capita income*[10].

Contrary to our expectations, the level of *education* is not significant either. The reason for this may be that Internet use, which was previously reserved for

highly educated people, is now equally available across different education levels.

We also expected a positive relationship between Internet usage for travel planning and the *travel frequency*, but it turned out to be insignificant.

However, the results show that the *Internet penetration* rate in each Autonomous Community is relevant for explaining Internet usage for travel planning. It is significant for all the three considered uses of the Internet. Note that the absolute values of the estimated coefficients are different in each model. It seems that information gathering (elasticity of 0.61) is not as dependent on home availability of the Internet as reservations and purchases via the Internet, which are much more dependent on the Internet penetration rate with elasticities of 2.92 and 2.09, respectively.

We also expected a positive effect of the *broadband penetration* rate. However, when this variable was included, it turned out to be insignificant, possibly due to the high collinearity with the Internet penetration rate (R^2_p= 0.91).

The *35-44 age* group has a significantly higher percentage of travel related Internet activities. For information and reservation it has significant coefficients of 0.82 and 1.82, respectively. This may be because this age group is both Internet literate and has the income and willingness to travel.

Gender turns out to be marginally significant and positive, both for reservations (0.73) and purchasing (1.25). That means that women may have a slightly higher propensity for booking and purchasing travel related products via Internet.

We also tried the *frequency of use* of the Internet but it turned out to be insignificant. We expected to find a positive relationship in the belief that frequent users of the Internet are more familiar and, consequently, more confident with the technologies.

Trip features are especially important when considering the purchasing behaviour. Here we consider two travel characteristics: mode of transportation and destination (domestic or abroad).

The greater the proportion of car trips, *transportation mode*, the lower the proportion of travels planned (-0.30) and purchased (-2.02) online. That may be explained by the fact that, when travelling by car (instead of travelling by air, railway or boat), the probability of using one's own vehicle is high and there is no need to purchase transportation.

The *destination* of travel also has an impact on the level of usage of the Internet for purchasing reasons. Our results show that the higher the proportion of travels abroad, the more the Internet is used for purchasing purposes, with a coefficient of 0.61.

6. Conclusions

The importance of the Internet for the travel and tourism industry has increased rapidly over the last few years. Understanding how travellers behave is of critical importance to travel suppliers and tourism authorities for formulating efficient marketing strategies and policies, in order to fully exploit the potential of this new channel. This study explores the factors influencing Internet usage for travel information and shopping by using representative annual panel data from 2003 to 2007 on the 17 Spanish Autonomous Communities.

The findings of the study will facilitate an understanding of the factors associated with the adoption of the Internet channel for travel related purposes. These findings may be summarized as follows:

First, in terms of implementation of new technologies, our results suggest that Internet usage for travel related purposes is heavily dependent on the Internet penetration rate. This result is equally valid either for planning, booking or purchasing a trip.

Second, in terms of the influence of some demographic characteristics, our results support the findings of previous studies. Specifically, we found that gender and age influence consumer behaviour, that women may have a slightly higher propensity for booking and purchasing travel related products via Internet and that, when considering the age, the 35-44 age group turns out to have the highest percentage of travel related Internet activities.

Third, this study contributes to an understanding of how travel characteristics can affect the use of the Internet for travel related purposes. Our results

suggest that transportation mode and travel destination are good predictors of Internet usage for purchasing purposes.

These results will help retailers and policy makers to better develop appropriate strategies to enhance and promote eCommerce to future users while retaining existing customers. Moreover, if public authorities wish to encourage a higher use of Internet for travel related purposes, then it seems that increasing the Internet penetration rate may be an effective way to obtain that goal.

On the other hand, travel related vendors can increase their Internet travel related business by focusing on measures to encourage the 35-44 age group to become buyers and to make their websites more attractive to women, who seem to be doing more online shopping than men.

Finally, this research suggests the need for further research on consumer behavior in tourism to include a more detailed analysis of booking and purchasing behavior and thus develop a more complete understanding of the distribution process.

Some of the remaining questions, such as the precise effects of income, education and broadband penetration, can be addressed when we have individual data on the use of Internet for travel related purposes.

References

Bauernfeind, U., and Zins, A. (2006), "The perception of exploratory browsing and trust with recommender websites", *Information Technology &Tourism*, Vol 8, No 2, pp 121- 136.

Beldona, S., Morrison, A. M., and O'Leary, J. (2005), "Online shopping motivations and pleasure travel products: A correspondence analysis", *Tourism Management,* Vol 26, No 4, pp 561- 570.

Bonn, M.A.; Furr, H.L., and Susskind , A.M. (1998), "Using the Internet as a Pleasure Travel Planning Tool: an Examination of the Sociodemographic and Behavioral Characteristics Among Internet Users and Nonusers", *Journal of Hospitality & Tourism Research*, Vol 22, No 3, pp 303- 317.

Buhalis, D., and Law, R., (2008), "Progress in information technology and tourism management: 20 years on and 10 years after the Internet – State of eTourism research", Tourism Management, Vol 29, No 4, pp 609- 623.

Buhalis, D., and Licata, M. C., (2002), "The future of eTourism intermediaries", *Tourism Management*, Vol 23, No 3, pp 207- 220.

Buhalis, D., and Laws, E. (2001). *Tourism distribution channels*. London: Continuum.

Chen, C. (2006), "Identifying significant factors influencing consumer trust in an online travel site", *Information Technology &Tourism*, Vol 8, No 2, pp 197- 214.

Chiam, M., Soutar, G., and Yeo, A. (2009), "Online and Off-line Travel Packages Preferences: A Conjoint Analysis", *International Journal of Tourism Research*, Vol 11, pp 31- 40.

DeLone, W. H. and McLean, E. R. (2003), "The DeLone and McLean Model of Information Systems Success: A ten-Year Update", *Journal of Management Information Systems*, Vol 19, No 4, pp 9- 30.

DeLone, W. H. and McLean, E. R. (2004), "Measuring ECommerce Success: Applying the DeLone & McLean Information Systems Success Model", *International Journal of Electronic Commerce*, Vol 9, No 1, pp 31- 47.

Essawy, M. (2005), *Testing the Usability of Hotel Websites: The Springboard for Customer Relationship Building*, Leeds.

Garín-Muñoz, T., and Pérez-Amaral, T. (2009), "Internet Purchases of Specific Products in Spain", Available at SSRN: http://ssrn.com/abstract=1367063

Gursoy, D., and McCleary, K. (2004), "An integrative model of tourism information search behaviour", *Annals of Tourism Research,* Vol 31 No 2, 353-373.

Hueng, V. C. (2003), "Internet usage by international travellers: reasons and barriers", *International Journal of Contemporary Hospitality Management*, Vol 15, No 7, pp 370- 378.

Hsiao, C. (2003), *Analysis of Panel Data*, second edition, Econometric Society Monographs, Cambridge University Press.

Institute of Tourism Studies. Survey on the domestic and outbound tourism by the Spanish residents (Familitur, 2001 – 2007).

Kao, Y., Louvieris, P., Powell-Perry, J., and Buhalis, D. (2005), "E-Satisfaction of NTO's WebsiteCase Study: Singapore Tourism Board's Taiwan Website", in Frew, A., (ed), *Information and Communication Technologies in Tourism 2005 – Proceedings of the international Conference in Innsbruck*, 227 – 237. Springer-Verlag, Wien.

Kamarulzaman, Y. (2007), "Adoption of travel e-shopping in the UK", *International Journal of Retail & Distribution Management,* Vol 35, No 9, pp 703-719.

Lewis, I., Semeijn, J., and Talalayevsky, A. (1998), "The impact of information technology on travel agents", *Transportation Journal*, Vol 37, No 4, pp 20- 25.

Marcussen, C. H. (1997), "Marketing Europe tourism products via Internet", *Journal of Travel and Tourism Marketing*, Vol 6, Nº 3/4, pp 23- 24.

Marcussen, C. H. (2009), "Trends in European Internet Distribution - of Travel and Tourism Services 1998-2008", *Centre for Regional and Tourism Research. Available on http://www.crt.dk/uk/staff/chm/trends.htm*

Mathieson. A , and Wall. G (1982), *Tourism, economic, physical and social impacts*. Essex: Longman Group Limited.

Middleton, V. (1994), *Marketing for travel and tourism*. Butterworth-Heinemann, 2nd ed., Oxford.

Mills, J. E., and Morrison, A. M. (2003), "Expanding and re-testing E-SAT: an instrument and structural model for measuring customer satisfaction with travel websites". *Travel and Tourism Research Association Conference. St. Louis.*

Moutinho, L. (1987), "Consumer behaviour in tourism", *European Journal of Marketing*, Vol 21, No 10, pp 3- 44.

Mundlak, Y., (1978), "On the Pooling of Time Series and Cross Section Data", *Econometrica*, Vol 46, No 1, pp 69- 85.

Oorni, A., and Klein, S. (2003), "Electronic travel markets: Elusive effects on consumer behavior", *Information Technology and Tourism*, Vol 6, No 1, pp 3- 11.

O'Connor, P., and Murphy, J. (2004), "Research on information technology in the hospitality industry", *International Journal of Hospitality Management*, Vol 23, No 5, pp 473- 484.

Pearce, D. G., and Schott, C. (2005), "Tourism distribution channels: The visitors' perspective", *Journal of Travel Research,* Vol 44, pp 50- 63.

Peterson, R.A., Balasubramanian, S., and Bronnenberg, B.J. (1997), "Exploring the implications of the Internet for consumer marketing", *Journal of the Academy of Marketing Science,* Vol 25, No 4, pp 329- 46.

Sigala, M., and Sakellaridis, O. (2004), "Web users' cultural profiles and e-service quality: internationalization implications for tourism websites", *Information Technology and Tourism*, Vol 7 ,No 1, pp 13- 22.

Steinbauer, A. and Werthner, H. (2007), "Consumer Behaviour in eTourism", in *Information and communication technologies in tourism 2007 : proceedings of the international Conference in Ljubljana,* Slovenia 2007 / Marianna Sigala, Luisa Mich, Jamie Murphy (eds.).

Swarbrooke, J. and Horner, S. (1999), *Consumer Behaviour in Tourism*. Butterworth-Heinemann, Oxford.

Wahab, S.; Crompton, L. and Rothfield, L. (1976), *Tourism Marketing*. London: Tourism International Press.

Wolfe, K., Hsu, C.H.C., and Kang, S.K. (2004), “Buyer characteristics among users of various travel intermediaries”, *Journal of Travel and Tourism Marketing,* Vol 17, No 2/3, pp 50- 62.

Woodside, A. and MacDonald, R. (1994), “General system framework of customer choice processes of tourism services”, in R.V. Gasser and K. Weiermair (eds.). Spoilt for choice. Decision-making processes and preference change of tourists: intertemporal and intercountry perspectives, pp 30-59. Thaur, Germany.

[1] According to 2007data from EUROSTAT, the percentage of individuals who ordered goods or services over the Internet in the last 3 months was 23 for the EU27 and 13 for the case of Spain.

[2] The data are from the Survey on Information and Communication Technologies Equipment and Use in Households (2007) of the National Statistics Institute.

[3] The quasi-totality of low cost airline tickets is sold online. These companies have played a major role to promote the use of the Internet in transactions and to contribute to the take-off of eCommerce.

[4] FAMILITUR is an annual survey of the *Institute of Tourism Studies* of Spain (IET) on domestic and outbound tourism by Spanish residents.

[5] Other leisure and entertainment activities in the destination (tickets for events, concerts, car rental, bookings and so on).

[6] The Autonomous Community is the first-level political division of the Kingdom of Spain. Spain is divided into 17 autonomous communities: Andalusia, Aragon, Asturias, Balearic Islands, Canary Islands, Cantabria, Catalonia, Castile-Leon, Castile-La Mancha, Extremadura, Galicia, Community of Madrid, Valencian Community, Region of Murcia, Navarra, Basque Country and La Rioja.

[7] It could be useful to consider some other travel characteristics (travel motives, kind of accommodation) but the data are not available.

[8] There is a previous paper (Pearce and Schott, 2005) emphasizing the different functions of distribution—information search, booking, and payment— and the factors that influence the channels selected for each of these functions.

[9] By using a double-logarithmic form, the estimated parameters may be considered directly as elasticities.

[10] Possible explanations are: 1) the effects of income may be included in some other variable like the Internet penetration rate, or 2) that the use of the average income in the region may not be adequately reflecting the level of income of individuals because of the differences in income distribution.