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**Trip Characteristics and Dimensions of Internet use for Transportation, Accommodation,  
and Activities Undertaken at Destination**

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**Shortened title: Trip characteristics and dimensions of web use**

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## **Trip Characteristics and Dimensions of Internet use for Transportation, Accommodation, and Activities Undertaken at Destination**

*ABSTRACT* The aims of this paper are to identify latent dimensions underlying actual Internet use by independent tourists when planning and booking their trip, and to study how these latent dimensions are affected by trip characteristics. We use structural equation models with binary variables and official statistics microdata on leisure visitors arriving in Spain by air and organizing the trip themselves ( $n=20,746$ ). We find a two-dimensional structure for actual Internet use related to the tourist product (accommodation and transportation versus activities) rather than purpose of use (information gathering and booking). Low category hotels, trips planned long in advance, summer trips, and traveling with friends or family increase Internet use in both dimensions. Cultural trips and higher daily expenditure lead to a higher Internet use in the activity dimension. Further distance and longer stay reduce Internet use in the accommodation-transportation dimension.

*KEY WORDS* traveler Internet usage; online travel booking; web trip planning; MIMIC model; travel e-shopping.

### **INTRODUCTION**

A growing tourist segment does not travel on a package deal and organizes the entire trip by him or herself. In the case of Spain, package tourists have fallen from about 50% to 31% of visitors in recent years (IET, 2013a). Within the air travelers segment, this has been accompanied by the consolidation of no-frills airlines, also referred to as low cost carriers (LCC). In Spain in 2012, 68.3% of LCC users and 58.8% of legacy airline passengers did not travel on a package deal (IET, 2013b). Even though LCC and legacy airlines are starting to resemble one another in many respects, they still differ in others (Ferrer-Rosell, et al., in press; Ferrer-Rosell et al., 2014), Internet use being one of them. In Spain, Internet use is 14.9% higher among LCC flyers than legacy airline flyers (IET, 2013b).

The predictors of web usage by tourists when planning or booking a trip constitute a major research topic (see a recent review by Amaro & Duarte, 2013). This paper aims to fill two gaps

in the previous research on this issue. The first gap is that very few studies use trip characteristics as predictors and, to the best of our knowledge, none include airline type. Besides, many studies deal with intention to use Internet rather than actual use. Since intention is a far from perfect predictor of actual behavior, research on actual Internet use may be a more attractive alternative (Amaro & Duarte, 2013).

Part of the literature on predictors of tourist Internet use distinguishes between purposes, such as information seeking or booking, and between tourism products, such as accommodation, transportation, and so on. When relating Internet uses to their predictors, such distinctions lead to extremely long tables with redundant information, in other words, to a lack of parsimony (e.g., Jani et al., 2014). A small number of researchers acknowledge the fact that some of these uses are closely related to one another. Duman and Tanrisevdi (2011) use cluster analysis to identify three dimensions related to information search, comparison of alternatives and reservation/purchase. Susskind and Stefanone (2010) use exploratory factor analysis to identify an information search dimension and a purchasing dimension. Park et al. (2011), using Guttman scaling, identify cumulative sets of tourist products purchased online: flight and accommodation (core); car rentals and event/attraction tickets (advanced); travel packages and cruise reservations (comprehensive). The above-mentioned studies all used statistical methods, which are not the most appropriate for statistical inference regarding the relationships between found dimensions and external variables.

Structural equation models make such inferences possible and have frequently been used for modeling the dimensions of attitudes regarding Internet use or intentions to use the Internet (e.g., Ayeh et al., 2013; Escobar-Rodríguez & Carvajal-Trujillo, 2014; Nunkoo & Ramkissoon, 2013; San Martín & Herrero, 2012; Wen, 2012, 2013). The second gap we aim to fill is that the small number of researchers who have modeled the dimensions of actual Internet use have failed to include information seeking, booking, or a range of tourist products. The set of dimensions they have obtained is thus constrained by variable selection. Ryan and Rao (2008) defined a single dimension with only two indicators: overall actual use for purchasing and for planning; Jensen (2012) defined a dimension of information search. Kamarulzaman (2007) identified a single dimension without providing information regarding its indicators.

The aims of this paper are twofold. Firstly, to identify and test latent dimensions underlying actual Internet use by tourists traveling by air when planning and booking their trip by

themselves, regarding both different purposes of Internet use and different tourist products. Secondly, to test how these latent dimensions are affected by trip characteristics, some of which we consider for the first time in the literature, including airline type (LCC versus legacy airline). To this end, we use the multiple-indicator multiple-cause (MIMIC) model, a particular case of a structural equation model.

The paper is structured as follows: we first present the literature review, then an overview of the data and the statistical model; this is followed by the results, the implications of which we discuss, and, finally, limitations and suggestions for further research.

## **LITERATURE REVIEW**

The variables used to predict traveler's actual Internet use include demographic variables, Internet knowledge, travel behavior, psychological variables, personal traits, shopping orientation, perceived Internet privacy and risk, advantages and disadvantages of Internet use, online shopping experience, trust and website characteristics (Amaro & Duarte, 2013). Trip characteristics have been considered in a small number of articles predicting traveler Internet use. Amaro and Duarte (2013) only report two papers (Bogdanovych et al., 2006 and Law et al., 2004), the main finding of which was that Internet tended to be used more often with short-haul trips. In the same vein, Elhaj (2012) related Internet use to domestic flights. Additional relevant works are those of Del Chiappa (2013), who related Internet use to short lengths of stay, honeymoons excepted; Beritelli et al. (2007), who related Internet use to long-distance trips, hotel accommodation, and planning the trip well in advance; and Luo et al. (2004), who related Internet use to other trips than pleasure trips, traveling with friends, hotel accommodation and high total expenditure.

Amaro and Duarte (2013) suggest that the general concept of trip complexity (Anckar & Walden, 2001) may underlie the effect of trip characteristics on Internet use, less complex trips leading to higher use. They also conclude that further research is required on trip characteristics, especially regarding trip motivation and trip complexity. Similarly, Beritelli et al. (2007) suggest as key issues the related concepts of risk and uncertainty, low risk travel leading to higher Internet use. This can also be related to the literature on consumer involvement (e.g., Laurent & Kapferer, 1985), which defines risk as a consumer involvement dimension with two subdimensions: the perceived importance of negative consequences in the event of poor choice

and the perceived probability of making such a mistake. Travel has been argued to be a high risk product by itself (Lin et al., 2009; Nunkoo & Ramkissoon, 2013). Negative consequences further increase with trip price and duration, while the perceived probability of mispurchase further increases when using the Internet (Kim et al., 2005).

To the best of our knowledge, airline type and season have not yet been reported to predict actual Internet use in the literature. Escobar-Rodríguez and Carvajal-Trujillo (2014) consider a sample with only LCC travelers, for which comparison with traditional airlines is not possible. The fact that LCC users tend to book their flight online is, of course, quite a trivial result. Another issue is that LCC users, being familiar with the Internet, are also expected to book other tourist services online. Boffa and Succurro (2013), using theoretical economic models and macroeconometrics, conclude that higher Internet penetration increases seasonal fluctuations. According to these authors, this finding supports the notion that Internet is more valuable to travelers in the peak season, when it is more difficult to find vacancies.

## METHODOLOGY

### Sample and variables

In this paper, we use secondary official statistics data provided by the *Instituto de Estudios Turísticos* (IET), an official agency of the Spanish Ministry of Industry, Energy and Tourism, which produces the majority of tourism data in Spain. The survey is known as the *Encuesta de Gasto Turístico (EGATUR)*, which reports tourism expenditure and other tourist information. See IET (2012) for further details on the methodology used in the EGATUR survey.

Our universe is a subset of the EGATUR universe, which consists of leisure visitors arriving to Spain by air in 2012, staying between one and 120 nights, and organizing the trip by themselves instead of as part of a package. For this study, we did not consider:

- tourists for whom it does not make sense to use the Internet for accommodation (tourists who own a house at the destination or who stay with friends or relatives)
- tourists who probably do not have the freedom to organize the trip completely by themselves (business and study trips, trips paid for by the company, by family/friends, by competitions, etc.)

The final sample size was  $n=20,746$ . The EGATUR questionnaire includes yes-no questions regarding actual uses of the Internet during the planning and booking process (Table 1). The questionnaire also includes trip characteristics. The qualitative characteristics are airline type, accommodation, trip motivation, time of advance booking, season, travel group and flying from Europe or outside Europe. The numerical characteristics are the logarithms of length of stay and daily expenditure at destination.

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Please insert table 1 about here  
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### **Statistical analysis**

Pearson correlations are not appropriate for detecting the dimensions underlying binary variables (Babakus et al., 1987). The upper bound of the Pearson correlation between two binary variables is 1 only when the percentages of yes answers are identical. This is unlikely to be the case in Internet use data, as the percentages of informational use tend to considerably exceed those of booking, regardless of the fact that Internet booking and Internet information seeking may be manifestations of one single latent continuous dimension indicating a general propensity for Internet use. Such a dimension can emerge by means of structural equation models only when properly dealing with the binary nature of the variables, for instance by using tetrachoric correlations, a particular case of polychoric correlations (Babakus et al., 1987).

Table 2 shows tetrachoric correlations (above the diagonal) to be far higher than Pearson correlations (below the diagonal) and to lead to two dimensions of very highly-correlated Internet uses. These dimensions (also referred to as factors) are related to the tourist products rather than to the divide between information and booking:

- $f_1$ : to book or obtain information on transportation and accommodation (res\_tran, inf\_tran, res\_acco, inf\_acco)
- $f_2$ : to book or obtain information on activities at destination (res\_acti, inf\_acti)

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Please insert table 2 about here  
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Only when using tetrachoric correlations does it become apparent that booking and information gathering may converge into one single behavioral dimension (Table 2).

Trip characteristic variables (explanatory in our case) can be related to the dimensions of Internet use (dependent) by means of a multiple-indicator multiple-cause (MIMIC) model, a particular case of a structural equation model (Schumacker & Lomax, 2010, chapter 15). As with linear regression models, explanatory variables in MIMIC models may include dummy-coded qualitative variables (Bagozzi & Yi, 1994).

MIMIC models can be understood as a combination of factor analysis and simultaneous regression equations. A major advantage over simultaneous regressions is parsimony: only one equation per factor is needed, as opposed to one equation per Internet use. This notwithstanding, direct effects from trip characteristic variables to Internet use variables may also be included in the model, but should be used sparingly and only when there are theoretical grounds for them. In our case, Internet booking is mandatory for certain LCCs, thus requiring a positive direct effect between the variables *lcc* and *res\_tran* (see the names of variables in Table 3 and the depiction of effects in Figure 1).

Estimation was carried out using the MPLUS7.2 program (Muthén & Muthén, 2012) by diagonal weighted least squares with mean-and-variance adjusted goodness of fit statistics (WLSMV option in MPLUS, which is the default estimation method for binary dependent variables).

## RESULTS

The goodness of fit of the model meets the usual standards in structural equation modeling. The RMSEA (root mean square error of approximation) is 0.053 (90 % C.I. 0.052-0.055). The CFI (comparative fit index) is 0.982 and the TLI (Tucker and Lewis index) is 0.972. One weak point is the low  $R^2$  predicting  $f_1$  and  $f_2$  at 0.150 and 0.134, respectively.



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Please insert table 3 and figure 1 about here  
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The standardized model estimates are shown in Table 3. The very high loadings relating the Internet use variables to the two latent dimensions support the two-dimensional structure already inferred from Table 2 (accommodation and transportation  $-f_1$  versus activities  $-f_2$ ).

With regard to the equations predicting both Internet-use dimensions from trip characteristics, we find effects which are common for both dimensions (significance $<0.01$ ):

- Compared to hotels with two or fewer stars (reference), other accommodation types (hot\_45, hot\_3 and ap\_oth) reduce Internet use, mostly in both dimensions. The reduction is highest for the highest-category hotels (hot\_45).
- Last-minute booking (last\_min), out-of-summer travel (low\_s), and longer lengths of stay (l\_stay) reduce Internet use in both dimensions.
- Traveling alone (alone) reduces Internet use in both dimensions compared to traveling with partner and family (reference). Traveling with friends is undistinguishable from the reference.
- Higher daily expenditure at destination (l\_d\_exp) increases Internet use for both dimensions, although the effect is stronger for the activity dimension ( $f_2$ ).

Other effects differ between dimensions:

- LCC flyers use Internet more often on  $f_1$ , and not only on transportation, even after accounting for the direct, positive effect on booking transportation (res\_tran). The same holds for short haul flights (europe).
- Compared to the reference (other trips), cultural trips to singular cities (urban) and leisure trips to the seaside or the countryside (seacount) reduce Internet use in the accommodation-transportation dimension ( $f_1$ ). Cultural trips to singular cities increase Internet use in the activity dimension ( $f_2$ ).

## **DISCUSSION AND IMPLICATIONS**

The findings of this paper regarding actual Internet use predictors complement the still scarce research on trip characteristics. As several other authors do, we relate Internet use to short haul

flights (positive effect of the europe variable). Like Beritelli et al. (2007), we find last-minute planning to be negatively related to Internet use (negative effect of the last\_min variable). Trip motivation and travel group confirm their relevance (urban, seacount and alone variables). High category hotels, flights from outside Europe and long stays can be understood as indicators of trip complexity and risk (risk being understood here as a greater investment of time and money and hence more severe consequences in the event of a mispurchase) and reduce Internet use as suggested by several authors (positive effect of the europe variable and negative effects of hot\_45 and l\_stay). As suggested by Boffa and Succurro (2013), Internet use is higher in high season travel (negative effect of the low\_s variable). New findings include the effect of LCCs, not only on Internet use regarding the flight itself (positive direct effect of the lcc variable on res\_tran) but also on accommodation (positive effect on *fi*).

Another relevant contribution of this paper concerns the dimensionality issue. Like Park et al. (2011), we encountered dimensions of traveler Internet use not based on the purpose of Internet use (information gathering versus booking) but rather on the type of tourist product. This has implications for both methodology and management. Regarding the former, the fact that only one equation per dimension is needed results in higher parsimony. Regarding management, since Internet use for accommodation and transportation seem to belong together, websites may find it advantageous to market the two together. Since propensity to book online and to seek information online also belong to the same dimension, booking websites should do their best to provide information in an attractive manner. Izquierdo-Yusta et al. (2014) recommend designing websites to emphasize convenience so as to turn information seekers into shoppers.

The previous literature has gathered a large amount of evidence regarding Internet use and traveler characteristics. However, from a managerial perspective, some key information about how Internet is used in relation to specific trip types and tourism products is also relevant. Our analysis has made it possible to identify certain niches for which Internet use has a potential for further development, including legacy airlines, leisure trips to the seaside and countryside, last-minute bookings, and low-season trips. As a whole, the so-called high quality tourism market segment may show some promise, as indicated by high category hotels and long stays.

Awareness of these niches can lead to fruitful research, to better management practices, and to website design improvements. For instance, regarding the high quality market segment, Wolter and Manthey (2013) find key themes to be included on the websites of 4 and 5-star city hotels,

such as quietness, relaxation, enjoyment, cleanliness and bed comfort. Given the fact that this segment is likely to have high perceived risk, the so-called risk relievers should be included in the websites. Lin et al., (2009) especially mentions detailed hotel information (e.g., pictures), destination information (e.g., links to official destination websites), off-line contact possibility (e.g., a phone number), and content generated by the travel communities (e.g., by encouraging customer reviews).

### **LIMITATIONS AND FURTHER RESEARCH**

Regarding limitations, even though there are some advantages related to using a database from an official statistics institution (large sample size and whole-country scope), the main disadvantage is that the set of available variables cannot be controlled by the researcher. Further research could involve a primary-data study with a wider range of Internet uses, tourist products and trip characteristics. Variables could also go beyond the yes/no questions and analyze how tourists use the Internet in more depth (Standing et al., 2014).

Related to the issue of variable availability, the literature has identified many variable categories which can be used to predict Internet usage (Amaro & Duarte, 2013). Many studies have included more than one type (e.g., Beldona et al., 2011), but none all types together. This paper is the first to have tested the dimensions of actual Internet use behavior and related them to a wide range of trip characteristic variables. However, results are subject to omitted-variable bias.

Further research should, therefore, combine all types of variables in one single model. This will also make it possible to advance theory by testing new hypotheses. For instance, trip characteristics can be tested as partial or total mediators between personal characteristics and Internet use.

Another possible direction is to use the findings about dimensionality to advantage and fit simpler statistical models in the future. For instance, once information seeking and booking regarding activities have been shown to belong to the same dimension, researchers might use a single ordered logit equation for Internet use regarding activities with three categories (use of Internet for booking activities, use of Internet for information seeking on activities only, no use of Internet regarding activities). Unidimensionality makes parsimony possible, once it has been tested.

## REFERENCES

- Amaro, S., & Duarte, P. (2013). Online travel purchasing: A literature review. *Journal of Travel & Tourism Marketing*, 30(8), 755-785.
- Anckar, B., & Walden, P. (2001). Self-booking of high-and low-complexity travel products: exploratory findings. *Information Technology & Tourism*, 4(3-4), 3-4.
- Ayeh, J. K., Au, N., & Law, R. (2013). "Do we believe in TripAdvisor?" Examining credibility perceptions and online travelers' attitude toward using user-generated content. *Journal of Travel Research*, 52(4), 437-452.
- Babakus, E., Ferguson, C. E., & Jöreskog, K. G. (1987). The sensitivity of confirmatory maximum likelihood factor analysis to violations of measurement scale and distributional assumptions. *Journal of Marketing Research*, 24(2), 222-229.
- Bagozzi, R. P., & Yi, Y. (1994). Advanced topics in structural equation models. In R. P. Bagozzi (Ed.), *Advanced methods of marketing research* (pp. 1-51). Malden, MA: Blackwell.
- Beldona, S., Racherla, P., & Mundhra, G. D. (2011). To buy or not to buy: Indian consumers' choice of online versus offline channels for air travel purchase. *Journal of Hospitality Marketing & Management*, 20(8), 831-854.
- Beritelli, P., Bieger, T., & Laesser, C. (2007). The impact of the Internet on information sources portfolios: insight from a mature market. *Journal of Travel & Tourism Marketing*, 22(1), 63-80.
- Boffa, F., & Succurro, M. (2013). The Internet and seasonality: a theoretical and empirical analysis of vertically differentiated accommodation structures. *Tourism Economics*, 19(4), 779-799.
- Bogdanovych, A., Berger, H., Simoff, S., & Sierra, C. (2006). Travel agents vs. online booking: Tackling the shortcomings of nowadays online tourism portals. In M. Hitz, M. Sigala, & J. Murphy (Eds.), *Information and communication technologies in tourism 2006* (pp. 418-428). Vienna: Springer.
- Del Chiappa, G. (2013). Internet versus travel agencies The perception of different groups of Italian online buyers. *Journal of Vacation Marketing*, 19(1), 55-66.
- Duman, T., & Tanrisevdi, A. (2011). Profiling of English tourists visiting Turkey based on attitudes toward Internet use in vacation decision making. *Journal of Hospitality Marketing & Management*, 20(5), 525-550.

- Elhaj, M. (2012). Factors that contribute to consumers' perceptions of online and traditional travel reservation systems. *Anatolia*, 23(1), 118-122.
- Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2014). Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management*, 43, 70-88.
- Ferrer-Rosell, B., Coenders, G., & Martínez-García, E. (in press). Determinants of tourist expenditure composition - the role of airline types. *Tourism Economics*.
- Ferrer-Rosell, B., Martínez-García, E., & Coenders, G. (2014). Package and no-frills air carriers as moderators of length of stay. *Tourism Management*, 42, 114-122.
- IET (2012). *Egatur. Encuesta de gasto turístico. Metodología*. Madrid: Instituto de Turismo de España. [www.iet.tourspain.es/es-ES/estadisticas/egatur/metodologia/Referencia\\_Metodologica/Nota\\_Metodologica\\_Encuesta\\_de\\_Gasto\\_Turistico.pdf](http://www.iet.tourspain.es/es-ES/estadisticas/egatur/metodologia/Referencia_Metodologica/Nota_Metodologica_Encuesta_de_Gasto_Turistico.pdf) [downloaded 22.11.2013].
- IET (2013a). *Movimientos turísticos en fronteras (Frontur) y encuesta de gasto turístico (Egatur) 2012*. Madrid: Instituto de Turismo de España. [www.iet.tourspain.es/es-ES/estadisticas/egatur/Anuales/Movimientos\\_Turísticos\\_en\\_Fronteras\\_Frontur\\_y\\_Encuesta\\_de\\_Gasto\\_Turístico\\_Egatur\\_2012.pdf](http://www.iet.tourspain.es/es-ES/estadisticas/egatur/Anuales/Movimientos_Turísticos_en_Fronteras_Frontur_y_Encuesta_de_Gasto_Turístico_Egatur_2012.pdf) [downloaded 1.12.2014].
- IET (2013b). *Turismo, tráfico aéreo y compañías aéreas de bajo coste en el año 2012*. Madrid: Instituto de Turismo de España. [www.iet.tourspain.es/es-es/estadisticas/otrasestadisticas/companiabajocoste/anuales/informe\\_anual\\_de\\_cbc\\_año\\_2012.pdf](http://www.iet.tourspain.es/es-es/estadisticas/otrasestadisticas/companiabajocoste/anuales/informe_anual_de_cbc_año_2012.pdf) [downloaded 1.12.2014].
- Izquierdo-Yusta, A., Martínez-Ruiz, M. P., & Álvarez-Herranz, A. (2014). What differentiates Internet shoppers from Internet surfers? *The Service Industries Journal*, 34(6), 530-549.
- Jani, D., Jang, J. H., & Hwang, Y. H. (2014). Big five factors of personality and tourists' Internet search behavior. *Asia Pacific Journal of Tourism Research*, 19(5), 600-615.
- Jensen, J. M. (2012). Shopping orientation and online travel shopping: The role of travel experience. *International Journal of Tourism Research*, 14(1), 56-70.
- Kamarulzaman, Y. (2007). Adoption of travel e-shopping in the UK. *International Journal of Retail & Distribution Management*, 35(9), 703-719.
- Kim, L. H., Kim, D. J., & Leong, J. K. (2005). The effect of perceived risk on purchase intention in purchasing airline tickets online. *Journal of Hospitality & Leisure Marketing*, 13(2), 33-53.
- Laurent, G., & Kapferer, J. N. (1985). Measuring consumer involvement profiles. *Journal of Marketing Research*, 22(1), 41-53.

- Law, R., Leung, K., & Wong, J. (2004). The impact of the Internet on travel agencies. *International Journal of Contemporary Hospitality Management*, 16(2), 100–107.
- Lin, P. J., Jones, E., & Westwood, S. (2009). Perceived risk and risk-relievers in online travel purchase intentions. *Journal of Hospitality Marketing & Management*, 18(8), 782–810.
- Luo, M., Feng, R., & Cai, L. A. (2004). Information search behavior and tourist characteristics: the Internet vis-à-vis other information sources. *Journal of Travel & Tourism Marketing*, 17(2-3), 15-25.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide. Seventh edition*. Los Angeles, CA: Muthén and Muthén.
- Nunkoo, R., & Ramkissoon, H. (2013). Travelers' e-purchase intent of tourism products and services. *Journal of Hospitality Marketing & Management*, 22(5), 505-529.
- Park, S., Wang, D., & Fesenmaier, D. (2011). Assessing structure in American online purchase of travel products. *Anatolia*, 22(3), 401-417.
- Ryan, C., & Rao, U. (2008). Holiday users of the Internet - ease of use, functionality and novelty. *International Journal of Tourism Research*, 10(4), 329-339.
- San Martín, H., & Herrero, Á. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism: integrating innovativeness to the UTAUT framework. *Tourism Management*, 33(2), 341-350.
- Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling. Third edition*. New York: Routledge.
- Standing, C., Tang-Taye, J. P., & Boyer, M. (2014). The impact of the Internet in travel and tourism: a research review 2001–2010. *Journal of Travel & Tourism Marketing*, 31(1), 82-113.
- Susskind, A. M., & Stefanone, M. A. (2010). Internet apprehensiveness: An examination of on-line information seeking and purchasing behavior. *Journal of Hospitality and Tourism Technology*, 1(1), 5-29.
- Wen, I. (2012). An empirical study of an online travel purchase intention model. *Journal of Travel & Tourism Marketing*, 29(1), 18-39.
- Wen, I. (2013). Online shopping of travel products: A study of influence of each dimension of travelers' attitudes and the impact of travelers' online shopping experiences on their purchase intentions. *International Journal of Hospitality & Tourism Administration*, 14(3), 203-232.

Wolter, L. C., & Manthey, A. (2013). Der entscheidende Klick – Eine empirische Untersuchung buchungsrelevanter Erfolgsfaktoren hochklassiger Hotels im Web. *TW Zeitschrift für Tourismuswissenschaft*, 5(2), 223-232.

**TABLE 1** Frequency distributions of actual Internet use variables

Variable names and descriptions	Count	Percent
Uses Internet to book and pay for transportation (res_tran)	19,074	91.9%
Uses Internet to obtain information on transportation (inf_tran)	19,205	92.6%
Uses Internet to book and pay for accommodation (res_acco)	13,377	64.5%
Uses Internet to obtain information on accommodation (inf_acco)	17,801	85.8%
Uses Internet to book and pay for activities (res_acti)	4,467	21.5%
Uses Internet to obtain information on activities (inf_acti)	9,335	45.0%



**TABLE 2** Pearson (below diagonal) and tetrachoric (above diagonal) correlations between Internet use variables

	res_tran	inf_tran	res_acco	inf_acco	res_acti	inf_acti
res_tran	1.000	0.989	0.816	0.862	0.722	0.497
inf_tran	0.872	1.000	0.791	0.947	0.696	0.771
res_acco	0.376	0.354	1.000	0.920	0.743	0.414
inf_acco	0.565	0.657	0.536	1.000	0.615	0.735
res_acti	0.154	0.147	0.355	0.197	1.000	0.953
inf_acti	0.197	0.250	0.260	0.335	0.576	1.000

**TABLE 3** Standardized model estimates

Factor loadings	$f_1$		$f_2$	
	Estimate	p-value	Estimate	p-value
res_tran	0.864	0.000		
inf_tran	0.948	0.000		
res_acco	0.939	0.000		
inf_acco	0.997	0.000		
res_acti			0.991	0.000
inf_acti			0.959	0.000
Equations predicting factors*	Estimate	p-value	Estimate	p-value
Low cost carrier (lcc)	0.082	0.000	0.013	0.140
Apartments/other accommod. (ap_oth)	-0.097	0.000	-0.054	0.000
4 and 5-star hotels (hot_45)	-0.130	0.000	-0.198	0.000
3-star hotels (hot_3)	-0.049	0.000	-0.015	0.106
Cultural/city motivation (urban)	-0.099	0.000	0.209	0.000
Sea/countryside leisure mot. (seacount)	-0.172	0.000	-0.006	0.527
<1 month advance booking (last_min)	-0.127	0.000	-0.076	0.000
Low season (low_s)	-0.063	0.000	-0.079	0.000
Travel with friends (friends)	0.025	0.016	-0.007	0.413
Travel alone (alone)	-0.109	0.000	-0.094	0.000
Flight from Europe (europe)	0.120	0.000	0.023	0.015
Log-length of stay (l_stay)	-0.184	0.000	-0.059	0.000
Log-daily at destin. expenditure (l_d_exp)	0.029	0.005	0.160	0.000
Direct effects	Estimate	p-value		
lcc→res_tran	0.095	0.000		

\*Reference categories for qualitative predictors: legacy airline, hotel < 3 stars, other motivation than cultural or sea/countryside leisure, booking more than one month in advance, coming in July, August or September, traveling with partner/family, and flying from outside Europe.

**FIGURE 1** Path diagram of the proposed MIMIC model

