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Factors contributing to tourists' length of stay in Dalian northeastern China — A survival model analysis

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ABSTRACT

Length of stay is one of the most important determinants of the overall impact of tourism in a given economy. However, due to its statistical nature and complexity such as censoring and non negativity, it is rarely systematically analyzed in economic research literature. This article estimated an econometric parametric survival analysis model to learn the determinants of length of stay, in a novel way in the tourism demand literature. In the process, a number of tourist's socio-demographic characteristics were analyzed in order to disclose the most important factors that can contribute to the length of tourist stays. All findings' policy implications are addressed accordingly.

1. Introduction

Length of stay is one of the most important determinants of the overall impact of tourism on a given economy. The number of days tourists stay at a particular destination is likely to influence their expenditures. One simple reason is that lodging and dining expenses account for nearly 40% of aggregated tourist expenditures (Wang, Yang, Little, & Li, 2010). Obviously, both factors are directly related to the length of stays, and yet the number of possible experiences to be undertaken by tourists also depends on their length of stay (António & José, 2009; Barros, Correia, & Crouch, 2008; Barros & Machado, 2010; Kozak, 2001; Legoherel, 1998). Understanding the determinants of length of stay is important to fully characterize tourism demand and its impact on a given tourist destination (António & José, 2009; Machado, 2010). In addition, Carlos and Richard (2010) argue that the importance of disclosing the determinants of length of stay and concomitant gains to policymakers and researchers alike has grown with the increasingly pervasive pattern of shorter lengths of stays. António and José (2009) claim that uncovering the economic determinants of length of stay is critical to the design of marketing policies that effectively promote longer stays, which are associated with higher occupancy rates and revenue streams. In fact, income from tourism might be falling in many destinations despite the increase in visitor arrivals due to a decrease in the length of stay. Length of stay has also increased interest beyond its importance as an expenditure determinant. For instance, in the tourism sustainability literature, length of stay is important in the context of carrying capacity analysis (Manning, 2001; Prato, 2009; Saveriades, 2000; Tassiopoulos & Haydam, 2008), which is a critical issue associated with eco-tourism and sustainable tourism research. However, there are relatively few studies that estimate the determinants of length of stay in economic research literature resorting to econometric techniques.

This paper contributes to fill this gap. The main aim of this paper is to estimate the determinants of length of stay, in particular, how individual socio-demographic profiles and trip experiences influence length of stay. Length of stay is one of the questions resolved by tourists when planning or while taking their trips (Martinez-Garcia & Raya, 2008; Menezes, Moniz, & Vieira, 2008; Zhou & Grumbine, 2011). Hence, it follows that length of stay is best recorded when tourists depart, and, quite likely, is influenced by tourists' socio-demographic profiles (António & José, 2009; Bargeman & Poel, 2006).

2. Determinants of length of stay: a parametric survival analysis

Length of stay is an enduring research topic in tourism studies (Crouch, 1994; Crouch & Louviére, 2000; Lim, 1997; Thrane, 2011). Tourism demand is a broadly defined subject and includes tourist arrivals, tourist expenditures, travel exports, nights spent in tourist accommodations, and length of stay. Length of stay is an interesting research topic for two reasons. First, length of stay conditions the overall socioeconomic impact of tourism in a given economy. In fact Davies and Mangan (1992) found that an increased length of stay may allow tourists to access a larger number of experiences or activities, which may affect their overall spending, sense of affiliation, and satisfaction. Hence, several authors consider length of stay an important market segmentation variable in estimating the determinants of tourist

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spending (Davies & Mangan, 1992; Legoherel, 1998; Mok & Iverson, 2000). Second, modeling length of stay is important to tourism sustainability analysis (Gokovali et al., 2007; Saarinen, 2006). Sustainability has recently become an important policy issue in tourism. The worldwide continuous growth of tourism has triggered an intense debate on the socioeconomic and environmental impacts that tourism has on destination areas. Sustainability focuses on destination areas' carrying capacity, generally defined as the maximum number of people who can use a site without unacceptable alteration in the physical environment and without unacceptable decline in the satisfaction perceived by tourists. The concept of carrying capacity occupies a key position with regard to sustainable tourism, because many of the latter's principles are based on this theory and research practice. Models of the determinants of length of stay are important to research on sustainable tourism because they are useful to forecast tourists' on-site time and, concomitantly, the stress of tourism activity on local resources.

Alegre and Pou (2006) argue that most studies on tourism demand fail to analyze length of stays, at least at the microeconometric level, where it is possible to control for individual behaviors. Descriptive studies on the length of stay (Oppermann, 1997; Seaton & Palmer, 1997; Sung, Morrison, Hong, & O'Leary, 2001) show that it varies with nationality, age, occupation (SES), repeat visit behavior, stage in the family life cycle, and physical distance between place of origin and destination. Descriptive studies lack formal inference tests on the causal relationships between individual sociodemographic profiles and actual trip experiences and length of stay. Econometric models to estimate the determinants of length of stay have employed a Tobit model to estimate the determinants of the vacation taking decision process for a group of Israeli senior citizens (Fleischer & Pizam, 2002). The Tobit model in Fleischer and Pizam overcomes the fact that several individuals in the study group do not take vacations at all. Thus the model allows a corner solution case, with many individuals experiencing zero days of vacation. Fleischer and Pizam conclude that age, health status, and income have a positive effect on the length of stay. In the present case, only departing tourists were surveyed, and, hence, all tourists experienced a strictly non-zero positive length of stay. Therefore, the Tobit model, employed in Fleischer and Pizam, is not applicable. Length of stay for tourists visiting the Balearic Islands where the explanatory variable is binary (0 if length of stay is shorter than 1 week, and 1 otherwise) find, among other results, that labor status, nationality, and repeat visitation rate are statistically significant determinants of length of stay (Alegre & Pou, 2006). Gokovali et al. (2007) estimated parametric survival models of the proportional hazard analysis. For a cross section of tourists departing from the Turkish region of Bodrum, experience as a tourist, past visits to destination, overall attractiveness, and image of destination country, all increase the probability of staying longer (Gokovali et al., 2007).

3. Contextual setting and data

Dalian is located in the southernmost part of the Liaodong Peninsula in northeast China, with the Yellow Sea to the east and the Bohai Sea to the west. It is one of the most important industrial cities in the region and a main seaport of China. Dalian is extolled as the “Romantic Capital” and “Northern Pearl of China.” Dalian was given the honor of being named a “Model Environmental City” by the United Nations on June 5, 2001. It was the first city in China to receive this honor and only the second in Asia. Dalian is also a modern tourism city. It is famous for fashion, football, and its annual beer festival.

China's ancient cities (i.e., Beijing, Xian, Hangzhou, and Nanjing etc.), that have numerous historical relics and ruins, temples and museums focus tourism on their long history and rich culture. Dalian, on the other hand, offers a different experience for visitors. It is a famous summer resort with beautiful scenery and pleasant environment providing the visitor a chance to relax by the sea and enjoy the clean air, while still offering plenty of shopping, bars, and restaurants. There are more than 10 coastal environment-oriented recreational parks where natural environment elements such as water, flowers, forests, trails, and turf grass, and activities such as fishing and swimming are major tourist attractions. Native and foreign visitors enjoy sunbathing, swimming, diving, camping, boating, fishing, and outdoor cooking. Tourism in Dalian has experienced rapid development in the last 20 years, especially the last decade. Tourist arrivals have increased from 12.15 million in 2000 to 35.17 million in 2009. Among the total of 35.17 million arrivals, domestic tourists account for 97% and the remaining 3% belong to overseas tourists including tourists from Hong Kong, Macao, Taiwan, and the rest of the world. In the same period tourism revenue increased from $1345 million to $7442 million. For the total of $7442 million of tourism revenue in 2009, 90% was contributed by domestic tourists and 10% was contributed by overseas tourists. Statistics indicates that tourists from overseas stay in Dalian for 3.40 days per person per trip on average while domestic tourists stay for 3.09 days per person per trip on average. In terms of tourism expenditures, on average each overseas tourist spent $204 per person per day and $693 per trip. By contrast, domestic arrivals spent $63 per person per day and $196 per person per trip (Dalian Statistics Yearbook, 2010). No large differences are observed in terms of lengths of stays between overseas tourists and domestic tourists. One possible reason is that a vast majority of tourists in Dalian are from Asian countries (>75%). The travelers from Asian countries generally have less than 10 h of flight. The other reason may be due to the fact that Dalian is a relatively small tourism city (5.5 million people) where most tourism sites are located fairly close to each other and it does not take many days to have a complete tour although some travelers may stay for 2 to 3 days at one site. One observation which causes concern in terms of regional economic impact consideration in Dalian is that the length of tourism stays of inbound tourists has been decreasing for the last 10 years except for Taiwan's tourists. For instance, in 1997 the number of days' stay for tourists coming from the rest of the world (excluding Hong Kong, Marco, and Taiwan) was shortened to 3.27 days in 2008 from 4.55 days in 1997. The length of stay for Hong Kong's tourists was reduced to 3.32 days in 2008 from 3.77 days in 1997. And similarly, the length of stay for tourists from Marco was shortened to 3.27 days in 2008 from 3.74 days in 1997. Only the length of stay of tourists from Taiwan increased slightly from 3.39 days in 1997 to 3.44 days in 2008 (Dalian Statistics Yearbook, 2009) (Fig. 1).

A similar situation happens for domestic tourists and there is no indication that this pattern will change in the near future. The short length of tourist stay is certainly a negative sign regarding the tourism development, which naturally becomes a concern to both local government and tourism business operators. In recent years devising a good strategy to increase tourists' length of stay is a top priority for

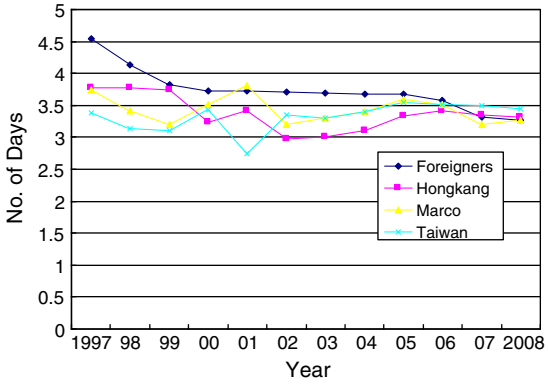

Fig. 1. Length of stay of inbound tourist in Dalian.