Chapter 10

Efficiency and Travel Agencies: Bayesian Structural Equation Model

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ABSTRACT

The chapter deals with Bayesian structural equation modeling (SEM) for the case of travel agencies. The focus of research is the investigation of possible impacts of external integration with transport suppliers on the efficiency of travel agencies. In order to calculate the efficiency, the data envelopment analysis was used. For the construction of the measurement part of the model, the confirmatory factor analysis (CFA) was conducted, while its structural part was developed by the means of SEM procedure. When conducting the CFA and SEM procedures, the Bayesian estimation method was employed. Its performance was also compared with the maximum likelihood method and the fit indices of both methods were inspected. The results show that the derived model fits well to the real data. The study confirms certain positive effects of the external integration on the efficiency. This finding could represent an important guideline for the managers of the travel agencies.

INTRODUCTION

The tourism industry is important for every national economy and is becoming one of the most important industries worldwide since its share has significantly increased during the past 30 years (Walker, 2009). The tourism supply chains are based on business relationships between all involved members while the management can contribute significantly to performance improvements. Besides financial performance, the particular attention must be dedicated to the improvement of business operations of each supplier in the supply chain (Tapper & Font, 2004).

Business relations between members of the tourism supply chains are very important for firm performance, and those relations are usually described with so-called ‘external integration (EI)’ of the firm.
There have been many definitions introduced for the term ‘external integration in the supply chains’. Our opinion is that maybe the definition proposed by the authors Flynn, Huo, and Zhao (2010) is the most appropriate for the general supply chains. These authors define that the supply chain integration represents a certain level of strategic collaboration of individual supply chain member with its partners within the framework of organizational process management in the supply chain.

For the general supply chains in the manufactory and other industries, it has been shown that the formation of good external integration is an essential factor for better performance, including the efficiency, quality, delivery and flexibility (Danese, 2013). On the other side, concerning the tourism supply chains, there are only several researches devoted to the interactions between the external integration and the performance of the members of supply chains. Sadly, these studies are mostly restricted to the specific tourism sector, for example to the hotel sector (Enz, Canina, & Walsh, 2001; Atkinson & Brown, 2001; Mia & Patiar, 2001). Besides this, they mostly treat the firms’ performance without any particular concerns about their efficiency.

One of the fundamental entities of the tourism supply chains are also the travel agencies (TA), whose the primary objective is the selling of specific holiday packages to their customers. Concerning their efficiency, it is quite important to the creditors, investors, and business partners (Köksal & Aksu, 2007). So there is a great necessity for the travel agencies and the other organizations in the tourism industry to work together in order to increase the overall efficiency and timely deliver the quality products and services to the customer (Yilmaz & Bititci, 2006). This fact also includes the transport suppliers (TS), which should beneficially collaborate with the travel agencies in the largest possible way.

Surprisingly, the careful inspection of existing researches revealed a relatively big hole in the literature about any kind of analysis of interrelations between the external integration of travel agencies and the efficiency of travel agencies. Some studies have examined this area in the case of cooperation with different transport suppliers (Alamdari, 2002; Medina-Muñoz & García-Falcón, 2000; Bastakis, Buhalis & Butler, 2004; Topolšek, Mrnjavac, & Kovačić, 2014). The conclusions of these studies have advocated that the working staffs in agencies should communicate more timely and accurately in order to reach better synchronization between the agencies and the transport suppliers (water, air, bus and rail suppliers).

The chapter introduces the usefulness of advanced statistical technique called the structural equation modeling (SEM) (Hoyle, 2012; Hair, Black, Babin, & Anderson, 2010; Byrne, 2009), where the emphasis of the estimation process is based on the Bayesian method. The primary goal is to show how the SEM modeling, combined with the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), can be effectively used to support managerial decisions in the tourism sector in the sense of increased financial and other benefits. More precisely, the research wishes to analyze the possible positive impacts of external integration with transport suppliers on the efficiency of travel agencies. For that purpose, the Bayesian structural equation model (SEM model) is developed, and validity of its performance is tested. The performance of the Bayesian estimation method is also compared with the performance of maximum likelihood (ML) estimation method. Since both methods have provided similar estimation results, the fit indices of each of them were inspected to validate the quality of model fit as much precisely as possible.

Unexpectedly, there were only several studies detected in the existing literature about any kind of SEM modeling in the tourism sector, which consider the relationships between the EI and the firm performance (for example, Medina-Muñoz & García-Falcón, 2000; Bigne, Sndreu, Küster, & Blesa, 2005; Shi & Lao, 2013). To the best of our knowledge, practically none of these studies have involved the Bayesian estimation within the SEM modeling framework. So the methodological issues in this study are believed to be one of the main contributions of this chapter, motivating for the researchers in