



High speed rail passenger segmentation and ticketing channel preference



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ABSTRACT

A multi-channel strategy for the purposes of marketing and ticketing has been widely employed in various fields, including the transportation industry, yet few transportation studies have investigated ticket channel-related issues. This study thus adopts Taiwan High Speed Rail (THSR) as a case study to identify passengers' perceptions regarding key factors that affect the channel preference through which they receive their services, particularly across a four-stage ticket purchasing process, including information enquiry, booking, payment, and ticket pick-up. To investigate these key factors, we base the framework of our research model upon customers' perceived value perspective, adopting a multinomial logit model to examine the influence of channel attributes on HSR passengers' preferences. The relationship among the decisions made by these passengers at each ticket purchasing stage is also examined. The findings of our study demonstrate that perceived risk, perceived benefit, and perceived ease of use are critical factors influencing passengers' channel preference throughout the ticket-purchasing process. Perceptual differences are proven to exist due to various demographic factors and trip characteristics. The conclusions of this study have implications for THSR management to design appropriate ticketing channel services for certain types of passengers and can also be generally applied to multiple distribution channels in conventional railway system and intercity bus services.

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1. Introduction

More and more firms in recent years are selling their products or services via multiple channels to expand their market base, increase profit and customer retention, and reduce distribution costs (Agatz et al., 2008; Alamdari and Mason, 2006; Alptekinoglu and Tang, 2005; Nunes and Cespedes, 2003; Rangaswamy and Van Bruggen, 2005; Venkatesan et al., 2007; Yoon et al., 2006). The use of multiple channels, including those that are tangible and intangible, might also achieve tremendous savings in monetary and non-monetary costs from a consumer's perspective (Bigné et al., 2010). With such advantages, transportation operation agencies have adopted a multi-channel strategy as well, but there has been a lack of research performed on multi-channel issues.

The previous literature indicates that consumers generally have varying requirements at different stages of their decision-making and purchasing processes. It is quite common for consumers to use different channels to meet their needs and gain access to a firm's services or products at different points along the purchasing process (Agatz et al., 2008; Ahuja et al., 2003; Balasubramanian et al., 2005; Frambach et al., 2007; Rangaswamy and Van Bruggen, 2005). Previous studies have shown that

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consumers experience three stages in the buying process: pre-purchase, purchase, and post-purchase (Frambach et al., 2007; Neslin et al., 2006). Frambach et al. (2007) defined the “pre-purchase stage” as information gathering in which consumers familiarize themselves with the product offerings. The “purchase stage” involves the actual decision to make a purchase and the actual carrying out of the transaction(s). Lastly, the “post-purchase stage” relates to any decisions regarding repeat purchases and continuing to use a product or service (Frambach et al., 2007). Taking the transportation industry as an example, passengers commonly go through four stages in their ticket purchasing process. First, passengers search for relative information of a certain transportation mode, such as timetable, fares, promotions, etc. Second, passengers can either reserve tickets in advance or purchase tickets on the day of departure. Third, after passengers have paid for the fare, they then pick up tickets at stations or via other distribution channels.

Ever since the multi-channel strategy has become more widely employed, channel performance has received greater attention from researchers and service providers (Van Birgelen et al., 2006; Asare et al., 2011). Because distribution channels play such an important role in the process of delivering services, channel performance thus affects consumers' overall evaluation of firms. Van Birgelen et al. (2006) noted that channel performance satisfaction is associated directly with consumers' behavioral intentions. Previous research has revealed that customers in varying market segments evaluate channel performance through different methods (Agatz et al., 2008; Parasuraman et al., 2005). To provide consumers with appropriate and quality services, firms should understand customers' different needs in their utilization of distribution channels.

In addition to the academic literature described above, multi-channel strategies are being targeted from the perspective of industries. Taking the example of Taiwan High Speed Rail (THSR), it initially provided passengers with only a single channel (THSR stations) from which to purchase tickets at the beginning of operations in early 2007. To overcome the disadvantages resulting from the limitation of utilizing only a single ticketing channel, THSR then developed other multiple distribution channels, such as a website online channel and ticketing via 24-h convenience stores. Therefore, THSR is an appropriate case study for reflecting upon the implementation of a multi-channel strategy. This study first aims to identify passengers' perceptions of the essential factors that affect a channel preference across various ticket purchasing stages. We then target to identify passengers' channel preference throughout the ticket purchasing process and examine the relationships among the decisions made by these passengers at each ticket purchasing stage. The findings of this study can serve as a reference to design appropriate ticketing channel services for certain types of passengers.

After discussing the research problems and objectives, the remainder of this research is organized as follows. Section 2 provides a brief literature review on the theoretical background and empirical research utilized herein. Section 3 presents the research design and questionnaire design, followed by an analysis of empirical results in Section 4. Section 5 discusses the managerial implications for THSR and directions for future research.

2. Literature review

2.1. Application of multi-channel strategies and channel preference

The majority of the relevant literature has focused on multi-channel strategies, with most studies looking at channel preference. Distribution channels may be dichotomized into the categories of online/offline channels or internal/external channels (Balasubramanian et al., 2005; Chiam et al., 2009; Schoenbachler and Gorden, 2002), with the relationship between online and offline channel preferences as the subject of many studies (Chiam et al., 2009; Farag et al., 2007). Regarding the transportation industry, for decades both scholars and airline managers have known about the importance of developing multiple channels. Though the literature has many related research studies on the application of a multi-channel strategy for airlines (Alamdari and Mason, 2006; Bigné et al., 2010; Jarach, 2002; Ruiz-Mafé et al., 2009; Shon et al., 2003; Yoon et al., 2006), relatively few of them are associated with the use of a multi-channel strategy in the railway industry, even though such strategies have already been commonly adopted. To reserve or purchase tickets, French National Railways (SNCF, Société Nationale des Chemins de fer Français) provides passengers with a diversity of distribution channels, such as an official website, ticketing via travel agencies, and service counters at stations.

The previous literature on channel preference generally has considered the consumer purchasing process as a whole decision making procedure, instead of just looking at a combination of several decision making stages. However, when the concept of a multi-channel strategy was first introduced, some prior studies indicated that consumers would choose different channels at different stages in the purchasing process (Balasubramanian et al., 2005; Frambach et al., 2007; Rangaswamy and Van Bruggen, 2005; Weinberg et al., 2007). Moreover, it has long been elaborated upon that a purchase decision made by an individual should be taken as the result of a sophisticated and multi-stage process (De Bruyn and Lilien, 2008).

In terms of critical factors affecting channel preference, numerous studies on such issues have been conducted. Schoenbachler and Gorden (2002) revealed that perceived risk, past direct marketing experience, motivation to buy from a channel, product category, and website design are important factors influencing whether consumers purchase from a single channel or from multiple channels.

Some prior transportation-related studies have begun to pay more attention on passenger segmentation (Teichert et al., 2008; Garrow et al., 2012; Fröidh and Byström, 2013; Wen et al., 2014), as even more recent studies on a multi-channel strategy application in the transportation industry have been on the increase (Cao, 2012). However, not many studies have

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