Recognising customers' patterns of bus service patronage using a loyalty framework

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ABSTRACT

With the aim of identifying typical characteristics of travellers, traditional segmentation approaches were based on socio-demographic variables. However, the approaches could not reveal the factors motivating individual behaviour. This result led to an emerging interest in psychological research models that are adhered to the decision-making process. Among various related theories, the concept of loyalty was attractive because the major purpose of establishing a loyalty concept is to recognise a customer's pattern towards a given service. However, there were few efforts aimed at determining market segments based on a loyalty framework. In addition, there was no consensus achieved on theoretical loyalty typology due to different empirical findings in different market contexts. This study aims to be the first loyalty-based attempt to provide an operational method of segmenting bus service market. Seeking practical implementation, another focus of this study is to determine typical characteristics of the market segments. Analyses that included cluster techniques were conducted on questionnaire data collected from 333 respondents in Hidaka city, Japan. A cross-classification between relative attitude and service patronage was successfully established, dividing the market into four segments. Segments of loyalty and no-loyalty were observed to be dominant over the remaining market. In contrast, the spurious loyalty segment was small and insignificant. An expansion of the latent loyalty segment was also observed when moving from the intention phase to the actual behaviour phase. Notably, not only demographic factors but also social awareness variables including environmental concern and elderly support were observed to be significant in distinguishing customer segments from one another.

1. Introduction

As a central topic in marketing literature and practice, market segmentation for the transportation sector has commonly been used to identify typical travellers' characteristics based on socio-demographic variables. However, this trend of research was not sufficient to reflect the complexity of customers' selection [1]. The conventional segmentation approach was not able to reveal the motivation of behaviour. In addition, traveller's behaviours towards transport modes are often out of an expected thought [2]. Moreover, the theory of individual selection behaviour, which was a basis for the conventional approach, cannot explain all aspects of behaviour [3].

To address the above problems, some researchers suggested that psychological factors could work better in explaining travel behaviour, thus more accurately categorising customers in the same motivation [4]. Aiming for the psychological approach, researchers within transportation disciplines commonly followed an approach in which factors were combined to create market segments. One of initial efforts was a study by Redmond [5] that identified various travel-related attitudinal types as well as other attitudinal types based on the lifestyle and personality of travellers. Outwater et al. [6] introduced their market segmentation work, which focuses on the relationship between attitudes and socioeconomic profiles of ferry riders. A similar study by Beirao and Cabral [7] using travel attitudes and cluster analyses has successfully extracted six groups including transit enthusiasts, anxious status seekers, careless riders, green cruisers, frugal travellers, and obstinate drivers.

However, the factor-combination approach for market segmentation may create a problem in a manner such that different combinations of factors will lead to different ways for different groups of travellers [8]. Therefore, some researchers have attempted to address the issue by emphasising a systematic approach for segmentation. With the assumption of a strong attitude–behaviour relationship obtained from psychological theories, the basis of the approach is to bear on attitudinal

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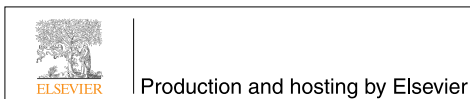
variables to derive segments. In particular, the result of cluster separation relies on the difference in the level of attitudinal variables. Based on an expansion of the theory of planned behaviour [9], two studies on attitude-based segmentation have been presented by Anable [8] and Hunecke et al. [10]. With 17 attitudinal variables, Anable [8] has defined four groups with car access (malcontented motorists, complacent car addicts, aspiring environmentalists, and die-hard drivers) and two segments for people without car access (car-less crusaders and reluctant riders). Hunecke et al. [10] relied on six attitudinal variables to identify six segments including public transport oriented, public transport sensitised, pragmatics, public transport reserved, public transport averse, and uninterested. Another study supporting the systematic approach was reported by Hunecke et al. [11] with six segments of public transport rejecters, car individualists, weather resistant cyclists, eco-sensitised public transport users, and self-determined mobile people. In addition, following the systematic approach, Pronello and Camusso [2] provided deeper knowledge on travellers' segmentation with an add-in of various attitudinal variables to generate four groups of travel pleasure addicts, paying ecologists, time addicts, and time servers.

The development of systematic approaches for traveller segmentation has a solid basis in terms of providing insight towards a traveller's motivation and less dependency of segments towards collected data. In other words, the approach seeks stronger attention on the theoretical aspect rather than the empirical aspect that was normally criticised due to the reliability of the results of cluster analysis. However, a weakness in the psychological theories exists in assisting market segmentation. This weakness is demonstrated in the fact that market segments created using the conventional approach have weak transferability among each other. For instance, Hunecke et al. [11] noted that there should be five mobility types. However, their work did not distinguish, for example, which travellers had the potential to transfer to another group of eco-sensitised public transport users in case practitioners wanted to attract more travellers to use public transport. A similar situation can be observed in another study by Anable [8]. Although the author stated that aspiring environmentalists and car-less crusaders exhibit many similar attitudes and norms, his work could not suggest in which situation an aspiring environmentalist would become a car-less crusader. In sum, the weak transferability between market segments creates a problem for practitioners when trying to drive a transportation market towards an expected direction. Therefore, it is necessary to develop another solution to address the aforementioned issue of market segmentation.

It is fortunate that a recent development in the concept of loyalty, which focuses on the decision-making process [12,13], has suggested an attractive topic that the concept can be used to address the problem of segmentation for the transportation market. While the conventional approach was solely dependent on attitudinal variables to segment the market, the loyalty-based approach for market segments was built on both attitudinal and behavioural variables and characteristics of customer loyalty. Customer loyalty is a preeminent concept that guides managers on matters of customer retention, repurchase, long-term relationship and profitability. In particular, travellers with a high loyalty level will most likely have a high level in future service patronage. The involvement of loyalty characteristics in market segmentation can be explained as follows. Each of the market segments established by attitudinal and behavioural variables will have a respective level of loyalty. By employing characteristics of loyalty, the transferability among market segments can be improved in a manner that segments having similar loyalty characteristics have potential to interact with each other. For example, travellers with latent loyalty characteristics have a high possibility of exhibiting true loyalty characteristics. As such, loyalty-based segmentation brings a powerful mechanism to improve profitability through increasing the shares of target customer groups [14]. The discussed advantage of the loyalty-based approach over the conventional approach was an appropriate reason to apply the method to the market segmentation of transportation.

However, adding to the not-yet-observation of transportation studies aiming towards loyalty-based market segmentation, no consensus was achieved on the existence of a generalised customer-loyalty typology. Dick and Basu [13] perhaps provided an initial effort to theoretically view customers in different loyalty patterns. Their theoretical model received support from independent research by Knox [14]. However, several empirical studies testing the model, introduced in different market settings, did not achieve a common result. Some evidence supporting the loyalty model was observed in the retail market [12], banking market [15] and sport market [16]. In contrast, the loyalty model was rejected in the supermarket context [17].

There are two major explanations for these contradictory findings in the literature of loyalty-based segmentation. First, a difference may exist among market contexts. Customers perceived different brands/services via different sets of attributes, which may lead to different establishments of homogeneous groups. Thus, a unique operational method of market segmentation is likely required for each of the market contexts. Second, the criteria used for assessing loyalty level were not the same among empirical studies, possibly resulting in a vague notion towards loyalty of homogeneous customer groups. Some authors used consequences of loyalty to determine loyalty [15,17], whereas others employed attitudinal scores to rank customer's loyalty [12].

Being aware of the discussed issues in the literature, with the notion that research of single travel modes (e.g., public transportation) remains poor [18], the objective of this study was to provide an initial loyalty-based effort on the operational method of segmenting bus service market. The purpose of the loyalty-based segmentation for bus service market was expected to address gaps both in the literature of loyalty and the literature of transportation segmentation. Regarding the literature of loyalty, the purpose of the present study was two-fold. First, this study contributes to the generalised customer loyalty typology by providing an operational examination on loyalty-based segmentation for bus service context. Second, this study aims to determine the accuracy of loyalty assessment towards customer segments by employing most of the loyalty–judgement criteria obtained from the related literature. From the perspective of transportation segmentation, with the advantage of the loyalty-based approach and the development of various hypotheses for theoretically strengthening the market segmentation, the current study aims to propose a new solution for a systematic segmentation approach. Based on the outcome of the loyalty-based market segmentation, a further expectation of the present study is to identify typical characteristics of bus service market segments, seeking a practical guide for bus service managers.

2. Conceptual framework and hypotheses

2.1. Conceptual framework

Earlier studies on loyalty have noted a need to include attitude in addition to behaviour to define and operate loyalty [19–22]. Following the research trend, a notable model by Dick and Basu [13] received great attention from researchers due to its conceptualisation of the combined effects of attitude and behaviour [15]. According to the model, a cross-classification between relative attitude and repeat purchase behaviour (two levels of each) divides customers into four loyalty groups including no-loyalty, spurious loyalty, latent loyalty and loyalty. No loyalty consists of low relative attitude and low repeat patronage. Loyalty is signified by a combination of high relative attitude and high repeat patronage. Low relative attitude accompanied by high repeat patronage creates spurious loyalty. Finally, high relative attitude combined with low repeat patronage implies latent loyalty. The existence of spurious loyalty and latent loyalty were argued due to the effects of non-attitudinal factors (e.g., subjective norms or situational effects).

Considering the attitude–behaviour relationship as a backbone of loyalty-based market segmentation, the major requirement for segmenting bus service customers was to address operational solutions