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Bike sharing and users' subjective well-being: An empirical study in China



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ABSTRACT

The rise of bike sharing has been phenomenal in China. However, few studies have focused on its relation to subjective well-being. Here we develop an integrated model to investigate factors that affect the subjective well-being of shared bike users in China. An online survey of 908 users was conducted. The highlights are: (1) perceived value has a positive effect on users' subjective well-being through users' trust attitude. Hedonic value has the greatest impact on users' subjective well-being, followed by social value and utilitarian value; (2) social influence has a positive effect on users' trust attitude and hence to subjective well-being; (3) perceived ease of use and perceived usefulness of the system have positive effects on users' trust attitude; (4) personal accomplishment and users' trust attitude have a positive effect on users' subjective well-being. Theoretical and practical implications are also discussed.

1. Introduction

The use of bike sharing has suddenly taken off in China since 2016 (Ma et al., 2017). Bike sharing services are conveniently provided at university campuses, subway and bus stations, residential, commercial and public service areas. According to the Chinese bicycle market share report (Big Data Research, 2017), as of the end of 2016 the total number of shared bikes users had reached 18,860,000, with the bike share market expected to reach 50,000,000 users by the end of 2017.

Although the advent of bike sharing has facilitated people's lives, it is not clear whether it enhances their subjective well-being. Prior research has mainly focused on psychological, sociological, and social media aspects of the problem. Lamu and Olsen (2016) investigated the relative importance of health, income, and social relations to subjective well-being. Gerson et al. (2016) found that individual differences in personality mediate the relationship between Facebook use and subjective well-being. However, the literature on the subjective well-being of shared bicycle users is limited. Bike sharing involves unique aspects such as the need to download an app, pay a deposit, and disclose individual location, and is affected by factors beyond user's control such as the weather (Campbell et al., 2016). In contrast, bike sharing also presents unique benefits, such as positive effects on health (communicated to users in the form of information on travelled distance and burnt calories) and carbon savings. Those factors may have an impact on subjective well-being. With bike sharing becoming increasingly popular in China, the balance of beneficial and detrimental outcomes described above may potentially affect life styles and attitudes of users. This context is also relevant to marketing strategies of bike sharing companies.

Here we investigate for the first time how bike sharing is affecting the subjective well-being of Chinese users. Based on the characteristics of bike sharing, we propose an integrated model to investigate factors underlying subjective well-being. We verified

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results through a questionnaire survey. We interpret the results by applying the perceived value theory and the social influence theory to the Chinese bike share market, and discuss potential practical consequences to bike sharing operators.

This paper is organized as follows. Section 2 provides the literature review and hypothesis development. Section 3 describes the research methods, followed by data analysis in Section 4. Section 5 discusses the research findings and implications as well as limitations.

2. Literature review and hypothesis development

2.1. Perceived value and trust attitude

Customer perceived value is defined as the overall evaluation of the benefits of the product or service that the customer perceives, and the trade-off between gain and cost of the product or service (Zeithaml, 1988). Research on customer perceived value theory is mainly divided into two camps. The first focuses on customer perception, and the benefits derived by customers from a product or service, based on the concepts of customer value and experience value. The second is based on the enterprise, and refers to the value of the customer to businesses as measured by the concepts of customer lifetime value and customer engagement value. Customer perceived value is generally divided into three dimensions: utilitarian value, hedonic value and social value (Kim et al., 2013a; Yu et al., 2013). Initially, customer perceived value theory mainly applied to the study of enterprise practices (Chen and Quester, 2006) but in recent years it has been increasingly applied to the study of users' behavior (Kim, 2015; Tasci, 2016).

In this study, we draw upon customer perceived value theory to investigate how value perception affects trust attitude and subjective well-being of Chinese bike sharing users. We rely on a definition of customer value as the benefit of the service to users. We analyzed three dimensions of customer perceived value: utilitarian value, hedonic value, and social value. Specifically, the perception of utilitarian value refers to the usefulness of bike share, in terms of time savings and physical exercise; hedonic value refers to the happiness derived from riding the shared bicycle; and social value refers to the contribution to society in the form of green travel. Customers perceive value engenders a series of positive behaviors, such as new attitudes and trust among others (Kuo et al., 2009; Overby and Lee, 2006; Ryu et al., 2008). The theory of economy-based trust argues that trust emerges when one individual believes that others perform actions whenever they are beneficial. A positive relationship between perceived value and trust attitude was also identified by Kim et al. (2013b) and Wang (2014). Based on this evidence, we propose the following hypotheses regarding users of bicycle sharing services:

H1. Utilitarian value has a positive effect on trust attitude.

H2. Hedonic value has a positive effect on trust attitude.

H3. Social value has a positive effect on trust attitude.

2.2. Social influence and trust attitude

Social influence describes the phenomenon whereby emotions, opinions or behaviors of individuals are affected by others (Kelman, 1958). In information systems studies, it can be defined as the importance individuals ascribe to the opinions of others when choosing whether or not to adopt a new system (Venkatesh et al., 2003). In 1958, Kelman (1958) identified three broad types of social influence: compliance, identification, and internalization. Compliance refers to situations where people appear to agree with others, but privately keep their dissenting opinions; identification describes the effect of influential individuals such as public figures and celebrities; while internalization occurs when people accept a belief both publicly and privately. The theory can be seen in socialization, persuasion, sales, and marketing, and it has also been highlighted in previous information system studies (Venkatesh and Brown, 2001; Wang et al., 2013). Social influence is particularly relevant when people are uncertain, either because stimuli are intrinsically ambiguous or because there is social disagreement. Social influence was shown to mitigate consumers' uncertainty. Because consumers are generally uncomfortable with uncertainty, they tend to interact with friends or relatives, which increase their trust in a product or service. Social influence also increases trust towards a new information technology or service (Montazemi and Qahri-Saremi, 2015). Therefore we hypothesize that:

H4. Social influence has a positive effect on trust attitude.

2.3. Perceived ease of use, perceived usefulness and trust attitude

Shared bike service is a new shared-economy bike service in China (Ma et al., 2017). Because users lack comprehensive information about shared bike services and operators, it is their interaction with the shared bike system and apps that should determine the perception of usefulness and ease of use of the service (Benamati et al., 2010). Such positive feelings would allow users to overcome risk perceptions and ultimately establish trust in services such as shared bicycles. Previous studies support the view that technology can affect trusting attitudes (Lankton et al., 2016; Mcknight et al., 2002) and that perceived ease of use and usefulness are important predictors of trust (Arapaci, 2017; Gefen et al., 2003; Gidhagen and Persson, 2011; Hajli et al., 2017). Thus, we argue that perceived usefulness and ease of use of the shared bicycle system and app will positively affect trust attitude of users and hypothesize that:

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