



Do the organizational forms affect passenger satisfaction? Evidence from Chinese public transport service



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ABSTRACT

This paper presents a discussion on the relationship between organizational forms (including the ownership structure and the contractual practices) and passenger satisfaction of Chinese public transport service. To test this proposition, an original rich data set covering 4702 respondents and 58 public transport operators of 13 cities for the period 2013–2014 is used. We firstly estimate the passenger satisfaction based on customer satisfaction theory and PLS-SEM, and then take into consideration the mixed logit model to assess the effect between them. Conclusions drawn from the study are summarized as follows: ① The effect of organizational forms on the passenger satisfaction of public transport service is confirmed. ② Public transport services franchised to public ownership offer higher passenger satisfaction than those franchised to private ownership and mixed ownership. ③ Public transport services regulated by the management contracts incite more passenger satisfaction than those regulated by net cost contracts and gross cost contracts.

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1. Introduction

Most cities in China are experiencing rapid urbanization, population growth and dispersal of amenities and activities. These factors have caused increased demand for and dependence on personal motorized transportation leading to problems such as congestion, accidents, environmental degradation, pollution, noise, and so on (Zhao, 2010). In order to alleviate these problems, giving priority to public transport development has become the consensus of the government and the people in China. Public transport services are an important part of the infrastructure of urban public services, which are, of course, also intertwined with the social public welfare related to people's livelihood. Improving public transport services is the responsibility of Chinese municipal governments. In recent years, Chinese government has issued relevant documents vigorously supporting public transport service and with the purpose of reforming public transport services. These reforms aim at improving the efficiency and the service of public transport by changing the organizational form of public transport services (Roy and Yvrande-Billon, 2007; Zhang et al., 2015). However, many problems have occurred in these reforms. Since these problems existed, many private capitals have withdrawn from the public transport service market, and large-scale nationalization reforms emerged (Wang et al., 2014). This phenomenon is implemented on the premise of a theoretical hypothesis, that is, that the organizational form affects the performance of public transport service. Therefore, our main objective in this paper is to test this hypothesis by investigating to what extent the organizational form influences the performance of public

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transport service. More precisely, the aim of this study is to assess the impact of the organizational form on the performance of the Chinese public transport service.

Public transport service is a quasi-public product and encompasses both the non-profit and for-profit. Therefore, we measure the performance of public transport service from two perspectives: the technical efficiency and the users' satisfaction. In the previous studies, most of the works analyzed the role of the organizational form in public transport service from the perspective of the operator—i.e., by focusing on indicators of efficiency and productivity (Cowie and Asenova, 1999; Odeck, 2006; Roy and Yvrande-Billon, 2007; Karlaftis, 2010; Albalade et al., 2012; Boitani et al., 2013; Smirnova and Leland, 2013; Zhang et al., 2015). They generally believe that the organizational form has an impact on the efficiency of public transport service. Different modes of the organizational form may produce different efficiencies. At present, Fiorio et al. (2013) are the only researchers who have studied the relationship between the consumers' subjective satisfaction and the organizational form of the public transport sector. They found that a monopolistic, integrated service organization was correlated with higher user satisfaction. The results link competitive tendering procedures with the highest levels of satisfaction.

In China, the organizational form in public transport service is described from two aspects of the ownership structure and the contractual practices, which is different from the division of the organizational form in the European cities' public transport service. In addition, the user satisfaction of public transport in the research of Fiorio et al. (2013) was measured by a question: "Generally speaking, please tell me if you are very satisfied, rather satisfied, rather unsatisfied or not at all satisfied with public transport," in the Eurobarometer survey. The Eurobarometer survey was not intended as a direct test of social attitudes toward the different dimensions of public transport service. Therefore, combined with the actual situation of public transport service in China, we reference the research result of Fiorio et al. (2013), and estimate the satisfaction of public transport service from different dimensions. We obtain the passenger satisfaction index, and build the relationship model to analyze the association between the public transport sectors' organizational form and the satisfaction with the public transport sector. To our knowledge, no other empirical studies of the Chinese public transport sector have already addressed this issue thus far.

The data set of the organizational form variables covering 58 different Chinese public transport operators for the period 2013–2014 has been studied. Within the data set of the passenger satisfaction, the individuals' socio-economic characteristics and the travel characteristics covering 13 cities have been obtained. These data sets are used to test the hypotheses and assess the satisfaction with the public transport service. The data that we use is one of our contributions. Most of the scholars usually have used the structural equation model to measure the public transport satisfaction based on customer satisfaction theory (Eboli and Mazzulla, 2009; Oña et al., 2013; Ratanavaraha et al., 2016; Shen et al., 2016). Therefore, taking into account the characteristics of Chinese public transport services, we construct the passenger satisfaction index model based on the customer satisfaction theory and measure the passenger satisfaction index used by Partial least square-structural equation model (PLS-SEM). Finally, we directly examine the association between the passenger satisfaction and the organizational form based on the mixed logit model. This is an area of innovation in research methodology contributed by this paper.

The structure of this paper is as follows. In Section 2, we briefly summarize the organizational form of Chinese public transport and discuss the literature devoted to study the satisfaction with public transport service. Section 3 describes the research methodology applied in this study. In Section 4, we present our data set and variables in greater detail. An empirical analysis of the organizational form impacting the passenger satisfaction is elaborated in Section 5. Some comments and policy implications are presented in the sixth and final section.

2. Research background

2.1. Organizational form of Chinese public transport

Since the reform and opening up policy was introduced, the development of public transport service reform in China has undergone a series of changes. Public transport service has experienced a change from public-oriented ownership to private-oriented ownership and then back from private-oriented ownership to public-oriented ownership. From the point of the public transport service reform, the emphases of the reform were the changes to the organizational and regulatory framework of public transport service.

At present, the responsibility for public transport is decentralized to the local authorities. This means that they have the authority to define the level of public transport services to be procured and to choose the organizational forms of their public transport. More precisely, the local authorities define the operating route, operating schedules, fares and the amount of subsidies. According to these requirements, they choose the organizational forms and regulatory rules. Therefore, several operators may coexist in the same transport perimeter.

In China, the local authorities in charge of regulating the procurement of urban public transport services can usually choose between the following two modes of provision. They can provide and operate public transport services directly, in which case the operator is a public administration (public). They may also choose to delegate the operation of services to fully private companies (private) or to semi-public companies (mixed) within the framework of a contractual practice. In the latter case, the contractors are selected through a tendering process.

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