

# Paratransit Service Perception Differences between Drivers and Users : A Case study of Songtaew in Khon Kaen City, Thailand

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Nowadays paratransit becomes the dominant transport mode in Thailand, specially Songtaew which is a modified pick-up truck. However, studies regarding Songtaew are mainly studied in Bangkok where Songtaew plays a role as a feeder of mass transit system. This study is the attempt to focus on Songtaew which plays a role as a main public transport mode in many medium-sized cities for identifying problems and suggesting the recommendation to improve its service in the future. The study discussed in this paper examined the perception of Songtaew service in Khon Kaen City in identifying factors that influence a use of Songtaew. The study examines the perception from the drivers and the users' point of view by their participation in completing a developed survey instrument regarding the various conditions of its service: safety, fare, information, travel time, reliability, availability, comfort, image, flexibility, and convenience. The results indicated the drivers and the users have different perception on the variables regarding Songtaew service. Especially, Songtaew drivers perceived Songtaew service differ from users on the variable like safety. Implications of this study would be useful for the researcher to understand more about the factors which affect the paratransit use in other cities. Moreover, the study highlights the main reasons for the Songtaew use are car and driving license unavailability, and the benefits of low fare. The availability of service routes and the reliability with short waiting time are also crucial to motivate Songtaew use. This paper also shows that the study of the perception on paratransit service is very useful to develop the policy from bridging the different perceptions with the drivers and users to improve its performance. For the further work, it is necessary to better understand users' behavior and improving its service for contributing to motivate modal shift and reduce the automobile use.

**Key Words :** Paratransit, Songtaew, Perception, Khon Kaen, Thailand

## 1. INTRODUCTION

Nowadays paratransit plays a role as the predominant urban public transport mode in many de-

veloping countries, especially in Thailand where has various types of paratransit such as motorcycle-taxi, Tuk-tuk, Songtaew, and Silor-lek. Songtaew or a modified pick-up truck operates as a main public

transport mode in many medium-sized cities in Thailand, including Khon Kaen City. This mode is available to everyone in the city especially to the low-income workers and the students whose travel cost compensated by their families.

To our knowledge the quality of public transport can be measured directly through user perception survey by rating different conditions of the service, such as safety, fare, information, travel time, reliability, availability, and comfort of the service, etc.. In addition to the lack of Songtaew perception studies in Thailand, this study is the first attempt to focus on the Songtaew service perception from both Songtaew drivers and users' point of view to better understand about the factors that influence this mode use in the medium-sized cities in Thailand.

The main objective of this paper is to investigate the perception of Songtaew in Khon Kaen City from the drivers and the users' point of view by their participation in completing a developed survey instrument regarding the condition of Songtaew service. This survey instrument examined the perception of the drivers and users on factor related to the usage of Songtaew: safety, fare, information, travel time, reliability, availability, comfort, image of Songtaew, flexibility, and convenience. Therefore, this paper corroborates the authors' hypothesis regarding the Songtaew service perception that there is a significant difference perception between Songtaew drivers and users in Khon Kaen City.

This paper begins by providing the background and motivation of the study, followed by the overview of Songtaew in Khon Kaen City, the data collection and the research methodology. Finally, the paper concludes with the findings of the different perception on Songtaew service between Songtaew drivers and users.

## 2. BACKGROUND AND MOTIVATION

Presently, Songtaew in Thailand which is modified from a pick-up or a larger truck with two rows of seats in the back provides people movement in both within towns and cities and for longer routes between towns and villages. Moreover, Songtaew is known as one of the major means of transportation in the urban areas in Thailand. This mode is popular in Thailand because of its intermediate size which can easily move around the area in the city. Furthermore, Songtaew is cheaper than other transport modes in many cities. In Bangkok, Songtaew is a ride-sharing pick-up truck because of the lack of the bus service along local street (Oshima et al., 2007) and plays a role as a feeder of mass transit system especially the

Metropolitan Rapid Transit (MRT) and the Bangkok Mass Transit System (BTS) (Tangphaisankun, 2010).

This research is focusing on Songtaew in Khon Kean City which operates as a main urban public transport to better understand about the factors that influence this mode use. The previous studies by the authors found that it is necessary to increase user satisfaction with the public transport system in the city in order to maintain existing users and attract new users. Although there are many studies regarding the public transit service perception, most of them are mainly focused on the users' perception especially their satisfaction with the service. Satisfaction could be represented as personal preferences of the users, their past experiences and previous knowledge (Imam, 2014).

Accordingly, increasing user satisfaction should be better understand about users' perception regarding the service which their perceptions are affected by the performance of the attributes of the service provided by the drivers. It is important to differentiate between the users and drivers' perception regarding the provided service, since users' satisfaction requires an experience of the service, while the drivers are responsible for providing the service by supplying users to their destinations. To put in the other words, the drivers are responsible for making users' experience by their provided service. Furthermore, the drivers' service is affected by their perception as well. Therefore, it is needed to investigate the drivers' perception on various conditions of its service, not only the users' perception to seek whether they have the different perceptions or not. If we could know the different perceptions between them, it would be able to recommend the improvement of the service they offered by bridging these differences to meet the users' need for providing the most satisfaction to the users to retain the existing users in the future.

Currently, the study on how to increase user satisfaction of paratransit service in Thailand have not yet well understood. According to the literature review, although there has been several researches concerning transport users' perception, there is only the studies regarding the users' perception on the factors affecting their satisfaction. The drivers' perception on those factors is important as well because there might be some different perceptions among them that could be affect the user of Songtaew behavior. Given this gap in the literature, this study aims to identify factors that influence Songtaew use through the drivers and the users' point of view by their participation in completing a developed survey instrument. Therefore, this paper corrobo-

rates the authors' hypothesis regarding the Songtaew service perception that there is a significant difference perception between Songtaew drivers and users in Khon Kaen City. Moreover, this study also examined the travel pattern and modal share in Khon Kaen City to understand the existing Khon Kaen travel situation.

### 3. OVERVIEW OF SONGTAEW IN KHON KAEN

Based on the authors' field survey conducted in August 2015 about the existing Songtaew service, there are a total of 19 Songtaew service routes operated in Khon Kaen City. It can accommodate up to 20 passengers on any trip. Moreover, a flat-fare system is used, with adults costing 9 Baht and students costing 5 Baht. In Thailand there are two mainly types of Songtaew related to its design and vehicle. The first type is some vehicles are modified from a large truck like Toyota Dyna, Mitsubishi Fuso Canter, Isuzu Elf and similar large trucks which can accommodate up to 30 passengers and run on the fixed route between province area connecting the rural and the urban area through the different parts of Thailand. The second type is modified from a pick-up truck such as Toyota Hilux, ISUZU D-MAX, ISUZU D-LUX, etc. which can accommodate up to 20 passengers and operates as a fixed-route bus to run on the fixed route in Bangkok and other cities.

In Khon Kaen City, there is only one type of Songtaew which is modified from a pick-up truck especially Toyota Hilux and ISUZU D-MAX. It operates as a hail and ride service on fixed-route in the city by the private sector and local cooperative.

### 4. RESEARCH METHODOLOGY

A comprehensive field survey of Songtaew drivers and users was carried out for investigating their perception on various aspects of Songtaew service considered as the factors related to the usage of Songtaew: safety, fare, information, travel time, reliability, availability, comfort, image of Songtaew, flexibility, and convenience.

A survey was conducted among Songtaew drivers and users in Khon Kaen City, the major city of the northeastern region of Thailand, in order to define their perception on each factor of Songtaew service. The survey was carried out by interviewing the drivers and the users on working days and interviewing randomly selected drivers and passengers. The survey consisted of two parts; the first part

contains general questions relating to the respondents' demographic and socioeconomic information such as gender, age, education, occupation and driving license possession. The second part is the major part which consists of ten Songtaew service attributes. According to the previous literature, the most relevant aspects of the public transportation service regarding the user perception were found to be: availability, accessibility, reliability, information, staff's behavior, comfort, safety, fare, and environmental impact (Joewono et al., 2007; Imam, 2014). Besides those, the previous studies, by the authors found that the factors which affect the user of Songtaew are safety, fare, information, travel time, reliability, availability, comfort, image of Songtaew, flexibility, and convenience (Wongwiriyia et al., 2016). Therefore, these factors have been considered in this study.

All respondents were asked to rate the each factor on 4-point scale of their perception, ranging from strongly disagree to strong agree. Then data were analyzed through percentage, cross-tabulation, Chi-square, One-Way ANOVA statistical techniques and multiple regression analysis for testing the hypotheses and examining the Songtaew perception from the drivers and users.

### 5. MODAL SHARE AND TRAVEL PATTERN IN KHON KAEN CITY

This section shows the modal share and the travel pattern in Khon Kaen City by summarizing the analysis carried out on the data which obtained from the authors' field survey in 2015, the majority of respondents (n=602) is female (69.1%). Furthermore, the most of respondents are the labor (29.2 %) and the government officer (20.8%). However, among the total respondents there is 45.8 % who do not have driving license and this group is the dominant users who select Songtaew as their urban transport mode for going to their regular destination. For the modal share of respondents, as shown in Fig.1, it revealed that there are the respondents who use Songtaew 56% and the respondents who do not use this mode (non-users) 44%.

Moreover, the non-users select car as their major transport mode (26%) because the most of them have car driving licenses and driving car is more convenient and safer for them than using Songtaew then most of the non-users prefer car more than Songtaew.

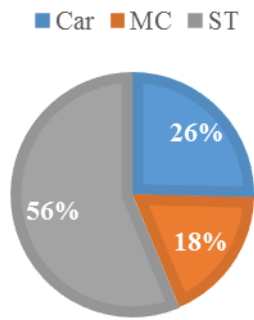


Fig.1 Modal Share of Respondents.

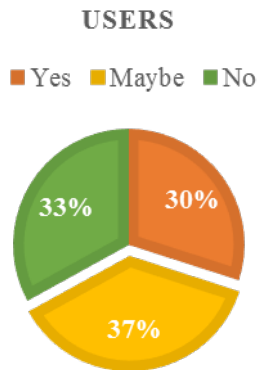


Fig.2 The intention to use Songtaew in the future (If there will be a new transport mode for users).

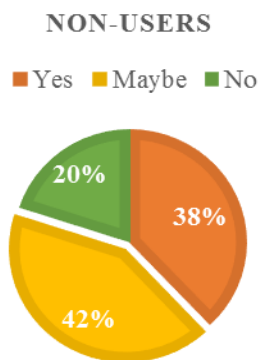


Fig.3 The intention to use Songtaew in the future (If there will be the improvement of Songtaew for non-users).

Nevertheless, the considering about the intention to use Songtaew in the future from Fig.2 and Fig.3 which are if there will be a new transport mode for users and if there will be the improvement of Songtaew revealed that the users who claimed that they maybe change their mode from Songtaew to other modes if there will be a new transport mode (37%) and the non-users who claimed that they maybe change their current mode to Songtaew if there will be the improvement of Songtaew (42%) are the majority groups who intend to stop using Songtaew (the users) and who intend to shift their modes from private vehicle to Songtaew (the non-users).

In addition to this study, it is very important to

explore more about their perception on Songtaew use to retain the present users and attract the new users.

## 6. RESULTS AND CONCLUSIONS

Based on the survey instrument in this study which carried out in 2016 examined the perception of the drivers and users on factors related to the usage of Songtaew: safety, fare, information, travel time, reliability, availability, comfort, image of Songtaew, flexibility, and convenience. The results indicated the Songtaew drivers and the users have different perception on the variables regarding Songtaew service. Especially, Songtaew drivers perceived the Songtaew service differ from users on the variable like safety. Implications of this study would be useful for the researcher to understand more about the factors which affect the paratransit use in other cities and to develop the policy from bridging the different perceptions with the drivers and users to improve paratransit performance. Moreover, the study highlights the main reasons for the Songtaew use in Khon Kaen City are car unavailability, driving license unavailability, and the benefits of low fare. The availability of service routes and the reliability with short waiting time are also crucial to motivate Songtaew use in Khon Kaen City. This paper also shows that the study of the perception with paratransit service is very useful to develop the policy from bridging the different perceptions with the drivers and users to improve the performance of the paratransit service. For the further work, to motivate Songtaew use, the study is necessary to better understand users' behavior and improving its service for contributing to motivate modal shift and reduce the use of automobile in the future.

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