

Paratransit in Developing Countries: Songtaew in Thailand

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Abstract: This paper reviews the role of paratransit in Thailand focusing on Songtaew. The data are collected through the interview with government officials and university professor in Thailand and Philippines, and the literature review related to the study. The results show that Songtaew plays a role as the major means of urban transportation in Thailand especially in the medium-sized cities. This mode is popular in Thailand because of its intermediate size which can easily move around the city even the smallest interior areas. Furthermore, Songtaew is more flexible and cheaper than other transport modes in many cities of Thailand. Compared to Jeepney in Philippines, the characteristics of the vehicle between Songtaew and Jeepney are similar to each other but the institutional system varies between them depending on their government agency and Transportation Act. However, they also play the role as the popular paratransit mode in the urban area.

Keywords: Paratransit, Songtaew, Thailand

1. INTRODUCTION

In many developing countries in Southeast Asia, paratransit or informal public transport is an important urban public transport mode. Paratransit services are mostly operated in terms of different size and forms such as those of Thailand's motorcycle-taxi, Tuk-tuk, Songtaew, and Silor-lek, Indonesia's Bajaj and Angkutan Kota, Philippines' Jeepney and the motos of Vietnam and Cambodia. (Guillen et al., 2007) Nowadays the role of paratransit becomes the dominant transport mode in many urban areas in developing countries because paratransit vehicle can be more accessible, more flexible, faster and cheaper than the formal public transport vehicle.

The four wheel vehicle with two rows benches in the back is one of the paratransit service in many developing countries in Southeast Asia which is known by various local names such as Laos and Thailand's Songtaew, Myanmar's Hilux, Vietnam's 12-seat-bus, Indonesia's Angkutan pedesaan and Philippines' Jeepney.

The main goal of this paper is to explore the role of paratransit in Thailand focusing on Songtaew, in order to provide a data of developing countries' paratransit issues for the further study on paratransit in Southeast Asia in the future. The structure of the paper contains several sections in which, the second section begins with the international comparative study about Songtaew and the other similar vehicles in the Southeast Asia country in the case of Songtaew and Jeepney in Philippines. The domestic comparison about Songtaew in Thailand focusing

on the various types of paratransit in Thailand, the various design of Songtaew and the current situation of Songtaew in different cities are described in the third section. Finally, the future potential of Songtaew in Thailand is presented in the conclusions section.

2. INTERNATIONAL COMPARISON

2.1 Songtaew in Thailand

2.1.1 Overview of Songtaew in Thailand

Songtaew in Thailand is modified from a pick-up or a larger truck with two rows of seats in the back carrying about 18 passengers. At present, Songtaew provides passenger movement in both within towns and cities and for longer routes between towns and villages. In Bangkok Songtaew plays a role as a feeder of mass transit system especially bus, train, the Metropolitan Rapid Transit (MRT) and the Bangkok Mass Transit System (BTS). (Tangphaisankun, 2010) For the transportation in other cities especially in the primary cities of different regions in Thailand, Songtaew plays a role as the main public transportation in urban and rural areas. (Kikuchi et al., 2013)

2.1.2 Songtaew Regulation

Thai central government is responsible for public transportation in Bangkok and other provincial areas, which includes the Office of Transport and Traffic Policy and Planning, and Department of Land Transport. To regulate policy of fixed-route bus as well as Songtaew in Thailand is implemented under Land Transport Act 1979 (B.E. 2522) by having Land Transport Policy Committee, Central Land Transport Control Board (CLTCB) and Provincial Land Transport Control Board (PLTCB) that have the authority to fix the routes, the number of Songtaew operator, and the number of vehicles for fixed routes in Bangkok and other provincial areas. (Department of Land Transport, 2014)

There are two types of fixed-route bus as well as Songtaew in Thailand that operated by government agency and by private agency which are a) Government agency which is two agencies to operate bus transport: The Transport Company Limited and the Bangkok Mass Transit Authority (BMTA) are state enterprises that the government shareholder is 51% and private shareholder is 49%. The Transport Company Limited is permitted to operate the route which links between Bangkok and other provinces. The Bangkok Mass Transit Authority (BMTA) is permitted to operate the routes which are in Bangkok Metropolitan area, and b) Private agency which is given the approval by government to operate the bus and Songtaew in the bus route in Bangkok Metropolitan area, the municipalities and the village in the provincial areas. (Department of Land Transport, 2014)

The fare setting process is defined in the acts. The CLTCB has authority to fix the share rates of transportation and other service charges. Those charges are determined by referring to the discussion in the cabinet. The fare of the urban bus as well as Songtaew is calculated under the cost-plus pricing, which determines the fare on the basis of the estimated total cost. Section 23 of the 1979 Local Transport Act presents the licenses by route and by vehicle size which related to Songtaew is the license of the fixed-route transportation is valid for seven years while the licenses of non-fixed route and small-vehicle transportation are valid for five years. These licenses are given by the provincial board under the Ministerial regulation. (Saito, 2011)

2.2 Jeepney in Philippines

2.2.1 Overview of Jeepney in Philippines

In Philippines the American jeep used in the Second World War was remodeled by extending the body to accommodate more passengers. Compared to the original jeep, Jeepney can carry 20 passengers. It is known to be the poor man's transport, versatile, durable and colorful vehicle. (Guillen et al., 2007) At present, Jeepney is still the dominant mode of transport throughout Philippines especially in Metro Manila and other large cities such as Cebu, Davao, Iloilo, and Bacolod which are regional capitals of different parts of Philippines. In other cities' urban areas and rural areas, the dominant mode is not Jeepney but the tricycle (motorcycle with sidecar). In these cases, Jeepney is used only for inter-city or inter-town travel, which is basically long-distance compared to the short and medium distance routes of tricycles. (Regidor, 2015)

2.2.2 Jeepney Regulation

The Land Transportation Franchising and Regulatory Board (LTFRB) is responsible for the regulation of franchise to public utility vehicles. A Certificate of Public Convenience (CPC), an authorization issued by the LTFRB for the operation of land-based public transportation utilities must first be obtained before an operator can provide transport services. This certificate could be issued only upon submission of the requirements as provided in the Public Service Act 146, and approved by the Board. The whole process normally takes sixty (60) days. (Bayan et al., 1995)

Jeepney generally operates along fixed routes nowadays, which are determined and proposed initially by prospective Jeepney operators. The proposed route is evaluated by the Department of Transportation and Communications (DOTC) Road Transport Planning Division (RTPD). The rule is that at least 75% of the proposed route should not overlap with an existing road public transport routes. Some entirely new routes for new communities or developments can be classified as "developmental" routes and usually comply with the 75% rule. For existing routes, the DOTC-RTPD determines first if the current supply of jeepneys can no longer address the demand. The agency then determines how many additional jeepneys can be approved. Next Jeepney operators are able to comply with this rule and other requirements for instance the insurance and the financial statements. Then their cases are endorsed to the Land Transportation Franchising and Regulatory Board (LTFRB) for franchising. For the fares of road public transport vehicles like bus, Jeepney, UV Express and taxis are regulated by the LTFRB. Before any increase in the fares are approved, the proposal must go through a public hearing and deliberation by the LTFRB. In the public hearing, both the supporters and opposition to the proposed fare increase are invited and present their arguments. (Regidor, 2015)

2.3 Comparisons of Songtaew and Jeepney

First, the characteristics of Songtaew and Jeepney are similar to each other which also contain two facing benches as shown in Figure 1. These vehicles can accommodate more than 20 passengers plus standees both inside the vehicle and at the rare exit. On the other hand, they are different in their design which Songtaew is basically a modified pickup truck, with two rows seats, a roof and some railings at the back and Jeepney is informally designed and decorated in vibrant colors with chrome-plated ornaments on the sides and hood.



Figure 1. Songtaew and Jeepney

Source: <http://www.chiang-mai.org/songthaew.html>,
<http://nats33.hubpages.com/hub/The-Philippine-Jeepney>

Second, the role of Songtaew and Jeepney are similar to each other which also is the important and popular public transport mode especially in the urban area. However, they play the different role in different area in each country as summarized in Table 1. In Thailand Songtaew plays a role as a feeder of mass transit system in Bangkok downtown. On the other hand, it plays a role as a main public transport mode in both urban and rural areas especially in Bangkok suburbs and in other medium-sized cities such as Khon Kaen, Chiang Mai, Nonthaburi, Chonburi, etc. Compared to Jeepney in Philippines, Jeepney also plays a role as a main public transport mode especially in Metro Manila and other large cities such as Cebu, Davao, Iloilo, Bacolod, etc., which are regional capitals of different parts of Philippines like in Thailand. On the other hand, there is no Jeepney service in other cities’ urban areas and rural areas which the dominant mode is the tricycle.

Table 1. The role of Songtaew and Jeepney

Type	Area	
	Urban	Rural
Songtaew	a) A feeder of mass transit system in Bangkok downtown b) A main public transport in other provinces	A public transport
Jeepney	A main public transport especially in Metro Manila and regional capitals	-

Third, the route setting process also varies between Songtaew and Jeepney as summarized in Table 2. The Jeepney operator chooses its route based on demand to increase their revenues and proposes the route to the Department of Transportation and Communications (DOTC) Road Transport Planning Division (RTPD) for evaluating and franchising. Compared to Songtaew, the route setting process of it is fixed by The Transport Company Limited and the Bangkok Mass Transit Authority (BMTA) for the routes in Bangkok Metropolitan area and the private agency which is given the approval by government to operate the route of Songtaew in Bangkok Metropolitan area, the municipalities and the village in the provincial areas.

Table 2. The route regulation systems of Songtaew and Jeepney

Type	Songtaew	Jeepney
Determined by	Central Land Transport Control Board (CLTCB)	Department of Transportation and Communications (DOTC) Road Transport Planning Division (RTPD)
Regulation on the route	a) The Transport Company Limited and the Bangkok Mass Transit Authority (BMTA) fix the route in Bangkok. b) The private agency given the approval by government fix the route in Bangkok and other provinces.	The Jeepney operators propose the route and the Department of Transportation and Communications (DOTC) Road Transport Planning Division (RTPD) evaluates and approves the route.

Fourth, the fare regulation systems also varies between Songtaew and Jeepney as summarized in Table 3. The fare of Jeepney is regulated by the Land Transportation Franchising and Regulatory Board (LTFRB) which approved through public hearings conducted by the Board. For the fare of Songtaew, it can be divided into two types which are a) the fare of Songtaew in Bangkok is regulated by the Central Land Transport Control Board (CLTCB) and b) the fare of Songtaew in provincial areas is regulated by the Provincial Land Transport Control Board (PLTCB).

Table 3. The fare regulation systems of Songtaew and Jeepney

Type	Songtaew	Jeepney
Determined by	Central Land Transport Control Board (CLTCB)	Department of Transportation and Communications (DOTC) Road Transport Planning Division (RTPD)
Regulation on the fare	a) The Central Land Transport Control Board (CLTCB) fix the fare in Bangkok. b) The Provincial Land Transport Control Board (PLTCB) fix the fare in other provinces.	Public hearings and approving the fare by the Land Transportation Franchising and Regulatory Board (LTFRB)

3. DOMESTIC COMPARISON

3.1 Songtaew and the various types of paratransit in Thailand

There are various kinds of paratransit that developed in Thailand for people's traveling in the urban and rural areas. In the case of paratransit in Thailand, there are mainly three types of

paratransit which serve the transportation services for the people in many cities, including Songtaew, motorcycle-taxi, and Silor-lek which is four wheel compact car as shown in Figure 2. (Oshima et al., 2007)

As discussed earlier, Songtaew or a modified pick-up truck taking passengers on the back with an overhead cage and two row seats in the back that can accommodate up to 18 passengers or more, operates as a fixed - route service in Bangkok and other provinces especially in many medium-sized cities of Thailand. Moreover, it plays different roles in different areas in Thailand which are a) a feeder of mass transit system in Bangkok and b) a main public transport in other provincial urban areas.

Silor-lek or a four wheel compact car plays a role as a feeder in the narrow dead-end side street branching off a major street, connecting to local communities especially in Bangkok. (Oshima et al., 2007) In other cities especially in the rural area Silor-lek operates as a local public transport with non-fixed route.

Motorcycle-taxi in Thailand plays an important role as a minor transport mode servicing urban transportation demands along narrow and deep road connecting their local communities and main street where other major public modes are operating such as the Metropolitan Rapid Transit (MRT) and the Bangkok Mass Transit System (BTS). (Oshima et al., 2007)



Figure 2. Songtaew, Silor-lek and Motorcycle-taxi

Source: <http://www.chiang-mai.org/songthaew.html>,

<http://www.thairath.co.th/content/153537>

<http://news.mthai.com/hot-news/general-news/359919.html>

3.2 Various design of Songtaew in Thailand

In Thailand there are two mainly types of Songtaew related to its design and vehicle as shown in Figure 3. The first type of Songtaew is some vehicles are modified from Toyota Dyna, Mitsubishi Fuso Canter, Isuzu Elf and similar large trucks which can accommodate more than 30 passengers and operates as a fixed - route bus to run on the fixed route between province area connecting the rural and the urban area through the different parts of Thailand. The second type of Songtaew is some vehicles are modified from a pick-up truck such as Toyota Hilux, ISUZU D-MAX, ISUZU D-LUX, etc. which can accommodate more than 20 passengers and operates as a fixed-route bus to run on the fixed route in Bangkok both downtown and suburb, urban and rural areas in other provinces especially in the primary cities in the different regions of Thailand.



Figure 3. The various design of Songtaew

Source: http://de.academic.ru/pictures/dewiki/73/Isuzu_N-Series_songthaew_01.jpg
<http://www.chiang-mai.org/songthaew.html>

3.3 Songtaew in different cities in Thailand

Songtaew is known as one of the major means of transportation in the urban areas and even in the rural areas in Thailand. This mode is popular in Thailand because of its intermediate size which can easily move around the area even the smallest interior areas. Furthermore, Songtaew is more flexible and cheaper than other transport modes in many cities of Thailand. The price is usually between 8 or 10 baht per journey. As a result of the large number of population in Thailand, the number of registered Songtaew has been increased substantially in many cities as described in Table 4.

Table 4. The number of Population and registered Songtaew in Thailand

No.	City	Population		No. of Songtaew	
		2003	2013	2003	2013
1	Bangkok	5,844,618	5,686,252	212	178
2	Nonthaburi	269,810	256,618	97	173
3	Hat Yai	160,669	158,443	284	220
4	Nakhon Ratchasima	173,123	136,153	245	199
5	Chiang Mai	158,720	134,471	95	286
6	Udon Thani	153,686	134,455	63	95
7	Surat Thani	117,951	127,282	93	120
8	Khon Kaen	132,750	112,329	89	193
9	Chonburi	92,878	112,224	75	235
10	Nakhon Si Thammarat	106,078	106,777	117	165

Source: Department of Land Transport (2014), Department of Provincial Administration (2014)

Table 4 shows the number of Songtaew that has been increased during the year 2003-2013 to serve as a dominant public transportation for people through many cities in Thailand especially in the medium-sized cities in the different parts of Thailand besides

Bangkok such as Nonthaburi, Hat Yai, Nakhon Ratchasima, Chiang Mai, Khon Kaen, Chonburi and Nakhon Si Thammarat.

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) In other cities especially in the regional capitals and medium-sized cities of Thailand Songtaew operates as a main urban public transport which is served areas along the main and local street with fixed route.

4. CONCLUSIONS

As the result of the large number of population in Thailand relying on Songtaew as an important public transport mode leads to its future potential that will be still number one transportation mode in the many cities in Thailand especially in the medium-sized city. Thus it is necessary for the government to formally recognize it as a public transport mode. Furthermore, a suitable policy for Songtaew shall be made to formalize it for the benefit of the passengers in the operated areas of its service.

In addition, the study provided the information on important aspects of the role of Songtaew in Thailand which is the popular paratransit mode in many cities because it can be more accessible, more flexible, faster and cheaper than the other modes. Moreover, the paper compared Songtaew in Thailand and Jeepney in Philippines focusing on the institutional system, the vehicle characteristic and the role as public transportation mode which the results can serve as a database for the future studies of paratransit in developing countries especially the study which is related to Songtaew and Jeepney. This paper also presented the regulation and operation systems of Thailand's Songtaew and Philippines' Jeepney, and analyzed the similarities and differences between them. The results showed that the vehicle characteristic is similar to each other which also contains two facing benches. On the other hand, the route and the fare regulation system vary between them depending on their government agency and Transportation Act. Furthermore, the comparison study between Songtaew and Jeepney shows that they also play the role as the popular paratransit mode in the urban area.

For the domestic comparison of Songtaew in Thailand, the study shows that there are two types of Songtaew related to its design and vehicle which are the modified large truck mainly operated in rural areas and the modified pick-up truck operated in Bangkok and urban areas in other provinces. In conclusion, Songtaew in Bangkok plays a role as a feeder of mass transit system and in other provinces especially in the medium-sized cities it plays a role as a main public transport.

According to the comparison of the management systems focusing on the route and the fare regulation system between Songtaew and Jeepney, it shows that the Jeepney's management systems have more advantages to the operators, the drivers and the passengers than Songtaew's management systems because Jeepney's management systems are based on the demand to increase the operators and the drivers' revenues that they can propose their routes and fare to the government agency. Conversely, Songtaew's management systems are fixed by the government agency. As we learned from this study, further improvement of paratransit management systems in developing countries under motorisation trends should be approved and regulated through public hearing on proposed route and fare from the operators, the drivers and the passengers which can help them to get more benefit in the future and can attract more people for shifting their mode from private vehicle to the paratransit mode.

The further research issues should be studied with other aspects of Songtaew in

Thailand such as the management, the operation, the workers, the users and the travel behavior of the user to extend the local knowledge and experiences about this mode of paratransit in developing countries.

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