Chapter 1

Introduction

1.1 Statement of Problem

Transportation is one of the essential parts of life in many capital cities around the world. Bangkok, the capital city of Thailand, having approximately ten million people, hence, transportation system is so crucial for this city. Presently, there are various transport channels of transportation in Bangkok such as buses, boats and trains. Due to rapid expansion of Thai economy, especially in capital cities, the Thai government realized that it is very important to improve other transportation system channels in Bangkok such as Mass Rapid Transit (MRT) and Bangkok Mass Transit System (BTS). Although new transportation channels have been introduced, bus services still remain the main connected rooting among transportation systems in Bangkok.

Bus service in Bangkok is co-managed by Bangkok Mass Transit System (BMTA) and private operators.

BMTA is a state-owned enterprise which has been served as a major mass transit system in Bangkok since 1976. Private operators have joined the bus services industry since 1976. The market shares of private operators tend to increase because BMTA has granted more concession to private operators following the government privatization policy. BMTA's concessions will be the routes that BMTA runs before and new routes. Currently, 65% of the bus services in Bangkok are run by the private operators. It could be seen that BMTA is crucial in daily life of most populations in Bangkok metropolitan area. However, BMTA does not operate well. BMTA's accumulated loss on September 30, 2008 was 65,532 million baht [1], considered on the largest loss-making state-owned enterprises.

According to Lammark (1991), Bhasabutra (1994) & Tuntiwasinchai (2002), several reasons why the operation of BMTA is poor are as follows. Firstly,

[1] Bangkok Mass Transit Authority.

BMTA cannot improve its service standards. Next, BMTA has faced with financial losses at the beginning of its operation and still cannot correct its loss-making situation as its expenditures have been increasing at the faster pace than its revenues. The main reasons which create BMTA loss are as follows: firstly, Thai government has regulated BMTA service price ceiling below their real existing cost in order to help low income people in Bangkok.

Secondly, oil prices have been increasing more than two-fold in a decade and fuel expenditure accounted for 25% of the overall expenditures (Ruangrong, 2007).

Thirdly, according to Figure 1.1, BMTA hire many employees. The average of officers per bus of BMTA is 4.5, while the standard ratio should be only 2 persons per bus. It could be seen that BMTA hire too many employees comparing to their existing position. BMTA does not lay off its employees even though some of its routes were cut off, however, in 2007, BMTA launched early retirement program for staffs who were over 50 years old and willing to retire themselves before the age of 60[2].

Lastly, there is higher competition from other modes of transport such as BTS and MRT who offer quicker and more comfortable choices of traveling.

According to Table 1.1, among many choices of bus services in Bangkok such as service buses, minibuses and van buses, BMTA, as a state-owned enterprise, has to provide service at affordable prices. Moreover, they have to take responsibility of providing some social services, which cost approximately more than 1,000 million baht per year, such as ferrying for the government, free bus services for special occasions, free fare for monks and students below grade six, half price for over 60 years old persons[3].

BTMA has tried to correct these losses. It has granted private operators some new routes and also some of the unprofitable ones.

[2] BMTA Annual Report. (2006).

[3] BMTA Annual Report. (1991).

Table 1.1

Number of Buses of BMTA in October 2006

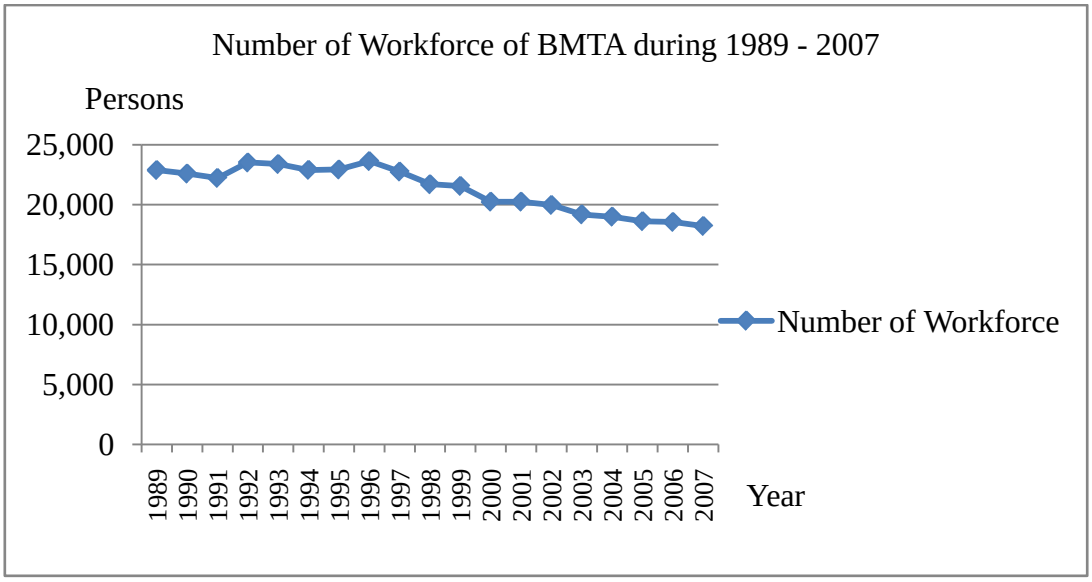
Types of Bus Service	Number of Buses (Buses)	Proportion (%)
BMTA. Buses	3,579	22
Joint Service Buses	3,504	21
Minibuses	1,078	6
Small buses playing lanes	2,264	14
Van Buses	6,214	37
Total	16,639	100

Source: Bangkok Mass Transit Authority.

Figure 1.1

Number of Workforce of BMTA during 1989 – 2007

Unit: persons



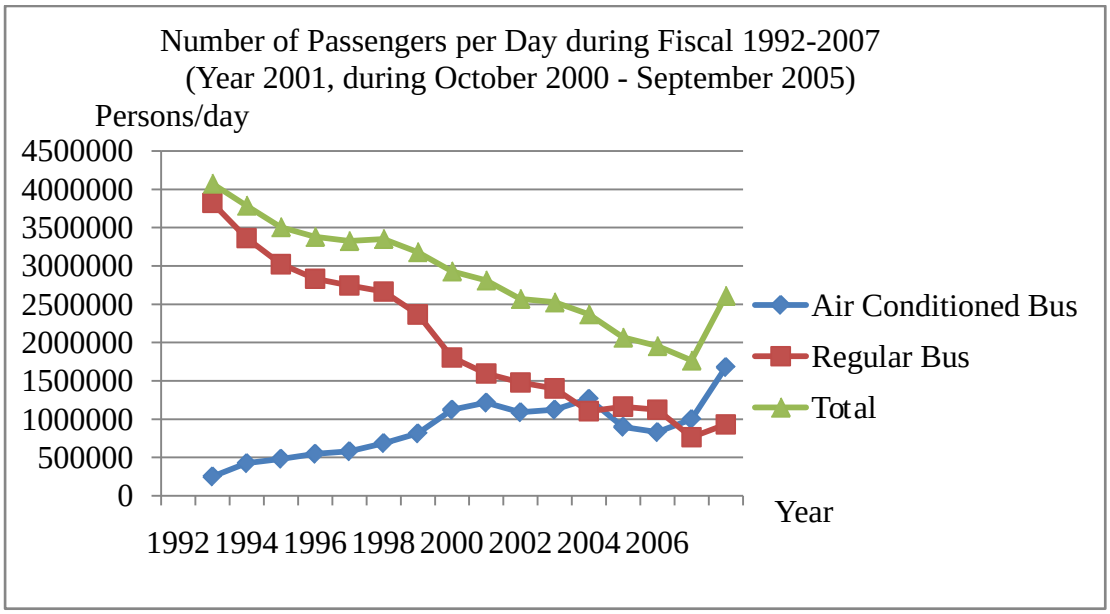
Source: BMTA Annual Report during 1989 – 2007.

Figure 1.2

Number of Passengers per Day during Fiscal during 1992-2007

(Year 2001, during October 2000 - September 2005)

Unit: persons per day



Source: Bangkok Mass Transit Authority.

According to the previous reason of losses of BMTA, it leads to that BMTA cannot improve its operation. However, BMTA can adjust the input factors to the appropriate level by measuring its technical efficiency. Then the aim of this study is to investigate and measure BMTA's technical efficiency. The results will provide some guidelines about how to, for example, adjust and manage some input and output factors to improve BMTA's profit in the future.

Previous literatures studied BMTA in several aspects such as passengers' satisfaction of quality improvement, bus drivers' satisfaction in their benefits and salary, and the administration and operation of BMTA measured by the optimal levels of trips and its maintenance system. For example, Lapmark (1990) proposed the optimum number of buses and trips in order that BMTA would operate at the lowest cost. Tuntiwasinchai (2002) studied the satisfaction of passengers and of the employees of BMTA in the administrative department and the performance of bus number 522. Furthermore, Bhasabutra (1994) studied BMTA's maintenance system. However, until now, there have been no studies regarding technical efficiency of

BMTA and private operators. Therefore, this study aims to provide supportive information about whether BMTA and private operators are technically efficient. This study then proposes policy recommendation to alleviate the problems and to improve the technical efficiency of BMTA and private operators.

An efficiency measurement tool will be employed in this study. Results of technical efficiency shall be compared with those of selected private operators in order to help policymakers design proper policies for maintaining and enhancing BMTA's efficiency and sustainability in the future.

1.2 Question of study

BMTA is the state-owned enterprise which provides affordable service for low and middle income people in Bangkok and nearby provinces. Although, BMTA has crucial roles in people's daily life, BMTA has been facing accumulated losses every year because prices are controlled by the government while costs are in line with market price. These losses reflect inefficient management in the organization.

The question of this study is whether BMTA and private operators are technically efficient. The technical efficiency score will suggest the appropriate levels of inputs and outputs for BMTA and four private operators.

1.3 Objective of Study

To investigate and measure the technical efficiency of BMTA during 1989 – 2007 and compare the technical efficiency between BMTA and four private operators by employing annual data of 2007.

1.4 Scope of Study

There are two steps in this research. First is to measure the technical efficiency of BMTA during 1989 – 2007. The second one is to measure relative efficiency between BMTA and four private operators by using annual data of 2007 under Data Envelopment Analysis (DEA) approach. Four private operators comprise

Wangsakarnkij Company, Sahakonsong Thonburi Company, Union Bus Service Group Company; Rangsit zone and the minibuses.

1.5 Organization of Study

This study is divided into six main chapters. The first chapter introduces the question, objective and scope of the study. Chapter two provides an overview of bus service operators in Bangkok. This chapter mainly discusses about BMTA and private operators. In Chapter three, it represents the overview of performance, productivity and efficiency, the development of DEA and some literature reviews about efficiency measurement of public transit and the subsidies using DEA approach and the studies about Bangkok Mass Transit Authority. Theoretical framework and methodology are represented in Chapter four. Empirical results are dealt with in chapter five. Finally, conclusions, policy implications, limitations and suggestions for further studies remark in Chapter six.