A STUDY ON THE USERS AND SERVICE CHARACTERISTICS OF TAXIS IN DHAKA CITY

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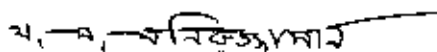
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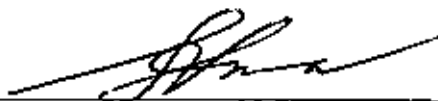Department of Urban and Regional Planning

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To

My Beloved

Parents

ACKNOWLEDGMENTS

ABSTRACT

Taxi, a public transport mode in Dhaka City, was evaluated mainly with a view to identify the characteristics of users group and level of service provided, to determine acceptability of different service attributes and to investigate the role of taxi service in the overall transportation system of Dhaka City. From the findings it was observed that most users were highly educated, for example graduate 33.3% Business (26.8%), private service (22.9%) and government service (15 7%) were their major occupations. Users identified auto-rickshaw/*mishuk* as their alternative mode to taxi. The present users prefer taxis over auto-rickshaw/*mishuk* because taxi service protects the traveler from dirt, dust and smoke, offers comfortable travel and it takes less travel time. Acceptability index values calculated on a 4-point scale for the six selected attributes namely, fare rate, travel time, waiting time, cleanliness, driver's behaviour and safety were 2.1, 2.4, 1.6, 3.0, 2.5 and 2.7 respectively (in case of fare rate, travel time and waiting time 4 indicates the worst performance and 0 indicates the best performance, on the other hand in case of cleanliness, driver's behaviour and safety 4 indicates the best performance and 0 indicates the worst performance).

A comparison of taxi service to its alternative mode (auto-rickshaw/*mishuk*) was done. From the comparison it was observed that the fare rate and waiting time for taxi was higher than auto-rickshaw/*mishuk* But travel time, cleanliness, driver's behaviour and safety were better than auto-rickshaw/*mishuk*. The average waiting time to get a taxi was found 14 minutes whereas the weighted average acceptable waiting time as mentioned by users was 6.3 minutes. Difficulties encountered by the taxi passengers were lack of taxi stands, refusal of drivers to go to the desired destinations and drivers demanding higher charges than meter reading.

Most (46.7%) taxi drivers before starting this job, used to work as professional driver for private cars. Only 15.2% drivers are the owners of their driven taxis. Within the drivers who do not own a taxi, 71.4% get wages in the range of Tk. 3-6 thousands. The study also revealed that from mid-night to very early morning taxis do not ply on the city streets. The major problems faced by the taxi drivers were absence of designated taxi stands in the city, harassment of drivers by the police and offence by miscreants. It was found that the operators have brought more Non-AC (black) taxis than AC (yellow) taxis. Petrol/octane was the predominant fuel used in taxis and a few plying with CNGs. The study concludes with some recommendations for the improvement taxi services in order to reduce the urban public transportation problem in Dhaka City.

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LIST OF ABBREVIATIONS

AC	Air Conditioned/Air Conditioner/Air Cooler
BBS	Bangladesh Bureau of Statistics
BRTA	Bangladesh Road Transport Authority
BRTC	Bangladesh Road Transport Corporation
BUET	Bangladesh University of Engineering and Technology
CAOB	Cab Association of Bangladesh
CNG	Compressed Natural Gas
DCC	Dhaka City Corporation
FHV	For-Hire Vehicles
HSC	Higher Secondary Certificate
LED	Light Emitting Diode
MURP	Master of Urban and Regional Planning
PHV	Private Hire Vehicles
RSC	Regulatory Study Commission
SSC	Secondary School Certificate
SRO	Statutory Regulatory Orders
TIN	Taxpayer Identification Number
USA	United States of America
UK	United Kingdom

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

After the independence of Bangladesh, Dhaka has assumed the status of a metropolis and is the nerve center of the country. The capital city has a population of 9,912,908 (BBS, 2001) spread over an area of 2000 sq kms. Dhaka alone accounts for one-third of the national urban population and this has been possible because of her phenomenal population growth (Mohit, 1996). 45% growth of Dhaka's population is due to natural growth and the rest is due to unabated migration (Rahman, 1996).

Dhaka has a very diversified transport system to cater to the demand of its burgeoning population. It has around 300,000 motorized vehicles (viz. motor cycles, tempos, auto-rickshaws, maxi haulers, mini cabs, taxis, cars, minibuses, microbuses, single decker buses, double decker buses, etc.) and another 300,000 non-motorized vehicles (viz. push carts, bicycles, rickshaw vans, rickshaws, etc.) (Rab, 2001). Here motorized and non-motorized, fast and slow, big and small vehicles as well as pedestrians share the same road space for their movement (Rab, 2001). These vehicles, which are inadequate both in number and quality to cater to the transportation need of the metropolis, ply in competition on the same limited road space causing problems of congestion, emission, noise, dirt, dust, delay and accidents (Das, 1998).

To fulfill the present travel demand of the city population, the number of vehicles of diverse types (mostly non-motorized and motorized para transit) is increasing in an unplanned manner only to put strain on the capacity of the existing roads (Das, 1998). Consequently, problems of congestion are aggravated and this has become a major problem in life in Dhaka. The chaotic traffic situation of Dhaka creates an unfavourable impression on tourists and foreign entrepreneurs who might otherwise consider making financial investments in this country where labour cost is inexpensive (*The Daily Star*, 2000). Thus the city's transportation problems constitute a major impediment for her economic growth and development. Only a well-organized transportation system can end these problems.

The present bus system is deficient in many aspects. Over crowding, excessive waiting time, irregular timing of buses are usual phenomena for the bus services of Dhaka City (Hasan, 1996). Of the total motorized vehicle fleet about 55% are 2 and 3-wheeler (two stroke) vehicles, which are not environment-friendly, and the

government has imposed a ban on 2-stroke 3-wheeler (auto- rickshaws and *mishuks*) which has become effective on 1st September 2002. Cycle rickshaws are considered environment friendly and occupy about 73% of the road space, and are therefore a major cause of traffic congestion (Rab, 2001).

During pre-liberation period taxis were first introduced in Dhaka city but without success. This service took a new dimension when the Government of Bangladesh reduced duty imposed on import of taxis (Bangladesh Gazette, 1999). According to the Gazette published on 28th of June, 1998, 2000 taxi will serve only within the metropolitan area. On 12th December 2001 an amendment was brought out by the authority declaring an extended service area for taxi. The extension included Narayanganj, Savar and Tongi pourashavas to the existing area. The permitted number of total taxi was fixed at 4000. The last amendment was brought on 29th July 2003. According to the latest declaration (Bangladesh Gazette, 2003) of BRTA, the permitted total number of taxis has been raised to 10,000. The declaration stipulates that taxis will serve Dhaka City including Narayanganj, Savar, Tongi, Munshiganj, Dohar pourashavas and up to Mawa ferryghat. At present a good number of taxi companies (viz. Anudip, Salida, Navana, Orion, Cab Ex, Cab One, Nihon Cab, Cosmo Cab etc.) operate cabs in Dhaka City. Already a large number of taxis are plying on the city's streets. A complete network of such services is however, yet to develop but it is expected that taxis are going to play a significant role in urban transportation of Dhaka City in near future.

The present study explores the users and service characteristics of taxis in Dhaka City.

1.2 Statement of the Problem/Rational of the Study

Since the latest introduction of the service the number of taxis has increased rapidly. At present more than 8,000 taxis are operating on the city streets everyday for the greater part of the day.

Any service introduction in the transportation sector requires primary evaluation in terms of level of service provided. As the taxi service is a relatively new transport service, it was deemed essential to find out through a study what important role the taxi service could play in improving the existing transportation situation of Dhaka City Also, its level of service may be assessed and compared with that of alternative modes. The present study focuses on the present extent and level of taxi service, and the problems faced by the service operators as well as by the users. Besides, an

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attempt has been made to investigate the current and prospective role of taxi service in the overall transportation system of Dhaka City. Recommendations have been made on the basis of its observed service performance and assessed prospect.

1.3 Objectives of the Study

The study aims at exploring what categories of trip demand is satisfied by the existing taxi services and whether there is scope for improving utilization of the services through measures taken by operators and/or regulators of the services.

The specific objectives of the study are:

i. To study the present extent and level of service of taxis

ii. To investigate the role of the taxi service in the overall transportation system of Dhaka City

iii. To offer some suggestions and planning guidelines for improvement of taxi service

1.4 Methodology of the Study

Having fixed the objectives of the study, extensive review of literature relating to the issues under study was undertaken. The methodological steps followed in this study have been illustrated with the flow diagram in Figure 1.1. These steps are described briefly in the following section.

1.4.1 Determination of acceptability of service attributes

A study on the users of the taxi service was carried out with a questionnaire (Appendix A). Questions asked revealed the following information:

- Individual profiles of taxi users,
- Their socio-economic characteristics,
- The purpose of using taxi service,
- Alternative transport modes used by the users,
- Difficulties encountered in using the service,
- Satisfaction with different service attributes of the taxi service, and
- Opinion regarding the service.

An index was employed for measuring level of acceptability of different service attributes to the passengers of the taxi service and the expected alternative service modes. In order to do this, acceptability of different service attributes was measured on an equal interval 4-point scale with 4 indicating excellent level and 0 indicating the

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worst level. An index value based on the relative weights of the chosen scale was computed as follows:

$$I_a = \sum (S_i f_i)/N \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \dots \quad \dots \quad \dots \quad \dots \dots \dots \quad (1.1)$$

Where, Ia = Index of acceptability for service attributes a,

f_i = Frequency of respondents giving rating i to service attribute a,

S_i = Scale value of the rating i,

N = Summation of frequency of respondents giving lowest to highest rating. .

$$= \sum f_i$$

Surveys of taxi drivers and service providers were also carried out separately to study the problems of taxi service from the service provider's perspective. These questionnaires are also given in Appendix A.

1.4.2 Data collection and analysis

This research utilized taxi operation and supply related data collected from both field surveys and secondary sources like the taxi operators and Bangladesh Road Transport Authority (BRTA). Questionnaire surveys of the taxi users were conducted to study their characteristics and attitudes. A total of 306 taxi passengers were interviewed randomly at different taxi ranks (temporary). A total of 105 taxi drivers and 38 taxi service providers were interviewed with shorter questionnaires. The passenger survey was carried out through taxi drivers at different times of operation. All data employed in this research were from late 2001, 2002 and again in early 2003 (up to January). Data was recorded in between 8.00 a.m. to 6.00 p.m.. Data collected were analyzed using a spreadsheet program–Excel 5.0. Excel was also used for graphical representation of data in this study.

1.5 Limitation of the Study

This study does not aim at preparing a comprehensive operational plan for taxi service in Dhaka City, which could help solve the city's transportation problem. But what it does instead is work out distinctive features to determine the role of taxi in the urban transportation stream of Dhaka City, which could then be readily used to prepare a more meaningful and comprehensive transportation plan for the city.

In this study, the service performance of taxis and their alternatives were compared for some selected service attributes. Only limited standards were available

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for performance evaluation across the system. These standards might not be equally applicable for every system in all the countries. Comparison of certain indicators, particularly those related to cost may not be totally significant due to the different levels of service, general standard of living, etc. Whenever the need arises to evaluate the services to a much greater depth, this type of simple comparison may not be sufficient.

Due to time and resource constraints, the research is limited only to service and operational performance of cab service.

1.6 Organization of the Thesis

The present study has been divided into six chapters. Chapter one presents the background, statement of the problem, objectives, methodology and limitation of the study. Skeletal contents of other chapters are presented below.

- ❖ Chapter two consists of a brief review of documents and studies relevant to the research.
- ❖ Chapter three describes the present status of taxi service in Dhaka City.
- ❖ Chapter four consists of the users' perspective of taxi service.
- ❖ Chapter five consists of the drivers' and operators' perspective of taxi service.
- ❖ Chapter six consists of the conclusion and recommendations.

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Figure 1.1: Flow diagram of methodological steps followed in the study

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

No studies regarding taxi service in Dhaka City has come to the notice of the researcher. However, there have some investigations into the other modes operating in the city. A cursory review of such studies is made in this chapter. Also, the role of taxi in other cities in different parts of the world is reviewed in this chapter. The issue of taxi service regulation is discussed based on secondary sources in a subsequent section of this chapter

2.2 Transport Modes in Dhaka City

Dhaka's transport fleet consists of various types of vehicles. The modal share of existing vehicle fleet according to BRTA is given in table 2.1.

Sl. No.	Types of Vehicles	No. of Vehicles	Percentage (%)
1	Motor Car	96872	32.83
2	Jeeps/Microbus/S Wagon	44156	14.96
3	Taxi	8600	2.91
4	Bus + Minibus	4000	1.36
5	Truck	16617	5.63
6	CNG Auto-rickshaw	9500	3.22
7	*Mishuk*	2500	0.85
8	Motor cycle	100000	33.89
9	Others	12840	4.35
	Total	**295085**	**100**

Table 2.1: Modal share of existing vehicle fleet in Dhaka City

Several studies have been made to investigate the role of specific modes of travel in the transportation system of Dhaka.

Chowdhury (1988) emphasised on an operational model where the auto tempo would best operate as a feeder service to other transit modes like the bus, minibus etc.

Ahsan (1990) investigated the overall passenger transport situation in Metropolitan Dhaka and examined the public transportation system operations in Dhaka City. He outlined the deficiencies in the existing public transportation system

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together with improvement opportunities. In this research the operating conditions of the existing public transport modes were studied. It revealed that public transportation in Metropolitan Dhaka serves about 15-20% of passenger trips. The study included investigation into the system characteristics, usage and operations of the mass transit system.

Hasan (1996) studied the role of double decker buses as a mode of public transportation in Dhaka City. He suggested appropriate actions to adjust the level of service to some policy standard through operational changes. He also laid stress on the replacement of very old buses by new buses because of the former's high maintenance expenditure.

Das (1998) revealed that many of the operating problems of the private sector bus services were very largely attributable to the highly fragmented nature of the sector's ownership pattern. He also revealed that service irregularity affects distribution of passenger loading on buses. If the regularity of the bus services were improved, even without further improvement of waiting time it would have a positive impact on load factor.

PPK Consultants et al. (1993a) reported the performance of BRTC's Greater Dhaka bus operations with a view to determine in which respects the corporation was performing badly, or well, so that decision could be made on necessary remedial action, where to concentrate efforts and resources, or whether to abandon a function seen to be a 'hopeless case' activity. For performance evaluation of BRTC's Greater Dhaka bus operation, the study adopted and applied sixteen established globally accepted performance indicators, mostly provided in Wright and Thiriez (1987), to provide an indication of how BRTC's operations compared to Dhaka's private sector operations and to the developing world as a whole.

PPK Consultants et al. (1993b) made another investigation to measure both the extent and performance and the operating and structural natures of Dhaka's private sector bus operations so that appropriate remedies could be developed for many ills. Performance measurement was done on route-by-route basis. Further, efforts had been made to distinguish between the operating characteristics and economies of the full-sized single-decker buses operating on Dhaka's urban bus routes from their minibus counterparts. The review revealed that many of the operating problems of the private sector were very largely attributable to the highly fragmented nature of the sector's ownership pattern. It endeavored to demonstrate numerically by means of survey data

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that Dhaka's private sector bus operators were not performing well when judged against standards attainable by the developing world.

2.3 Taxi Services in Other Countries

2.3.1 Hong Kong

In Hong Kong, at present, there are twelve passengers choosing to use taxi services in every hundred public transport passengers. This proves the popularity of taxi services in Hong Kong. There are 18,138 taxis in Hong Kong, of which 15,250 are urban taxis, 2,838 are NT taxis (NT taxis are fundamentally confined to rural areas in the New Territories, the airport and are permitted to serve certain locations in the urban area through specified routes) and 50 are Lantau taxis (operating only on Lantau Island). Everyday they serve about 1.1 million, 2,07,900 and 1,400 people respectively.

To further improve taxi service quality, Transport Department has recently installed electronic LED passenger information display panels at taxi stands to provide passengers and taxi drivers with taxi service information and to promote taxi service standards. Taxi Driver Commendation Scheme was set up as a regular channel for passengers to commend their drivers for their quality service and good conduct.

The Hong Kong Transport Department worked jointly with the Quality Taxi Services Steering Committee and taxi associations to organize and implement various quality taxi service schemes. They encouraged the trade to use talking taximeter and installed Braille and tactile taxi registration number plates in taxi compartments to facilitate taxi passengers with visual impairments. In addition, they relaxed a number of clearways restrictions as well as designated taxi drop-off points and taxi pick-up and drop-off points to strengthen the role of taxis in providing point-to-point transport services.

2.3.2 London

Taxis are an important part of an integrated public transport system in London, particularly for people who do not have access to a car. Together with private hire vehicles (PHVs or 'minicabs'), they can fill the gap when most buses and trains have stopped for the night and, particularly in rural areas, can provide a service where local bus services are infrequent or non-existent. Outside London, taxis and PHVs tend to be used more by people in lower income groups, and more by women (and especially young women) than by men.

The quality and quantity of taxi and PHV services are very important. The regulation of taxis and PHVs has been devolved to local authorities outside London. It is important that local authorities use their taxi licensing powers to ensure that taxis and PHVs in their district are safe, comfortable, properly insured and available where and when required. This can be achieved principally by setting quality standards for vehicles and drivers; but local authorities can also limit the number of taxi licenses granted, provided they are satisfied that there is no significant unmet demand in their area.

In London, the licensing of taxis is the responsibility of the Public Carriage Office (currently part of the Metropolitan Police Service, but due to be part of Transport for London under the Mayor, on the creation of the Greater London Authority). They set quality controls through the Metropolitan Conditions of Fitness for vehicles and the 'Knowledge' and carry out driving, health and criminal record checks for drivers. There are no quality controls for London taxis. With the passing of the Private Hire Vehicles (London) Act 1998, London minicabs will be regulated, bringing their operators and drivers into line with the rest of the country. This will result in safer journeys, not least because drivers will be subject to a criminal record check.

The Government's guidance on provisional local transport plans made clear that local authorities need to consider the role of taxis and PHVs in an integrated public transport system; for example, the priority such vehicles are to be given when road space is reallocated, whether there are sufficient taxi stands in the right places, operating at the right times of day, and their policies on quality and quantity licensing. Local authorities can also set up schemes for taxi sharing, especially for rural areas, and promote the operation of taxi-buses as a flexible, cost-effective form of transport for lightly used rural routes. Such initiatives could be considered in the context of the Rural Transport Partnership scheme where local authorities can join with parish councils, community groups and other voluntary organizations to deliver improvements to transport services in rural areas.

2.3.3 Dublin

Dublin's taxi service is a part of Dublin's Public Transport System, which in turn constitutes less than half of the total transport system of the capital. The basic problem lies not with the city's taxi service but with its entire transport system. The later is functioning very badly due to a combination of poor planning, under-

investment and rapid economic growth (Brendan, 2001). The very poor transport system imposes a large burden on the taxi service because one of its roles is as a residual provider of transport. Inevitably the taxi service shows many strains under this burden, whether caused by the poor bus service or traffic congestion.

There is a high demand for taxis among young people and relatively poor people who do not own cars. Another source of local demand for taxis is the demand for a door-to-door service whether from local disabled people or other locals in the center of the city. In Dublin, in contrast to the bus service, the taxi fleet has seen a big increase in efficiency and utilization rates from the taxi fleet due to:

1. Improved productivity by drivers.

2. Improved radio networks and

3. Greater utilization of vehicles with multiple drivers.

Taxis in Dublin however have been seriously affected by one major external factor, traffic congestion. The peak hours have got worse and all-day congestion is appearing in some parts of the city. The problem with the taxi service in Dublin is that there are effectively no fixed inputs in a deregulated market situation. The reason for this is that a taxi license would be obtainable on most types of family cars. Therefore once an owner had a private vehicle license and a taxi-plate, he would be in a position to take it out on the street regularly or even just occasionally.

2.3.4 New York

There are 40,000 licensed taxi drivers and 11,787 licensed taxis (yellow medallion taxis) in New York City. The medallion system dates from a Depression-era city law designed to address an overabundance of taxis that depressed driver earnings and congested city streets. The number of cabs had peaked at 21,000 in 1931, and fell from 13,595 in 1937 to the number of 11,787 by the late 1940s because the licenses of taxi owners leaving the industry were not reissued.

Yellow became the uniform color for all taxis in 1969 to distinguish them from 'gypsy' cabs. The yellow medallion taxis are the only vehicles allowed by New York City law to pick up passengers hailing on the street, having not served telephone prearrangement since two-way radios were removed from them in the mid 1980s.

Related industries are in the category of 'for-hire vehicles' (FHVs), which are permitted to serve passengers by pre-arrangement, generally through telephone calls

for service. This sector includes vehicles commonly called car services, liveries, black cars and limousines. The Taxi and Limousine Commission licenses 30,000 FHVs and the 600 base stations from which they operate. 3,670 taxis were driven by the medallion owners, and 20% of them were leased to a second driver in 1993. Most other taxis are not driven by the owner, but leased to two drivers on a double-shift basis. In spite of strict regulation on the number of taxis and fares, taxis in New York are notorious for low quality of service with thousands of complaints from passengers every year. The most frequent complaints concern drivers' communication skills, ability to find passengers' destinations, courteousness, reckless driving, service refusal or passby for some passengers, and overcharging. Some critics attribute these quality problems to the medallion system restricting number of yellow taxis; thus, deregulation to open entry may mitigate such problems. On the other hand, Shaller and Gilbert (1996) argue that leasing system is the right cause of bad quality. According to them, good service depends on good drivers who demand decent working conditions including higher wages. Then, leasing system compels drivers to work longer to compensate poor income, which usually is the excessive part of their revenue after paying lease fees, and operating costs such as fuel and vehicle maintenance, and this leads to deteriorated service. As an evidence that drivers lower wages does not result from licensing system, they illustrate the status of non-madallion cab sector drivers whose wages are lower than those of yellow cab drivers. In addition, they also illustrate the results of other cities experiences where taxi service has not improved in spite of entry deregulation.

2.3.5 Seattle (King County)

The number of taxi licenses was regulated based on a population ratio both in the City of Seattle (1:2000) and in the King County (1:4400), to which the city of Seattle belongs. In addition, after the Port of Seattle (airport) contracted with a taxi company for exclusive taxi service for airline passengers in early 1970's, the airport independently licensed and enforced taxicabs based on a contract with the County. There were approximately 350 licensed taxis in Seattle in 1972, exceeding the maximum number of 250 allowed under the entry population ratio, which resulted from the 'temporary' licenses issued to handle the attendees to the 1962 World's Fair. In addition to this, there were 68 taxis licensed by King County, and 63 taxis licensed by the Port of Seattle. Fixed level of fares was determined by the City Council based

on the request from the industry after examining the previous rate increase, ridership and corresponding revenue decline. Besides, further regulations were imposed on the meter inspections, vehicle inspections and occasional consumer complaints.

In 1979, the Seattle City Council adopted legislation, which eliminated the population ratio as an entry limitation for taxicab licenses Thus, any applicant could obtain a license if he/she met the licensing requirements, i.e., application fee, insurance, inspected and approved vehicle and taximeter, approved name and color scheme, and approved ownership. At the same time, control on the fare was also removed, so that individual taxi operator could set fares only by filing with the City as long as the rate followed the prescribed form and was reflected on the taximeter. The County Council also undertook deregulation one year later (in 1980).

2.3.6 Hertfordshire

Taxis form an important part of the integrated transport network of Hertfordshire, United Kingdom. They have a role to play in reducing dependency on the private car by providing a final leg in rail or bus journeys, and by providing an alternative to walking and cycling in inclement weather. In doing so, they remove the need to use a private car and thereby the temptation to use the car when the alternatives are realistic. They also play an important part in evening and social occasions where drink driving prevails.

Taxis are provided by private operators, but are licensed by the ten district councils. Stands are provided by the district and county councils, and are encouraged where they form part of an integrated transport system. In addition, the County Council uses taxis as a significant element of its passenger transport provision for educational and social services transport needs.

The County Council promotes the use of, and provision of facilities for taxis where:

1. They form part of an integrated transport system/scheme i.e. interchanges;

2. They encourage a switch away form the use of the private car, e.g. by providing the final link form the station to home;

3. They assist in social inclusion by providing car-based trips for non-car

owners e.g. from the supermarket to home;

4. They deliver a cost-effective means of providing educational and social
service transport.

The district councils normally designate taxi stands, although the train operating
companies and/or rail track deals with allocations at rail stations. At present, taxis are
not allowed to use the bus lanes, which have been installed as part of the Green
Routes in the South West Hertfordshire and Lea Valley Area Plans. Monitoring is
now taking place on these schemes, and the County Council has agreed to consult on
the possibility of the bus lanes being open to taxis and powered two-wheelers

The County Council has over 800 contracts with local taxi/hire car and minibus
operators, to provide passenger transport to and from educational and social service
centers for those who are in need, as required by the County Council's various
educational and social service functions.

These contracts provide for regular journeys to over 3000 clients across
Hertfordshire and are an important part of the taxi and car hire trading. The County
Council has published operational guidelines as part of these contracts to ensure
service standards are improved. These contracts are planned to meet needs and are
integrated with other passenger transport provisions wherever possible to obtain cost
effective value. The County Council has explored greater use of taxis to serve urban
areas and provide links to interchanges, rail stations and major business areas for
visitors for Hertfordshire's business. They are used widely for airport access journeys
and unofficial sharing is much more general than realized.

2.3.7 Indianapolis

Moore and Rose (1998) reported that, in 1991, the city of Indianapolis created a
Regulatory Study Commission (RSC) to implement regulatory reforms. One of its
major achievements was to reduce unjustified regulation of the city's taxi services.

Like other large U.S. cities, Indianapolis's taxi industry was heavily regulated, yet
the quality of service was poor. Long waits were common after calling for a taxi,
particularly in lower-income areas. Taxi fares for long trips were higher in
Indianapolis than in any other major cities. A small number of companies dominated
the Indianapolis taxi market. Only 392 taxis were permitted to operate in the city. One
company controlled more than half of those licenses, and competition among taxis
was limited. A substantial number of the licensed taxis were not in service at most

times on an average day. Owners of a taxi license made most of their money from regular fares, so investing in wheelchair accessibility made no sense. The city did not allow specialized service, so the disabled had to use expensive private ambulances for door-to-door trips.

Minority organizations supported reforms. The restrictions on taxi licenses, fares, and service levels all but prevented low-income drivers from starting their own taxi companies, and reduced the quality of service in lower-income neighborhoods.

The RSC rewrote Indianapolis taxi regulations with an eye to increasing competition. This included the following changes:

- Remove the overall limitation on the number of taxis that can be licensed.
- Allow taxi companies to set fares, with some constraints on maximum fares.
- Eliminating arbitrary rules, such as requiring taxi drivers to wear a special badge and cap, and specifying the number of seats taxis could have.
- Allow taxis to "cruise" for customers.
- Provide greater flexibility in safety regulations.
- Allow special taxis to carry passengers in wheelchairs.

2.4 Taxi Service Regulations

Kang (1998) revealed that regulations have been implemented as government intervention in the market to ensure efficiency and equity by correcting market failure. Then, as can be seen in the transport industry, excessive regulation caused many side-effects such as inefficiency in its management and unreasonable protection of incumbent operators, which obstructed the industry to respond quickly to the changes in economic structure and social surroundings In consequence, since 1970s, deregulation and privatization have occurred in many industries to enlarge freedom of economic activities, and taxi industry has also been involved in that changes in several countries including USA, UK, Sweden, New Zealand and some others.

The deregulatory measures adopted varied in each country based on the different inherent conditions. The results also appeared differently. As a whole, however, the effects of taxi deregulation were not so beneficial to consumers due to increased fares and deteriorated service quality. In addition, the returns to operator as well as drivers also decreased, and there was no significant evidence of innovation in the industry. On the other hand, the structure of the industry became to be more fragmentary with

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increased single operators and taxi leasing. Therefore, this study concluded that market entry should be regulated somehow, and the level of fares also needs to be controlled. In addition, more stringent regulations are necessary in order to ensure high quality and improved safety in taxi services. Nevertheless, it does not mean that every regulation is always desirable in every condition, but some regulatory reform is needed based on the inherent conditions of the taxi industry in a city or a country. Namely, entry restriction should be relaxed in the case that the current number of taxis is quite small compared existing demand; Level of fares should be more flexible within a range; exit system can be introduced to ensure high quality; license trade and leasing must be prohibited.

The Swedish Transport Policy Act of 1989 provided the framework for the deregulation of the industry in 1990, suggesting that the best service for the lowest economic cost would be supplied by a deregulated taxi industry subject to free market forces. Deregulation of the Swedish taxi market was carried out in five steps:

1. Barriers controlling entry were removed, so that operators can have as many taxis as desired. This relieved the county councils of their former task of estimating the demand for taxi services in each operating area.

2. Fare controls were removed, so that taxi companies set their own fares. However, they are required to inform customers about the fare prior to trips, and taxi must be equipped with receipt writing meters.

3. The requirement for all taxi to belong to a radio-booking center was abandoned. At the same time, in order to stimulate competition between centers, publicly owned centers were established in the market, as an alternative to the existing privately owned centers.

4. Geographically restricted operating areas were eliminated.

5 Strictly regulated operating hours were removed.

Many U.S. cities have partially or wholly eliminated local taxi regulations during the late 1970's and early 1980's. These include San Diego, Seattle, Phoenix, Portland, Sacramento, Kansas City and Milwaukee, as well as some smaller cities of significant size such as Tucson in Arizona. Oakland and Fresno in California, Raleigh in North Carolina, etc. Further discussions on taxi deregulation are still on going in America, and it has occurred or tried in several cities in 1990's, including Indianapolis (1994), Houston (1995), Denver, Hartford and Boston.

2.5 Conclusion

The feature of taxi service varies significantly from country to country in terms of market share, type of vehicle, operating system, level of regulation and even in name. However, it still plays an important role in most countries. It provides an essential service for some groups of people and comprises a complement to the smooth operation of public transit whether in urban or inter-urban area. However, irrespective of whether taxi services are provided by public enterprises or private sector companies, their activities are invariably regulated by a codified set of rules and other restrictions, statutory and discretionary, which circumscribe the freedom of operators to engage as they see fit in economic activities.

TAXIS IN DHAKA: PAST AND PRESENT

3.1 Introduction

Cab culture in Dhaka goes back a long way. In fact several attempts were made earlier to integrate this form of transportation into the city scene. Some just withered away and others deviated from the actual goal. Taxi service resumed in 1998 and became a part of the Dhaka's transportation system.

3.2 Evolution of Taxi in Dhaka City

3.2.1 Pre-liberation period

In Dhaka in the sixties there were cabs with meters. The cars used were Opels and often Chevrolets. This service after the liberation war failed to sustain itself. The service waned and under the flood of three wheeler imports the Opels lost their momentum. Later these cars were used in the old parts of Dhaka to carry goods. Now most of these are scrapped. Some have been taken to district towns where the upper portions have been cut down to serve as public passenger vehicles (*The Independent*, 2000).

3.2.2 *Bikalpa* taxi services

In the mid-eighties the *Bikalpa* Taxi project was launched with two objectives:

1. To provide better communication service within the city

2. To provide employment opportunities to the educated unemployed.

Using Daihatsu Charade cars, this scheme started off quite smoothly. Painted in black body and yellow top these non-air-conditioned cars seemed to be the answer for a comfortable city ride. But unfortunately these cars, instead of covering the entire city, ended up centralized at the airport. This proved to be more lucrative. From the airport the cars could attract foreigners, expatriate Bangladeshis and easy foreign currency. After the Daihatsus entered the scene many others with personal initiative opted for the taxi service as a career. Companies sprang up and later Toyota Ke-70 cars were added to the black and yellow fleet. But quite contrary to public expectations these could hardly be found on the streets for regular communication. Moreover, absence of contact numbers, lack of trained drivers, lack of minimum safety facilities and non-existent wireless connection with the base

office never allowed these taxis to become the vehicle for the masses (*The Independent*, 2000).

3.2.3 Emergence of taxi services laws 1998

Narrating the policies to import and use taxi, the Government of Bangladesh brought three Statutory Regulatory Orders (SRO No. 151-law/97, 171-law/97 and 226-law 97) into force on 12th June, 8th July and 29th September respectively. The design, colour, other characteristics and fares were recommended according to the legislation of the first SRO. An inter-departmental committee was formed by BRTA. The recommendation of this committee, the existing laws and regulations regarding taxi operation, the opinion of organizations eager to operate taxis, the need for an excellent taxi service, the expectations of the users, the expenditure of the taxi operation, 10th meeting of Bangladesh Investment Board regarding taxi services—all these were considered when the taxi service rules were drawn up. On 28th June 1998, on behalf of BRTA, the taxi service rules were published in the *Bangladesh Gazette*.

3.2.3.1 Initiation of taxi service

It was mentioned in the *Gazette* that as a pilot project Dhaka City would see the introduction of renewed taxi services. It was added that later on, depending on its viability, public demand, road network capacity, service quality and overall experience, this would be extended to district towns and inter-district routes. On 12th December an amendment was brought out by the authority to declare that, instead of Dhaka Metropolitan Area alone, the taxis would serve up to Narayanganj, Savar and Tongi pourashava areas. In the same amendment it was declared that the permitted total number of taxis will be 4000 instead of 2000. The last amendment was brought on 29th July 2003. According to the latest declaration of BRTA (*Bangladesh Gazette*, 2003) the permitted total number of taxi has been raised to 10,000. The declaration stipulates that taxis will serve Dhaka City including Narayanganj, Savar, Tongi, Munshiganj, Dohar pourashavas and upto Mawa ferryghat.

Public or private limited companies possessing a Taxpayer Identification Number (TIN) and at least taka ten lac as paid up capital are able to import vehicles as taxis. Each company should have a fleet of at least twenty taxis. The Bangladesh Environment Conservation Act, 1995 and The Environment Conservation Rules, 1997 would be applicable for the taxi services, the rules added. Each taxi company must have a depot, which will include sufficient facilities for repair, maintenance and servicing. To maintain continuous contact

between the company and the cabs there must be a radiotelephone link so that customers can easily get a taxi by telephone.

3.2.3.2 Specialty of taxi

It was mentioned in the *Bangladesh Gazette* that petrol or CNG operated motorcars and station wagons would be permitted as taxis. Diesel operated motorcars and station wagons may be considered as taxis at any appropriate time after the introduction of the service.

It was declared in the *Gazette* that for air-conditioned taxis the minimum engine capacity would be 1300 cc and for economy (Non-AC) taxis, the minimum engine capacity would be 850 cc. Later on an amendment was brought out and it was declared that the engine capacity of air-conditioned taxis would not be more than 2000 cc. (*Bangladesh Gazette*, 2000) and for the economy (Non-AC) taxis it would be 800 cc. (*Bangladesh Gazette*, 2001). The vehicle would not be more than three years old. The economic life of a taxi would be eight years, the rules added.

It is obligatory to mark the name of the company, its monogram (if any) and telephone number on the doors of both sides of the taxi. On the top of the taxi there must be an elliptical plate holding the word "taxi" in red. The plate must be illuminated with lamps or neon sign so that the word "taxi" can be easily read at any time (day or night) from far away.

3.2.3.3 Taxi meter

The rules stated that each taxi must be fitted with a conventional meter available in the market for displaying the fare at the rate ascertained by the authority. The meter would display the total distance and total fare clearly so that the passenger can easily read it from his seat. It would also show the time of rent and total time traveled. The meter would record the charge of one-fourth kilometer for every two minutes of waiting time. Without installing a meter no taxi would be permitted for registration and to ply on the streets. Taxis would not be allowed to carry passengers if the meter is out of order. A taxi would show "for hire" when it is open for rent and if it is rented then it would show "Hired".

3.2.3.4 Fare rate

The fares mentioned in the *Bangladesh Gazette* for air-conditioned and non air-conditioned or economy taxis are:

a) Air-conditioned: for the first two kilometers the charge would be twenty taka. After that for every kilometer the charge will be taka eight. If the fractional part of the distance

covered is less than one-fourth kilometer, a charge of taka two will be added. If the fraction is more than one-fourth kilometer, the fare of one kilometer will be charged.

b) Non air-conditioned: for the first two kilometers the charge would be fifteen taka. After that for every kilometer the charge will be taka six. If the fractional part of the distance covered is less than one-fourth kilometer, a charge of taka one and a half will be added. If the fraction is more than one-fourth kilometer, the fare of one kilometer will be charged.

For air-conditioned taxis taka two would be charged for every two minutes waiting time and for non-air-conditioned taxis the amount would be taka one and a half. It was also stipulated that for calling taxis with telephone links an additional amount of taka ten could be charged.

3.2.3.5 Colour of taxi
As per the declaration of the *Gazette* the colour of air-conditioned taxis would be completely yellow and for non air-conditioned cabs the colour would be completely black.

3.2.3.6 Other specifications
According to the *Gazette* all the terms and conditions stated in Motor Vehicle Ordinance 1983 and Motor Vehicles Rules drawn up at that time would be applicable for taxis. Each taxi would display the rent chart ascertained by the government. The driver is bound to show the chart to the passengers whenever demanded. While idling at a specified taxi stand a driver cannot refuse to take a passenger as long as his destination is within the declared range of taxi service. Each taxi would keep a register signed by the authority to keep the record of passengers' complaints. It was made obligatory for the taxi company to provide drivers with ID cards/badges and uniform. A driver cannot park his taxi on the street except at specified taxi stands. Each taxi company would provide twenty-four hours service.

3.3 The Current State of Taxi Service
In July 1998 the first batch of taxis came to the city scene with 1800 cc engine cars with air-conditioners. From sixteen Ambassador cars in the beginning, now there are more than 8,500 taxis plying in the city. The City Cab Service had the honour to become the first company to roll out their cabs (*The Bangladesh Observer*, 2000). Now there are taxis of more than sixty companies in the city streets in yellow and black colours. The names of the cab companies currently operating in Dhaka City have been given Appendix B.

3.3.1 Cab ownership

There are more than sixty taxi companies in Dhaka City. As it is a capital-intensive business, to start a taxi company, one heavily needs bank support. The names of the leasing companies, which have come forward to finance these taxi companies, have been given in Appendix B. Apart from these, some companies are operating taxis with their own capital. The names of several self-financed taxi companies have also been given in Appendix B. Most taxi companies sell cars in installments, as taxi service is becoming a popular means of earning money. A lot of unemployed youths have taken it up as a profession. One can own a taxi by paying a bank demand of taka three lac as down payment and then the rest is paid in monthly installments. When an owner of a taxi drives himself, he finds it to be more lucrative. What makes the service so unique is that the driver does not have to haggle with price and the passenger too knows that he has nothing to worry about except the meter.

3.3.2 Taxi stands

When the cab service was first introduced, there was no provision for taxi stands. The policy makers actually never thought that they would get such a huge response so soon. Though the optimism among the drivers and the owners is high enough, there is overwhelming concern among them over the government's policy on taxi stands. Stands have become very essential with the increasing number of taxis plying in the city. Till now there is no permanent stand for the taxi. The drivers just keep their cabs waiting on the roadside. And regularly this causes problems with the traffic police who fine taxi drivers for unauthorized parking. For a healthy growth of the business and for making cabs available to passengers at busy places, the Cab Association of Bangladesh (CAOB) has recently demanded cab stands immediately at twenty important places around the city (*The Bangladesh Observer*, 2000). The places are: i) Zia International Airport ii) Kamlapur Railway Station iii) Muktangan iv) New Market v) Manik Mia Avenue vi) Mohakhali Wireless Gate vii) Dhaka Cantonment Rail Station viii) Kemal Ataturk Avenue ix) Uttara Rajlakhsmi Complex Premises x) Shahbag xi) Dhanmondi-15 xii) Mirpur-10 Square xiii) Pallabi xiv) Gulshan-1 xv) Gulshan-2 xvi) Bangladesh Bank Premises xvii) Kalyanpur Bus-stand xviii) Asad Gate Arong Premises xix) Mohammadpur and xx) Jatrabari Square. The cab owners believe their demand is fair and is essential for easing of passengers' transportation problem. The locations of taxi stands proposed by CAOB are shown in Figure 3.1.

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3.4 Conclusion

Within a span of five years, the taxi service has become a part of civic life. In this period the city cabs have crossed the biggest hurdle of earning people's respect and trust. In the city cab services have added extra comfort in communication. The emergence of new companies has instilled competition inspiring each company to excel.
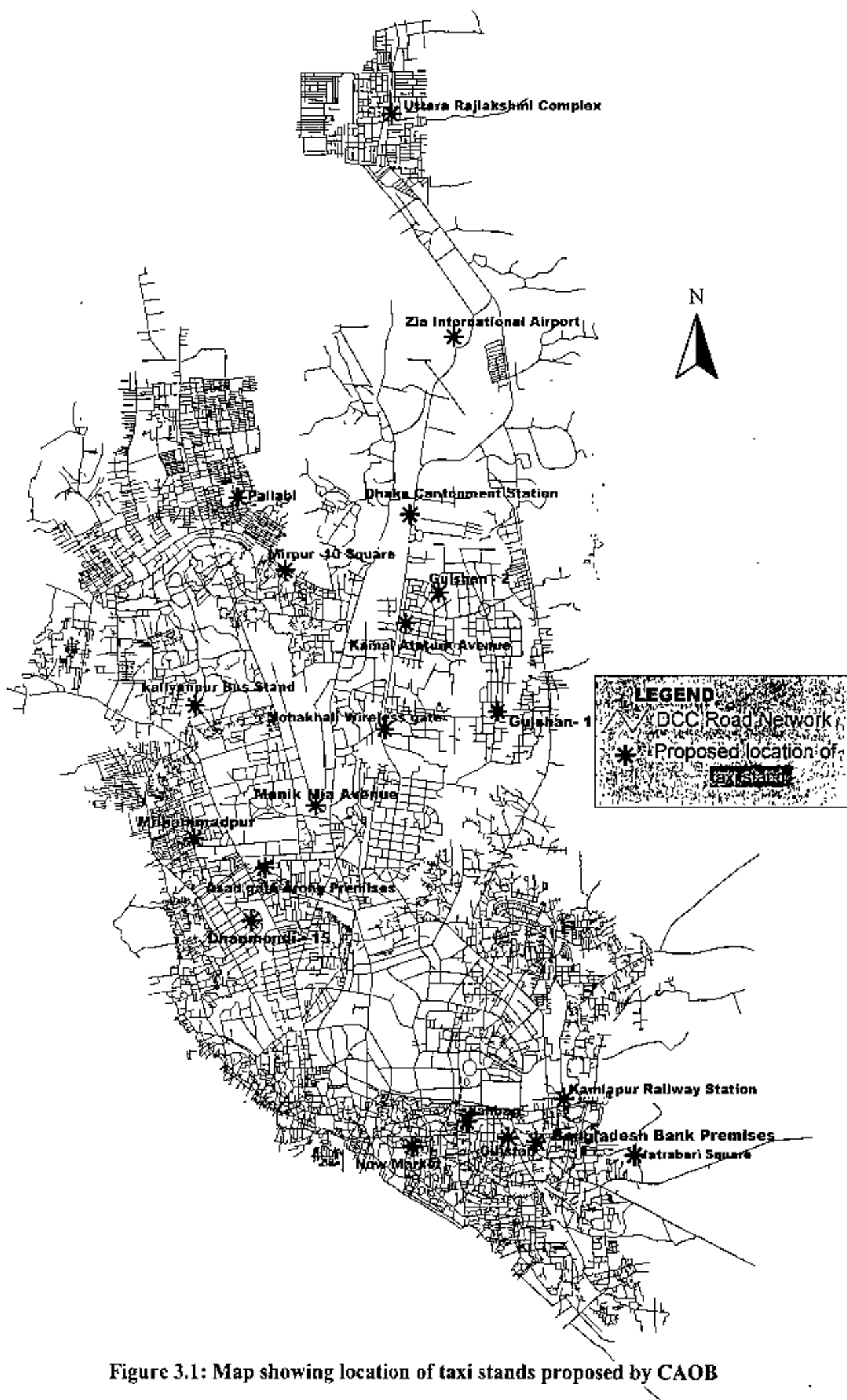
Figure 3.1: Map showing location of taxi stands proposed by CAOB

CHAPTER FOUR

USERS' PERSPECTIVE OF TAXI SERVICE

4.1 Introduction

To learn about the profile of users of taxi service and their pattern of use as well as opinion regarding the service, a survey was conducted on a sample of users. The survey results have been presented in this chapter. A pre-coded questionnaire was used as the survey instrument. Passengers' attitude survey was carried out for a total of 306 passengers' at randomly selected taxi stands over the city. The respondents' characteristics, trip and travel information and alternative modes used by them have been described. Passengers' attitude towards different aspects of the taxi service and acceptability indices for selected service attributes calculated from the attitude survey data have been provided. The survey was conducted through selected drivers of cabs who requested their passengers to fill out the supplied questionnaire. In case of several passengers in a single trip on cab, the passengers decided among themselves as to who will fill up the questionnaire. Sample size of passengers, who were surveyed are presented in Table 4.1.

Sl. No.	Location of taxi stand (unofficial)	No. of Passengers
1	Shahbag	66
2	Farmgate (Khejurbagan)	61
3	Mirpur-10	46
4	Rajlaxshmi complex (Uttara)	39
5	Zigatala	37
6	Al-helal police box (Motijheel)	36
7	Manikmian Avenue	21
	Total	306

Table-4.1: Sample size of passengers' survey

4.2   Profile of the Respondents

4.2.1   Age and sex structure of the respondents

Age and sex structure of the respondents are presented below in Table 4.1. The table reveals that the respondents of age group 30-44 years were in higher proportion. About 45.10 % of all the respondents fell into the age group of 30-44 years of which 76.81% male and 23.19% female. However, in this broad category, the age group 15-29 years was larger than the age group 45-60 years. Respondents in the age groups of below 14 years and above 60 years were not many in number.

Age group (years)	No. of respondents	Percentage (%)	Male	Percentage (%)	Female	Percentage (%)
0-14	2	0.65	2	0.65	0	0
15-29	112	36.60	72	23.52	40	13.07
30-44	138	45.10	106	34.64	32	10.45
45-60	46	15.03	38	12.4	8	2.62
60+	8	2.62	8	2.62	0	0
Total	306	100	226	73.85	80	26.14

Table 4.2: Age and sex structure of the respondents

The figures also show male passengers were much higher in proportion compared to female passengers among all the age groups. Notably, the highest proportion of female passengers was found in the age group of 15-29 years. There were 13.07% female passengers among the taxi users. From the figures it is also revealed that women of age group 15-29 years and 30-44 years were using taxi service in greater proportion. Whereas women above 45 years were found to be very few.

4.2.2 Educational qualification of the respondents

Figure 4.1 shows the educational qualification of the respondents. The figure reveals that the majority of the respondents fell into the group 'others' which represents respondents with an educational attainment below S.S.C / 'O' level or a degree higher than graduate level. 38.56% respondents were in this group. Respondents forming the second largest group are graduate (33.33%) followed by respondents with education at the H.S.C/'A' level (17.64%) and S.S.C/'O' level (10.45%).
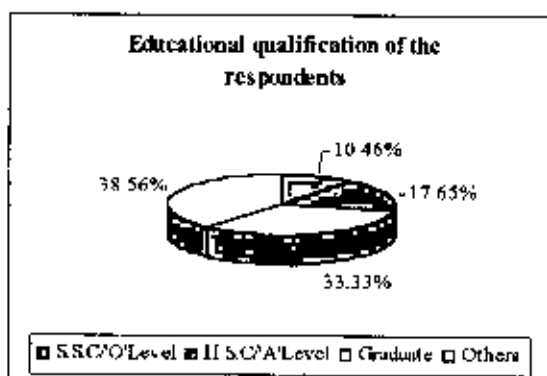
Figure 4.1: Educational qualification of the respondents

4.2.3 Occupation of the respondents

Figure 4.2 shows occupational distribution of the respondents. As shown in Figure 4.2 businessmen constituted the largest portion of the trip makers. About 26.80% of all the respondents were businessmen. Private service holders and Government service holders were

the second and the third largest sections of surveyed passengers respectively. Housewives were in higher proportions than students. About 13.07% respondents were housewives and they formed the fourth largest user group. Whereas, the students (11.76%) and others (9.80%) formed the fifth and sixth groups respectively.
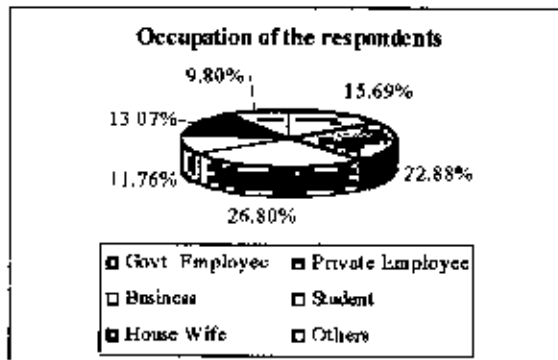

Figure 4.2: Occupation of the respondents

4.3 Trip and Travel Information and Alternative Transport Modes Used by the Respondents

4.3.1 Frequency of traveling per week by taxi service

From Figure 4.3, it is seen that respondents traveling 1 to 3 times a week constituted the largest group (33.99%) according to frequency of taxi service usage. Respondents traveling 4 to 7 times a week constituted the second largest group (20.26%). The third largest user group (18.30%) was formed by passengers who use the service very rarely. Passengers traveling greater than 7 times a week (16.34%) constituted the fifth and the 'others' (1.31%) section constituted the sixth group.
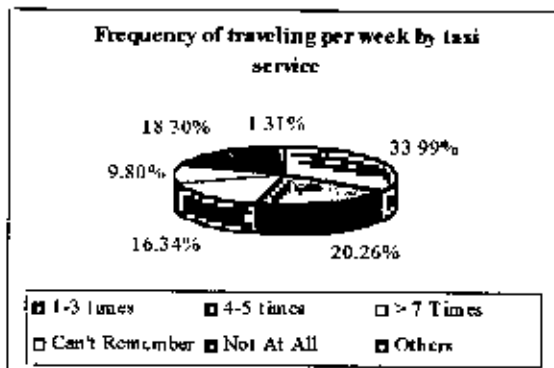

Figure 4.3: Frequency of traveling per week by taxi service

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4.3.2 Reason behind traveling by taxi

Table 4.4 reveals that the first reason for traveling by taxi is protection from the dirt, dust and smoke. About 83.01% respondents cited this reason. Next in order of importance was comfort. About 76.47% of all the respondents had put a tick mark beside this reason. Nearly equal percentages of the passengers cited more safety (54.90%) and less travel time (50.33%) as the reason behind traveling by taxi. Other reasons for traveling by taxi were to avoid crowds (38.56%), to assume an aura of prestige (30.71%), privacy (26.80%), less waiting time (10.46%) and 'others' (0.65%) respectively.
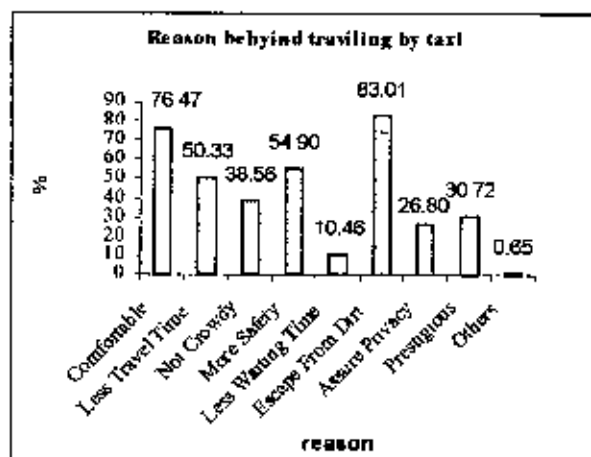

Figure 4.4: Reason behind traveling by taxi

4.3.3 Purpose of trip by taxi

Figure 4.5 depicts that most of the respondents using taxi made their journey for work/business (44.44%). The second major reason behind the trip was social meeting (15.03%). Recreation (12.75%) was the third reason of traveling by taxi. The next major trip-purpose were shopping (11.11%), treatment (6.86%), education (5.23%), others (3.27%) and social welfare (1.31%).

4.3.4 Getting the taxi

Figure 4.6 reveals the way used by the respondents to get the taxi for the trip. The figure shows that most of the respondents got the taxi at the place specified for cabs (45.75%) and waiting on the street (41.18%). Only 11.76% respondents called the taxi by telephone. It was found that to get a taxi by telephone the respondents had to wait 13.8 minutes. The respondents had to wait 12.7 minutes on the street to get a cab and the respondents spent 9.9 minutes to get a cab at the specified place for cab.
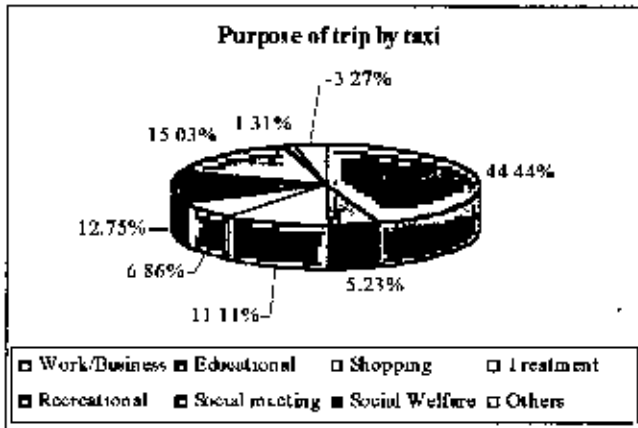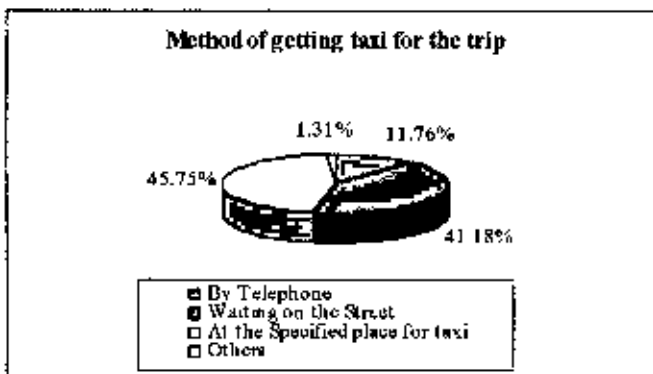
Figure 4.5: Purpose of trip by taxi

Figure 4.6: Opinion on getting taxi for the trip

4.3.5 Waiting time for taxi

Figure 4.7 shows the experience of respondents on waiting for a taxi. The figure reveals that 26.80% of the respondents had to wait 5-10 minutes to get a cab. 23.53% passengers responded that they got a cab waiting less than 5 minutes. The third (18.30%) and fourth (16.99%) group had to wait 10-15 minutes and 15-20 minutes respectively to catch a taxi. 8.50% passengers had to wait 20-25 minutes and 5.88% respondents had to wait more than 30 minutes to ride on a taxi. The calculated average waiting time was found 14 minutes. It means that a person can get a taxi within 15 minutes waiting time.

4.3.6 Opinion on maximum acceptable waiting time

Figure 4.8 shows the maximum acceptable waiting time of the respondents. The figure reveals that most of the respondents (49.67%) can accept waiting for maximum 5 minutes. About 35.29% respondents accepted a maximum 10 minutes' waiting time. The acceptable waiting time was 15 minutes for 7.84% of respondents, 20 minutes for

3.92% of respondents and 25 minutes for 3.27% of respondents respectively. It is seen

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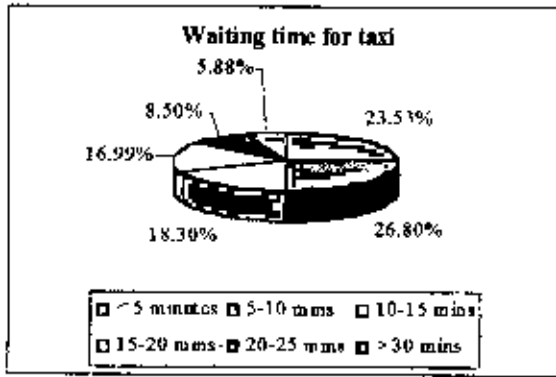
Figure 4.7: Waiting time for taxi

that acceptable waiting time should not be larger than 25 minutes. The weighted average acceptable waiting time is 6.3 minutes.
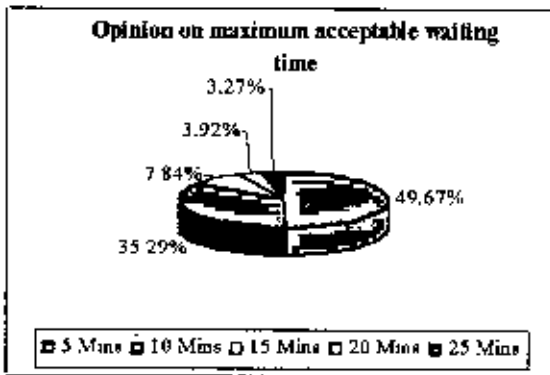
Figure 4.8: Opinion on maximum acceptable waiting time

4.3.7 Modes used for reaching taxi stand

Figure 4.9 reveals that 45.09% taxi passengers used rickshaw to reach the taxi stand. Another 28.75% passengers reached the taxi stand on foot. To about 12.42% passengers this query was not applicable. 9.15% respondents reached the taxi stand by other means and 4.57% respondents reached there by bus or minibus. Average time spent for reaching taxi stand on foot, by rickshaw and by bus/minibus was found 7.6, 8.3 and 10.7 minutes respectively. It reveals that respondents were using taxi reaching at the taxi stand on foot with in the shortest time rather than rickshaw or bus/minibus.

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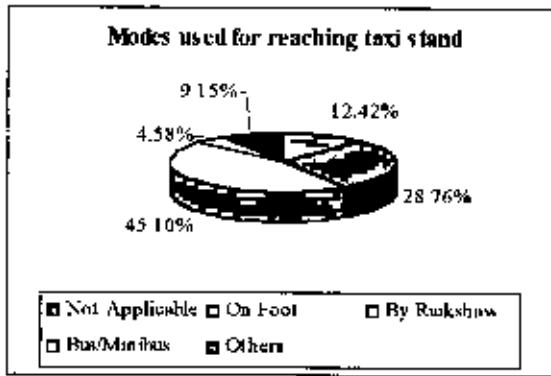
Figure 4.9: Modes used for reaching taxi stand

4.3.8 Time spent for reaching taxi stand

Figure 4.10 shows that majority of the respondents (69.93%) reached the taxi stand within 10 minutes. About 16.99% passengers availed the taxi traversing a distance of 10-15 minutes and 9.15% traveled a distance of 15-20 minutes to reach the taxi stand. Only 3.92% respondents traveled a distance of more than 20 minutes to reach the taxi stand. These figures indicate that the serving area for taxi service is mostly well within the distance of up to 20 minutes. The average time spent for reaching taxi stand was found to be 11.5 minutes.
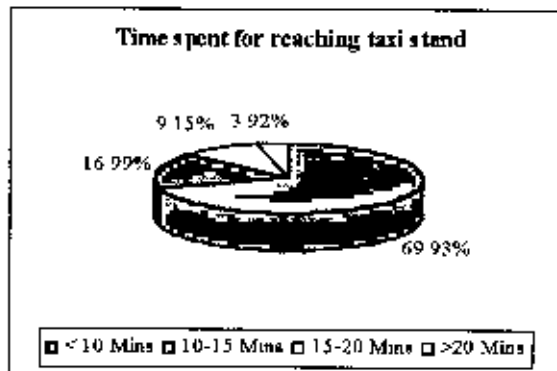
Figure 4.10: Time spent for reaching taxi stand

4.3.9 Reason for changing the transport mode

Since taxis have become a significant player in the transport system of the city only recently, most of the regular users of the service had been using some other mode of travel, while occasional users may still be using other modes for similar trip. Table 4.2 shows that the first reason for changing the transport mode is taxi protects a traveler from dirt, dust, and smoke (76.47%). 60.78% respondents cited comfort as the reason behind changing the transport mode. The other reason for changing the transport mode were 'less travel time (55.56%)', 'can get easily (34.64%)'. 'not applicable (15.03%)', 'less waiting time (13.07%)', 'change in income level (5.88%)', and 'others (1.31%)' respectively.

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Reason for Changing the Mode	No. of Respondents	Percentage (%)
Not Applicable	46	15.03
Less Waiting Time	40	13 07
Less Travel Time	170	55.56
Can Get Easily	106	34.64
Comfortable	186	60.78
Escape From Dirt, Dust and Smoke	234	76.47
Change in Income Level	18	5.88
Others	4	1.31

Table 4.3: Reason for changing the transport mode

4.3.10 Stated preference for alternative transport mode

Taxi users were asked what alternative mode of transport they would have preferred to use if the taxi service were not available. Taxi users stated preference for alternative modes is presented in Figure 4.11. The figure reveals that most of the taxi passengers (56.86%) use auto-rickshaw/*mishuk* as the alternative mode to taxi. Whereas, 24.51% passengers use premium bus service as an alternative of taxi. The role of other transport mode as an alternative of taxi such as 'double decker/BRTC city service (5.56%)', 'others (3.92%)', 'rickshaw (3.27%)', 'own car (2.61%)', 'rent-a-car (1.96%)' and 'bus/minibus (1.31%)' were very low compared to the first two alternative modes. Overall, the figures suggest that the taxi service mainly substitutes auto-rickshaw/*mishuk*.
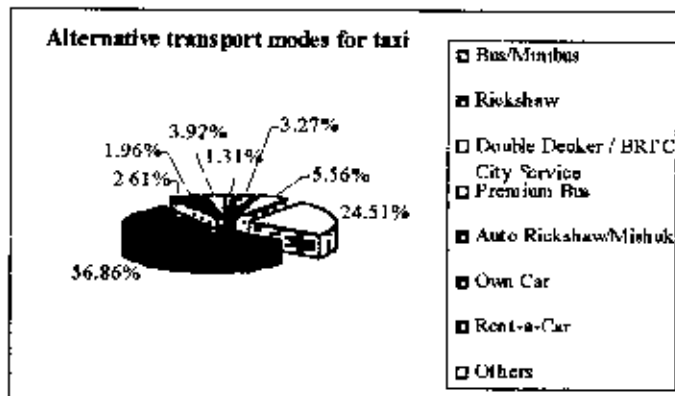
Figure 4.11: Stated preference for alternative transport mode

4.3.11 Difficulties faced in using taxi service

Figure 4.12 shows the difficulties that the passengers of taxi have faced in the past in using the taxi service. According to the figure it is seen that 57.52% respondents are unhappy as there are not enough taxi stands in the city. About 55.56% passengers claimed that taxi drivers were not willing to go their desired place. 38.56% respondents were experienced

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demands by drivers for charges in excess of meter fares. Scarcity of taxi was cited by 22.22% respondents and 9.80% respondents faced others difficulties.
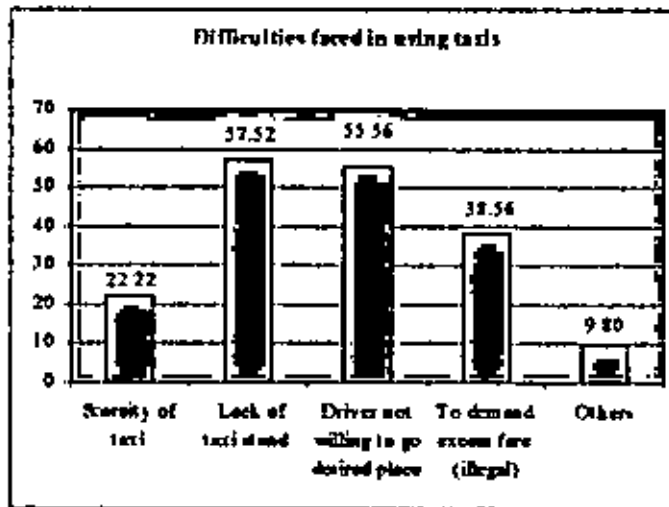
Figure 4.12: Difficulties faced in using taxis

4.3.12 Passengers' opinion on the present level of service of taxis

It is observed from Figure 4.13 that 37.58% passengers are satisfied with the present service of taxis and 28.76% passengers are not satisfied using the service. The figure also shows that 33.66% passengers did not make any comments regarding satisfaction or dissatisfaction.
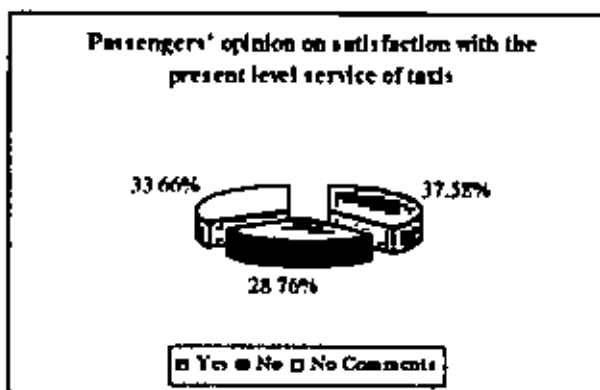
Figure 4.13: Passengers' opinion on the present level of service of taxis

4.3.13 Comparison of attributes of taxis with the preferred alternative mode

Passengers were asked to compare six attributes of taxi with those of their preferred alternative mode (article 4.2.10). Figure 4.14 shows that 74.51% respondents feel that the fare rate is higher and 25.49% replied that the fare rate is lower than the alternative mode they used. In the context of travel time 86.27% passengers replied that the travel time is lower and 13.72% replied higher than the alternative mode. Waiting time was higher for 60.13% respondents whereas it was lower than the alternative mode for 39.86% respondents.

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Cleanliness was found to be better by 95.42% passengers and worse by 4.57%. 88.23% passengers responded that driver's behaviour was better and it was worse for 11.76% passengers. The attribute of security was perceived to be higher for taxis to 87.58% respondents whereas only 12.41% respondents felt that security in taxi is lower than the alternative mode.
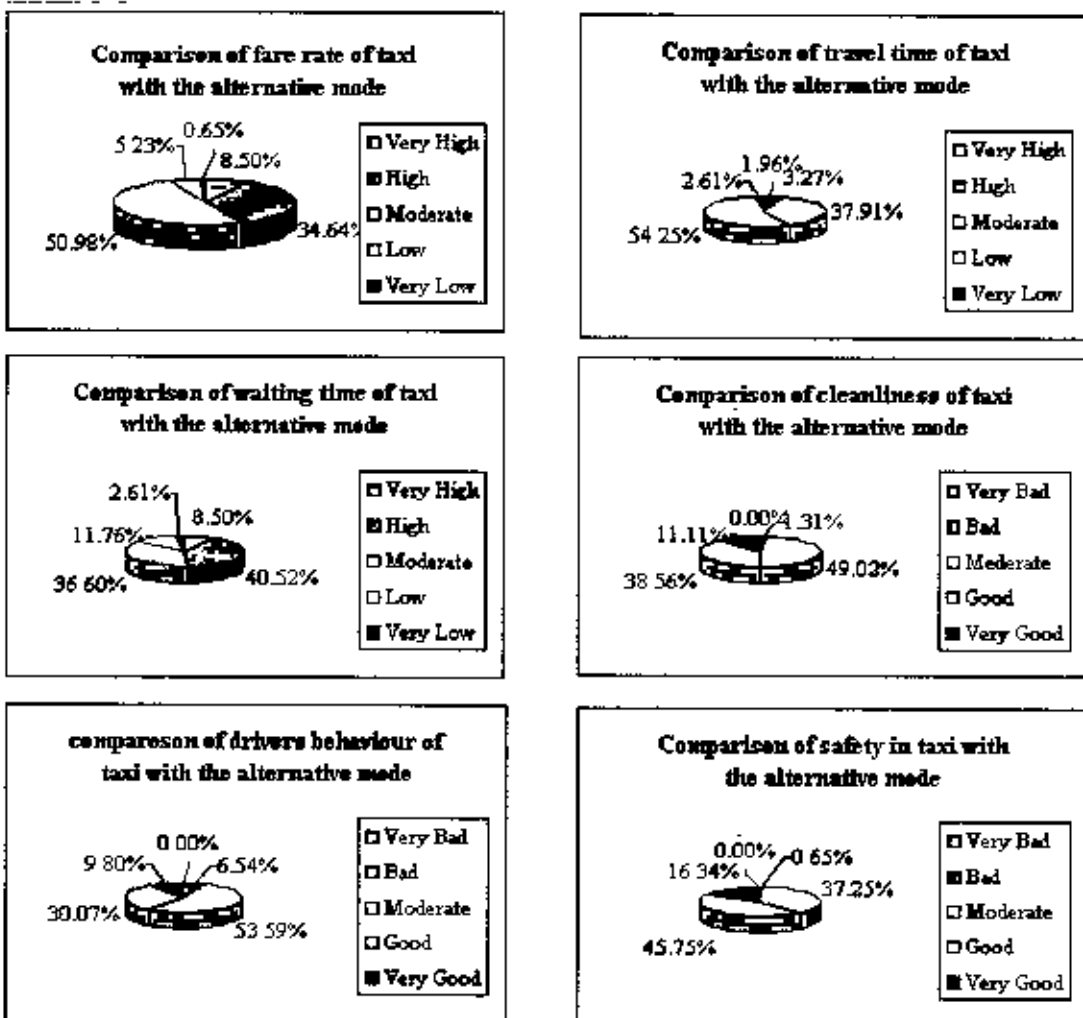
Figure 4.14: Comparison of attributes of taxi with the preferred alternative mode

4.4 Acceptability Indices for Selected Service Attributes

Six service attributes were selected for the purpose of examining their acceptability or performance level to the taxi users. An indexing methodology was applied for this purpose. Respondents in the questionnaire survey gave their opinion regarding acceptability (or performance) of the selected service attributes on a 4-point scale. Acceptability index values were calculated on the 4-point scale (where in case of fare rate, travel time and waiting time 4 indicates the worst and 0 indicates the best or excellent performance, on the other hand in

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case of cleanliness, driver's behaviour and safety 4 indicates the excellent performance and 0 indicates the worst performance). Acceptability index for a specific service attribute was then calculated using equation 1.1 explained in Chapter 1. The derived results are presented and discussed below.

Acceptability indices for service attributes						Composite score
Fare rate	Travel time	Waiting time	Cleanliness	Driver's behaviour	Safety	
2 1	2.4	1.6	3.0	2.5	2.7	2.4

Table 4.4: Acceptability indices for selected service attributes of cab service

Table 4.3 shows the calculated acceptability indices for the selected service attributes. Calculated acceptability index values for the six selected service attributes, namely fare rate, travel time, waiting time, cleanliness, driver's behavior and safety were 2.1, 2.4, 1.6, 3.0, 2.5 and 2.7 respectively. From these values the composite score for all service attributes was found 2 4.

4.5 Comments of the Respondents on Improving Taxi Service

During the users' survey they were asked to forward suggestions on how to improve the taxi service. Only a few passengers had put their comments. The comments which were found relevant to the study and would be fruitful for the improvement of taxi service are mentioned below:

1. Ensure that the driver will go to the passengers' destination.
2. Ensure metered fare.
3. Set up some taxi ranks in the city.
4. Provide 24 hour's service.
5. Ensure courteous drivers.
6. Provide intercity taxi service.

4.6 Summary

It was revealed from the survey results that young (15-29 years) and middle-aged (30-44 years) people constituted the largest proportions of taxi service users. Women were also using the taxi service in greater number. Substantial proportion of the passengers (33.33%) had degree level education. The majority of the taxi users were businessmen (26.79%), private service holders (22.87%), govt. service holders (15.86%), house wives (13.07 %) and students (11.76%). Considering the occupation of taxi users it can be said that higher educated people were using the taxi in greater proportion.

The major reasons behind using taxi were to avoid dirt, dust and smoke (83.00%), comfort (76 47%), safety (54.90%), less travel time (50.32%), non-crowdiness (38.56%), prestige (30.71%) and privacy (26.79%).

Most of the cab passengers were using the service either for work or business trips (44.44%), social meetings (15.03%), recreation trips (12.74%) and shopping trips (11.11%). Among all the users of taxis 45.75% got it from the specified place for taxi and 41.17% got it waiting on the street. Only 11.76% users got it by calling it over the telephone.

The calculated average waiting time was found 14 minutes. On the other hand the average weighted acceptable waiting time was found 6.3 minutes.

Around one-third (28.75%) of the respondents reached the taxi rank walking, and about half (45.09%) of the respondents by rickshaw. The calculated average time spent for reaching the taxi stand was found 11.5 minutes.

The major reasons behind changing from the other transport mode to taxi were to be free from dirt, dust, and smoke (76.47%), comfort (60.78%), less travel time (55.55%) and easy to get (34.64%).

It was discovered that the cab mainly substituted auto-rickshaw or *mishuk*.

During the comparison of taxi to its alternative transport mode the fare rate and waiting time was found higher than that of the alternative mode. The travel time was found lower than the alternative transport mode. Cleanliness and driver's behaviour was found good compare to the alternative mode. Most of the respondents felt safer than the alternative mode.

Regarding difficulties encountered in using the taxi service, the passengers mentioned the following major reasons (given in order of corresponding percentage of passengers mentioning the difficulty): not enough taxi stands, driver not willing to go desired place, driver demanding excess money rather than the metered fare, scarcity of taxis and other reasons

More than one-third (37.58%) of the cab passengers were satisfied with the present service of cab and near about one-third (28.75%) passengers were not satisfied with the present service. The other one-third (33.66%) did not make any comments.

Calculated acceptability index values for the six selected service attributes, namely fare rate, travel time, waiting time, cleanliness, driver's behaviour and safety were 2.1, 2.4, 1.6, 3.0, 2.5 and 2.7 respectively. The calculated composite score of all service attributes was found 2.4

CHAPTER FIVE

DRIVERS' AND OPERATORS' PERSPECTIVE OF TAXI SERVICE

5.1 Introduction

Drivers' and operators' attitude survey results have been presented in this chapter. Two different pre-coded questionnaires were used as the survey instrument. Drivers' survey was carried for a total of 105 drivers at randomly selected taxi ranks (unofficial) over the city and a total of 38 operators were surveyed at the offices of the operators located in different locations of the city. The drivers' characteristics, previous occupation, ownership pattern of taxis, reason for driving taxis, service time and problems faced by the drivers have been investigated. Different aspects of the service providers have also been described in this chapter. Sample size of drivers, who were surveyed in the taxi stands are presented in Table 5.1.

Sl. No.	Location of taxi stand (unofficial)	No. of Driver
1	Shahbag	24
2	Farmgate (Khejurbagan)	21
3	Mirpur-10	15
4	Manikmian Avenue	14
5	Al-helal police box (Motijheel)	12
6	Rajlaxshmi complex (Uttara)	19
Total		**105**

Table-5.1: Sample size of drivers' survey

5.2 Drivers' Survey

5.2.1 Profile of the drivers

5.2.1.1 Age structure of the respondents

Table 5.1 shows the age structure of the drivers. The figures in the table reveal that the majority of the respondents fall into the age group of 15-30 years. About 62.86% respondents belong to this age group. 33.33% respondents fall into the age group of 30-45 years and the remaining are above 45 years.

Sl. No.	Age Group (Years)	No. of respondents	Percentage (%)
1	15-30	66	62.86
2	30-45	35	33.33
3	45+	4	3.81
Total		105	100.00

Table 5.2: Age structure of the respondents

5.2.1.2 Educational qualification of the respondents

Educational qualifications of the driver are presented in Figure 5.1. The figure reveals that 60.00% of the total respondents fall into the group 'others'. The second and third largest group is S.S.C/'O' level (20.00%) and H.S.C/'A' level (14.29%) respectively. Only 5.71% respondents have educational qualification of graduate level.
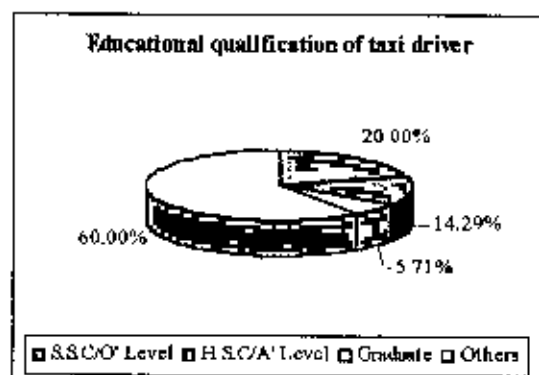
Figure 5.1: Educational qualification of taxi driver

5.2.1.3 Previous occupation of taxi drivers

Figure 5.2 shows the previous occupational distribution of the respondents. As shown in the table car drivers constituted the largest portion (46.67%) of the drivers who were interviewed. 26.67% respondents remarked 'others' as their previous occupation and formed the second largest group. Students (13.33%) and auto-rickshaw driver (7.62%) were the third and fourth largest group respectively. A very small percentage (5.71%) of the respondents responded that they used to drive bus or minibus in the past before driving a taxi.
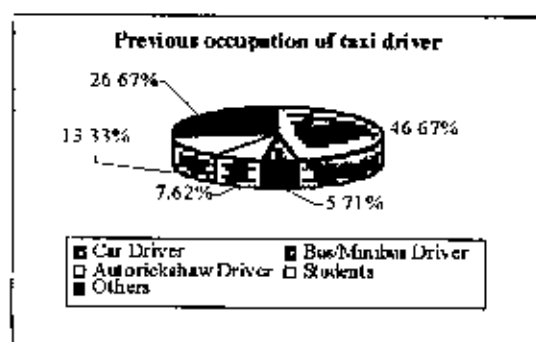
Figure 5.2: Previous occupation of taxi drivers

5.2.1.4 Ownership pattern of taxi

The drivers were asked whether they own the taxi they drive or not. Of all the drivers 84.76% replied negatively. The remaining (15.24%) answered that they own the taxi. Figure 5.3 represents the ownership pattern of taxi in the city.
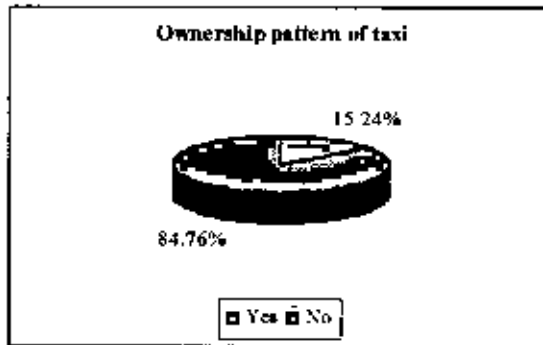
Figure 5.3: Ownership pattern of taxi

5.2.1.5 Type of taxi used

The survey revealed that among all the taxis surveyed 62.86% were yellow and 37.14% were black. Figure 5.4 shows the type of taxi being driven by the driver.
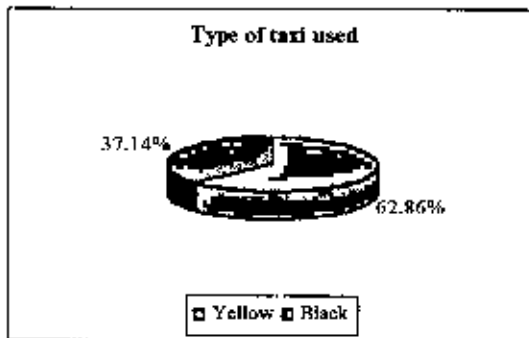
Figure 5.4: Type of taxi used

5.2.1.6 Income level of the drivers

In this section the income level of the drivers has been described. It was found that 71.43% drivers were earning taka 3-6 thousand. 22.86% of the drivers earned more than taka 6 thousand and only 5.71% had a earning of taka 1-3 thousand. Income level of the drivers has been shown in Figure 5.5.
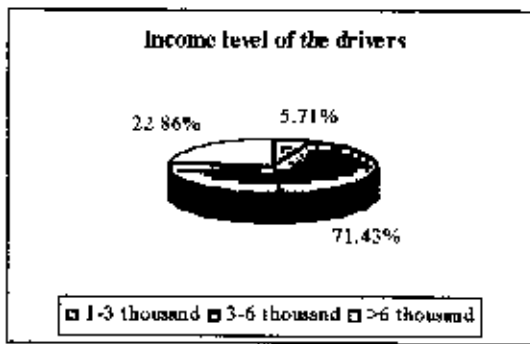
Figure 5.5: Income level of the drivers

5.2.1.7 Reason for selecting taxi driving as occupation

Drivers were asked about the reason for selecting taxi driving as an occupation. Most of the drivers (46.67%) replied that they did not get any good job so that they could accommodate themselves. About 39.05% answered that taxi driving is prestigious and it is a source of good income also. 15.24 % replied that they like driving as occupation and another 15.24% replied that they have selected taxi driving to apply their previous experience. 25.71% driver cited the reason 'others' behind choosing taxi driving as occupation. The following figure represents the reason for selecting taxi driving as occupation.
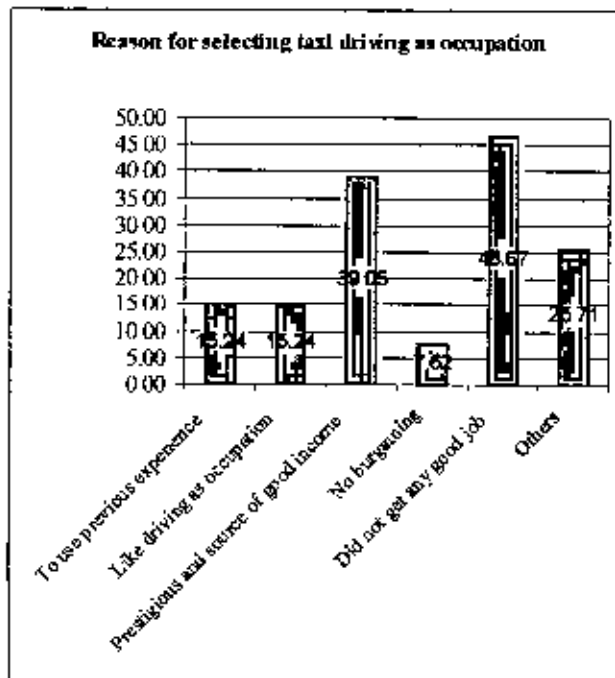
Figure 5.6: Reason for selecting taxi driving as occupation

5.2.1.8 Driving period of taxi

The drivers were asked about the time span of driving their taxis in the city. It was found that 56.21% drivers ply their taxis from 8.00 a.m. to 12.00 p.m. 20.54% driver replied that they drive taxis from 6.00 a.m. to 10.00 p.m. and the rest (23.25%) replied that they drive taxis from 10.00 a.m. to mid-night (2.00 a.m.). The driving period of taxis has been shown in Figure 5.7.
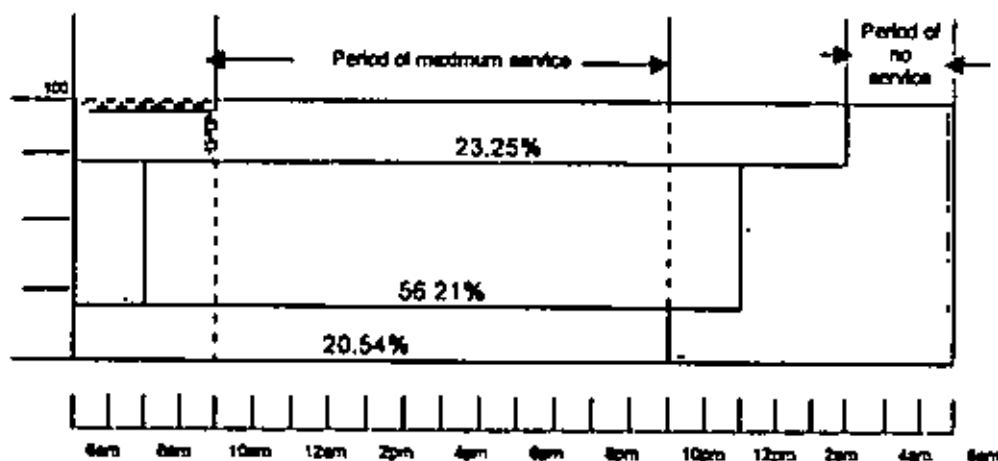
Figure 5.7: Driving period of taxi

5.2.1.9 Days of service provided in a week by the taxi drivers

Drivers were asked how many days in a week they provide their service. Majority (46.67%) of the drivers replied that they have been providing their service 6 days in a week. The second (29.52%) and third (20.00%) largest group answered that they serve 7 days and 5 days in a week respectively. The next two groups both (1.90%) replied that they are serving 4 days in a week, and less than 4 days or a variable number of days per week respectively. Figure 5.8 shows the number of days of service provided in a week by the taxi drivers.
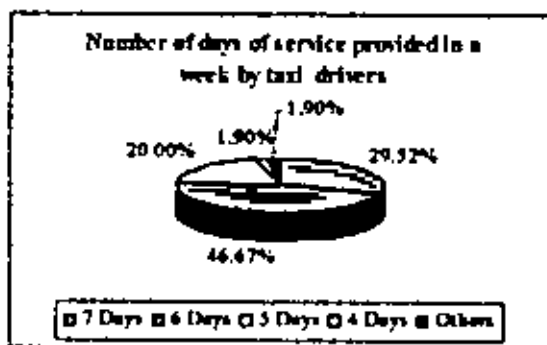
Figure 5.8: Number of days of service provided in a week by taxi drivers

5.2.1.10 Initial location of service provision

The drivers were asked where they waited to pick up passengers at the beginning of their day. 20.00% driver answered that they start from Farmgate. The responses were Asadgate (13.33%), Shahbag (6.67%), Rajlaxshmi complex (3.81%), Motijheel (1.90%), and Airport (1.90%). The other drivers start their service from other places including Begunbari, Dhanmondi-27, Jatrabari, Ghabtoli, Rampura, Mirpur-1, Uttara (sector-14), Gulshan (Road no-72), Mirpur-10, Mohammadpur, Uttara(Sector-1), Khilgaon, Khilkhet, Malibag, Tikatuli, Lalkuthi, Riajbag, Cantonment etc. The starting places of taxis are shown in the Figure 5.9.
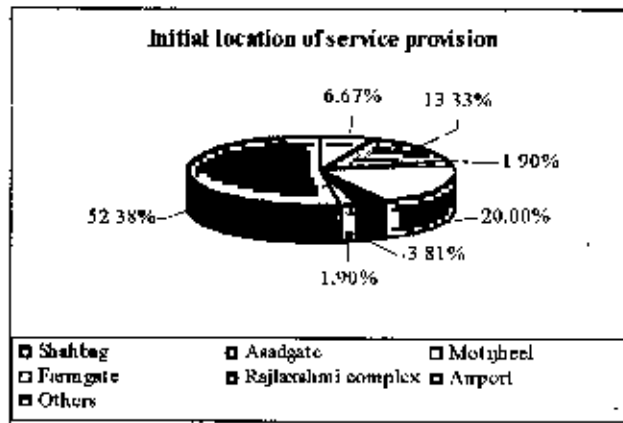
Figure 5.9: Initial location of service provision

5.2.1.11 Service area of taxis

The drivers were asked about the service area wherein they were providing their service. Among all the respondents 89.52% answered that they served total Dhaka City. 6.67% replied 'no specific area' and only 3.81% replied that they served in some specific area. The responses are illustrated in Figure 5.10.
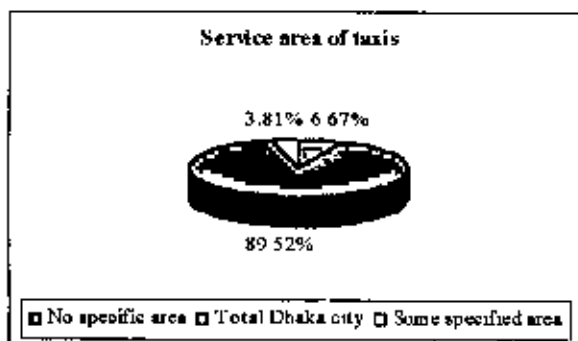
Figure 5.10: Service area of taxis

5.2.1.12 Problems faced by the drivers

Figure 5.11 represents the problems faced by the taxi drivers as revealed in the survey. The drivers were asked whether they face any problem during taxi driving. 75.24% faced parking problem with their taxi as there are no authorized taxi ranks in the city. About 82.86% drivers have faced police harassment and 90.48% informed about attack by miscreants. Besides these, 49.52% faced the problem grouped in the 'others' category.
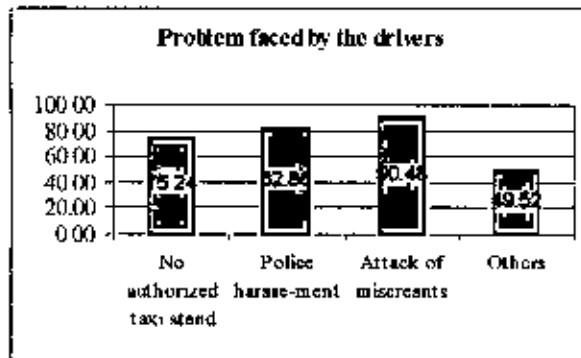
Figure 5.11: Problem faced by the drivers

5.2.1.13 Driving experience of taxi driver

To learn about the driving experience of the taxi driver they were asked about the length of period they have served as taxi drivers. It was found that 40.00% drivers possess taxi-driving experience of less than a year. The second largest group (39.05%) has an experience of 2-3 years and 5.71% has an experience of 4-5 years. The third largest group (15.24%) marked 'others' as their length of service. Figure 5.12 represents the length of driving experience of taxi drivers.
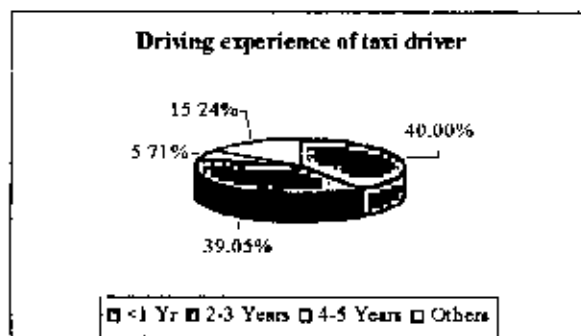
Figure 5.12: Driving experience of taxi driver

5.2.1.14 Suggestions of the drivers to improve taxi service

During the survey the drivers were asked to put forward their comments for the improvement of taxi service. The drivers made the following comments.

1. Ensure driver and vehicle safety.

2. Establish authorized taxi ranks.

3. Apply salary system of drivers instead of capital deposit system.

4. Allow route permits to operate all over the country.

5. Prevent fare evasion by the passengers and also stop harassment by unscrupulous passengers.

6. Stop harassment by law enforcing personnel and ensure corruption-free law enforcement.

7. Ensure weekly holidays for drivers

8. Facilitate drivers with cab ownership by the Government with a lower down payment and easy installments.

9. Minimize traffic congestion in the city.

10. Stop unauthorized toll collection by the terrorists.

11. Install metal detectors in the vehicle so that illegal materials carried by passengers can be identified.

12. Establish a well-planned management system for taxi service.

5.3 Operators' Survey

5.3.1 Names and office addresses of taxi companies

The names and office addresses of taxi companies, which have been surveyed, are given in Appendix D.

5.3.2 Year of establishment of taxi company

The year of establishment of taxi companies is given in Table 5.2. It is seen from the figures that 30% were established in 2000, 27% were established in 2002, 22% in 2003, 14% in 1999, 5% in 2001 and 3% in 1998. The figure revealed that most of the taxi companies started their operation between 2000 and 2003.

Sl. No.	Year	No. of companies	Percentage (%)
1	1998	1	3
2	1999	5	14
3	2000	11	30
4	2001	2	5
5	2002	10	27
6	2003	8	22

Table 5.3: Year of establishment of taxi company

5.3.3 Number of taxis introduced and their types

It is seen from the Table 5.3 that in the year 1998 a total of 188 yellow taxis were introduced. In the year of 1999 1360 taxis were introduced of which 64.34% were black and 35 66% yellow. In 2000 a total of 1687 taxis were introduced; among those 29.10% were black and 70.90% yellow. In the year 2001 and 2002, 230 and 745 taxis were introduced of which 91.30% and 67.79% were black and 8.70% and 32.21% were found yellow respectively. In the year 2003 a total of 225 taxis were introduced of which 80.00% were black and 20.00% yellow. From the survey it was found that introduction of black cabs was comparatively higher than yellow cabs.

The statistics of taxi registration (up to 30-10-2003) according to BRTA has been given in Appendix F.

Year	Black	Percentage (%)	Yellow	Percentage (%)	Yearly total
1998	0	0.00	188	100.00	188
1999	875	64.34	485	35.66	1360
2000	491	29.10	1196	70.90	1687
2001	210	91.30	20	8.70	230
2002	505	67.79	240	32.21	745
2003	180	80 00	45	20.00	225
Total	2261		2174		4435

Table 5.4: Number of taxi introduced and their types

5.3.4 Fuel used in taxi

The survey data reveals that taxis are operated with both petrol/octane and CNG. Table 5.4 shows the distribution of fuel used in taxis. In the year 1998, 57.45% taxi used petrol/octane and 42.55% used CNG In 1999 84 56% used petrol/octane and 15.44% used CNG. In 2000 75.46% used petrol/octane and 24.54% CNG. In the year 2001, 2002 and 2003 the amount for petrol/octane was 47.83%, 81.88%, 73.33% and for CNG the value were 52.17%, 18.12% and 26.67% respectively. It is observed that a smaller percentage of cabs are using CNG as fuel though it is cheaper and environment friendly.

Year	Petrol/Octane	Percentage (%)	CNG	Percentage (%)	Yearly total
1998	108	57 45	80	42.55	188
1999	1150	84 56	210	15 44	1360
2000	1273	75.46	414	24 54	1687
2001	110	47 83	120	52.17	230
2002	610	81 88	135	18.12	745
2003	165	73.33	60	26 67	225
Total	3416		1019		4435

Table 5.5: Fuel used in taxi

5.3.5 Type of vehicle used

It has been found from the survey that a variety of vehicles of different models are being used as taxis. The fleet consists of imported Japanese, Malaysian, Korean, Iranian and mostly Indian vehicles, namely, Tata Esteem VX, Saipa Saba, Maruti Suzuki, Hyundai Santro, Tata Indica V2, Suzuki Alto, Fiat UNO, Proton Wira, Proton Saga, Daewoo Cielo, Hyundai Accsent, Toyota (Corolla, Corsa, Starlet, Premio), Nissan, Ambassador etc.

5.3.6 Service time provided by taxi operators

The survey data reveals that the total service time provided by the taxi operator ranges from 14 to 18 hours in a day. It indicates that a few hours in a day remain un-served by taxi service However, a proper planning of taxi service might be able to provide a 24-hours service in Dhaka city.

5.3.7 Problems faced by the operators

During the survey operators were asked about the problems, they have faced in operating the taxi companies Most operators cited that the lack of trained, skilled and honest drivers is a key problem. There are no authorized taxi ranks in the city. Drivers are being compelled to park their vehicles at unauthorized places. As a result the law enforcing agencies harass them and sometimes to avoid official punishment they pay bribes to such people. So this is another teething problem they are facing. It is found that only a small number of taxis are running with CNG but due to the inadequate number of CNG refueling stations the drivers have to queue for long hours and time which incur financial losses. The other major problems identified by the operators are: increased fuel (petrol/octane) cost. traffic congestion, poor quality of roads of Dhaka City which impose additional maintenance cost of vehicles, lack of adequate vehicle maintenance centre, unauthorized toll collection by terrorists etc.

5.4 Comments of Operators to Improve Taxi Service

Some comments were made by the operators for the improvement of taxi service which have been added below in this section;

    1. The Government should provide well-trained drivers to this industry.

    2. The law-enforcing agency should be cordial to this service and should take necessary steps for better management of the service.

    3. Awareness program regarding this service should be undertaken; because people who are newcomers in the city do not know about the service. They naively think taxis are a costly transport mode and thus become reluctant to use it.

    4. The route permit of taxis should not be confined to only Dhaka City. It should be allowed as an intercity travel mode.

5.5 Summary

The attitude survey results of driver reveal various aspects of taxi driver. It is found that majority (62.86%) of the driver fell into the age group 15-30 years. About 33 33% driver fell into the age group 35-45 years.

Most of the cab driver (60.00%) fell into the group 'Others' regarding their educational qualification. It is observed that 20.00% driver possess S.S.C/'O' level and 14.29% possess H.S.C/'A' Level degree as educational qualification It is remarkable that 5.71% driver have educational qualification of graduate level.

Largest portion (46.67%) of the drivers had mentioned previous occupation as 'car driver'. Previous occupation 'others' and students were remarked by 26.67% and 13.33% driver respectively.

Most (84.76%) of the taxi drivers do not own the taxi. Only 15 24% drivers are serving as owner-driver. It is found that 71.43% driver earn taka 3-6 thousand per month. One fourth (22.86%) of the driver have an earning of more than taka 6 thousand and only 5.7% earn taka 1-3 thousand.

'Did not get any good job' was cited as reason for selecting taxi driving as occupation by 46.67% driver. Taxi driving seemed prestigious and a source of good income to 39.05% driver. 15.24% driver replied that they selected taxi driving as occupation because they like to drive car and another 15.24% replied that they have selected it as occupation to apply previous driving experience. About 25.71% driver cited the reason 'others' behind choosing taxi driving as occupation.

Regarding the driving period (duration) of taxi it is found that taxis are plying maintaining three different time period starting from early morning up to midnight. It was observed that from 2.00 a.m. to 6 a.m. no taxis are plying i.e. about 4 hours the city street lacking cab.

There is no legalized taxi stands in Dhaka. Hence, the drivers cited the name of different places as their initial location of service provision. Most of the drivers answered 'others' as their starting place. It reveals that the drivers are operating taxi starting from a suitable location for him.

It is found that 89.52% driver serves all over the city with their taxi. About 6.67% cited 'no specific area' as service area and only 3.81% replied that they serve in some specified area.

It was found that drivers were facing problem to park their taxi. Besides this drivers have faced problem of police harassment and attack of miscreants. It reveals that during taxi driving the drivers are combating problems, which might be a major constraint for smooth circulation of taxi in the city.

From the operators attitude survey it is found that most of the taxi company has started their operation in the year 2000-2003. 30% taxi company started operation in 2000, 27% in 2002, 1.4% in 1999, 5% in 2001 and 3% in 1998.

It is observed that the operators have brought black cab in a greater percentage than yellow cab. That might be due to the lower investment and the lower fare rate of black cabs. Pertol/Octne was the predominant fuel used by the cab. A small percentage of taxi was using CNG as fuel.

Dhaka city is enjoying a variety of brand car as taxi. Very luxurious car like Toyota (Corrola, Corsa, Starlet, Premio), Hyundai Santro, Saipa Saba are plying on the street hunting up and down for passengers. The fleet consists of vehicle imported from Japan, Iran and mostly India.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The findings from the analyses of secondary and field survey data were presented in the previous chapters. In this chapter conclusions have been drawn from these findings; recommendations for improvement of taxi service have been made and suggestions for further research to follow the present study have been provided.

6.2 Role of Taxi in the Transport System

Taxis are classified as an intermediate mode of public transport or paratransit, which is positioned between private cars and buses. They provide convenient, personalized point-to-point transport service. Unlike the public mass transit modes such as bus and rail they have no regular route. In most countries, taxis are given the right to ply for hire so that they can offer their services to the users either by cruising or by waiting for hires in the ranks. They usually play an important role in those areas where other public transport modes are not provided appropriately and for those who cannot easily access other transport modes such as the disabled (Kang, 1998). Hence taxis offer a transport system, which provides access to work, shopping, education, leisure and health facilities for those who have the means, especially those without a car and those with impaired mobility.

The present study has outlined the following role of taxi in the Dhaka's transportation system.

It was observed that people who were using taxi service possess an age limit of 15-44 years. 81.68% of all the respondents fall in this age limit. It means that young were using taxi in greater proportion. Most of the taxi users were highly educated. Business, private service and govt. service was their occupation. Among all the respondents 65.37% fall into these three occupation category. It was also found from the frequency of traveling by taxi service that among all the respondents 33.99% were using taxi 1-3 times in a week, 20.26% using 4-7 times and 16.34% using it more than 7 times in a week. It revealed that of all the respondents 70.59% were using taxi more frequently. It was discovered that the cab mainly substituted auto-rickshaw or *nishuk*. The fare rate of taxi was found higher than the alternative transportation mode. Hence taxis were using mainly for work/business. The purpose of trip by taxi revealed that 44.44% respondents were using taxi service for work/business. The

calculated average waiting time was found 14.06 minutes, whereas, the calculated average weighted acceptable waiting time was found 6.29 minutes. Hence it is clear that the average actual waiting time to get a taxi is twice than the acceptable waiting time. Among all the respondents 28.75% reached the taxi stand on foot. On the other hand, remaining of the respondents reached the taxi stand by other modes (rickshaw-45.09%, bus/minibus-4.57% etc.). The average time spent for reaching taxi stand was found 11.5 minutes. It means that taxis are not serving as a single mode of transport and it is consuming much time to get a taxi.

The calculated acceptability indices depicts that among the six selected attributes cleanliness scored the highest value of 3.02 and waiting time scored the lowest value of 1.62. The composite score for all service attributes was found 2.4 which is higher than the moderate value (2) of the attributes according to the chosen scale. It revealed that the service provided by taxis is little higher than the moderate quality.

From the driving period of taxi driver it was observed that from 2.00 a.m. to 6 a.m. no taxis are plying i.e. about 4 hours the city street lacking cab. People who are using the service want to get it as a 24-hours service because from 2.00 a.m. to 6.00 a. m. no transport prevails on the city streets.

It is found that only a small number of taxis are running with CNG but due to the inadequate number of CNG refueling stations the drivers have to queue for long hours and time which incur financial losses. Use of CNG may play a vital role to reduce fare rate and air pollution as it is a cheaper and environment friendly fuel.

6.3 Conclusions

It is revealed from the above findings that overall performance of taxi service is better compared to its alternative (auto-rickshaw) in respect of their operational and service performance. From the users' point of view, it is revealed that passengers are satisfied about the service performance of taxi. Although there are some deficiencies in respect of certain performance indicators, overall performance of taxi service is satisfactory both from the users' and operators' point of view. As a mode of public transportation in Dhaka city, the taxi service has some problems as regards their planning, operation and management. But it has been rendering useful service to the public, especially to those who were eagerly waiting for a comfortable, clean and safe transport mode which can reach them at desired destination in time with a reasonable fare.

Hence, it is necessary to recognize the positive role of taxi for now and the foreseeable future. To overcome present drawback and to provide an improved taxi service to the city dwellers appropriate measures must be taken in near future. Improvements must take place in the kinds of services offered, the types of fees charged, the safety of drivers and vehicles and passengers as well, the training of drivers and the relationships between the operator, municipal, law enforcing agencies and the authority regulating the service If existing deficiencies related to the service would be overcome, it can be an effective transport mode in Dhaka city.

6.4 Recommendations to the Improvement of Cabs' Overall Performance

The evaluation outcomes revealed the deficient aspects of the taxi service and the levels of such deficiencies. Thence the operator of taxi service and appropriate Government Authority could decide and undertake appropriate improvement measures to improve and maintain the service levels provided by the taxi service to some policy standard through operational and managerial changes. However, some recommendations for the improvement of operational performance and service quality have been made here based on the survey findings and literature survey reviewed.

1. Effective measures should be adopted to improve the service levels regarding waiting time and getting a taxi for the passengers. A good number of taxi stands must be set up in the city so that passengers can find a cab within a reasonable walking distance. CAOB demanded cab stands at twenty important places in the city, which is given in Appendix C. There should be taxi stands near all major shopping centres, entertainment districts, business districts, transport terminals and ports, hotels and hospitals as well as at strategic locations in all residential districts.

2. The major reason behind changing from the auto-rickshaw to taxi was to avoid dirt, dust and smoke; and to travel comfortably and in less time etc. Hence it is recommended that there be periodic and random audits of taxi companies in regard to service standard compliance.

3. The fare rate of taxi was reported higher than the auto-rickshaw by the passengers. It is also found that a small percentage of taxi using CNG as fuel. The study recommends a mandatory use of CNG as fuel in taxi which is cheaper than the petrol fuel and environment friendly as well. The use of CNG will reduce operating cost of taxi which in run will reduce fare rate of taxi thus making more affordable to the public. The study also recommends that there be a review of taxi fares every two years.

4. Though a large section of cab drivers had previous experience of driving cars, they are yet to learn to provide courteous and civilized transport service. Persons interested in driving a taxi must first have a regular automobile driver's license. He must know local geography, motor vehicle laws, safe driving practices, regulations governing taxis, and display some aptitude for being able to deal courteously with the public. The study recommends that a driver engaged in this service must be trained properly. The study further recommends that training be offered for managers and owners of taxi companies. Such training should focus on issues pertaining to financial accountability regulations, legal concerns, employment standards and liability matters.

5. Survey data revealed that after midnight to till early morning no taxis ply on the streets. As taxis are supposed to offer services 24 hours a day by the government, this study recommends driving shifts for drivers throughout 24 hours in order to provide taxi service 24-hours a day. At the start of their driving shift, cab drivers shall usually report to the cab service or garage where they are assigned a cab. They will be given a trip sheet where they will record their name, date of work and cab identification number. They will check the cab's fuel and oil levels, and make sure the lights, brakes and windshield wipers are in good working order. The study further recommends that taxi companies should restructure their shift change procedures in order to ensure an adequate number of vehicles on the road at all times. It also ensures greater utilization of vehicles with multiple drivers.

6. Drivers and vehicles safety is a major concern to provide a better service. Fare evasion is the most common form of victimization and understandable concern for drivers. It is recommended here that for the safety of both driver and vehicle a taxi cab may be equipped with: a) Radio alarms. b) Duress alarms. c). Surveillance cameras. d) Central locking etc, which will help to take protective measures during the crucial moments. As a safety measure for both driver and passengers the window and back glass advertising of taxis should be prohibited.

7. It was found that a small portion of cab users calling cab over telephone The radiotelephone link system of taxi must be strengthened for the improvement of taxi service. Each taxi stand must be connected with all the taxis through radiotelephone. One, who wants to travel by taxi, will call his nearest taxi stand and the responsible person of the particular taxi stand will provide taxi to his door. Each taxi stand must have to provide service 24-hours a day.

8. The study recommends that taxis be allowed a responsible amount of time in non stopping zones to load and unload customers without being fined.

9. The study recommend that the taxi industry, through their association, develop a standard Passengers' Bill of Rights and Responsibilities to be deployed in every vehicle. There must be an effective and comprehensive complaint procedure for consumers It is also recommended that the drivers must have to display identity cards with photographs inside cabs.

10. Present study also recommends that there must be some specified locations in the city for the display of taxi riding rules and regulation by Billboards for stranger/new comer to the city.

11. Intercity route permits for taxis have been demanded by both passengers and operators. The present study recommends an intercity taxi service in addition to the present taxi service which has been confined to only Dhaka metropolitan area and its surrounding pourashavas such as Tongi, Savar and Narayanganj. The intercity taxi may have a different look for easy identification.

6.5 Recommendations for Further Research Work

Further research may be conducted on the desirable number of taxis for Dhaka City. The permitted number of taxis has been stepped up from 2,000 to 4,000 and recently to 10,000. An investigation may be carried out regarding the appropriate population of taxis that can serve best Dhaka City dwellers.

REFERENCES

Ahsan, H. M. (1990). "A Study of Mass Transit in Metropolitan Dhaka", M. Sc. Engg. Thesis, Department of Civil Engineering, BUET, Dhaka.

BBS, (2001). *Statistical Yearbook of Bangladesh*, Bangladesh Bureau of Statistics, Statistics Division, Ministry of Planning, Goverment of the People's Republic of Bangladesh, Dhaka.

Brendan, L. (2001). "Public Transport and Taxis in Dublin. Proposals for an Improvement in Dublin Transport", Report Prepared for the National Taxi Driver's Union and the Irish Taxi Driver Federation (http:// www.realtaxis.com/bren.html)

Chowdhury, M. R. (1998). "Role of Autotempo as a Mode of Public Transport in Dhaka City", MURP Thesis, Department of Urban and Regional Planning, BUET, Dhaka.

Chan, D. (2001). Speech of the Acting Commissioner for Transport, Hong Kong, Delivered at the Launching Ceremony of the Taxi Driver Commendation Scheme. (http:// www.info.gov.hk/td/eng/transport/cerespeech.html)

Das, S. K. (1998). "An Evaluation of Premium Bus Service in Dhaka City", MURP Thesis, Department of Urban and Regional Planning, BUET, Dhaka.

The Daily Star, (2000). "Going Subterranean", January 28, 2000

Hasan, M. N. (1996). "The Role of Double Decker Buses as a Mode of Public Transportation in Dhaka City", MURP Thesis, Department of Urban and Regional Planning, BUET, Dhaka.

Hertfordshire County Council (2001). "Report on Local Transport Plan", Environment Department, County Hall, Pegs lane, Hertford, SG13 8DN. (http:// www.enquire.hertscc.gov.uk/ltp/full/strats/taxis.htm)

The Independent, (2000) "Taxi! Going Places in Dhaka", June 9, 2000.

Kang, C. H. (1998). "Taxi Deregulation: International Comparison", PhD Dissertation, Institute for Transport Studies, The University of Leeds. (http:// www.taxi-l.org/kang0898.htm#c3)

Mohit, M. A. (1996). "Public-Community Partnership in Urban Land Development at Fringe Areas of Dhaka Mega City", Souvenir of World Habitat Day 1996. Ministry of Housing and Public Works, Goverment of the People's Republic of Bangladesh.

Moore, A. T. and Rose, T. (1998). "Regulatory Reform at the Local Level: Regulating for Competition, opportunity, and Prosperity", RPPI Policy Study No. 238. (http:// www.urbanfutures.org/ps238.html#A1)

Muktokantha, (1999). "Traffic Jam: Loss of One Thousand Crore Taka Every Year", October 25, 1999.

The Bangladesh Observer, (2000). "The Taxicab is Alive and Kicking", June 23, 2000.

PPK   Consultants Pty Ltd., Decan International Corporation and Development Design consultants (1993a). "Performance Review of BRTC's Greater Dhaka Bus Operations", Working paper no. 21, DITS: mid term report, Draft No. 1, Planning Commission, Government of Bangladesh, UNDP, with Department of Economic and Social Development as Executive Agency, Project No. BGD/88/011.

PPK   Consultants Pty Ltd., Decan International Corporation and Development Design consultants (1993b) "Private Sector Bus and Minibus Performance Review", Working paper no. 22, DITS: mid term report, Draft No. 1, Planning Commission, Government of Bangladesh, UNDP, with Department of Economic and Social Development as Executive Agency, Project No. BGD/88/011.

Rahman, M. M. (1996). "Urbanization and Human Solidarity: Poor People's Housing in Dhaka", Souvenir of World Habitat Day 1996, Ministry of Housing and Public Works, Govertment of the People's Republic of Bangladesh.

Rab, M. A. (2001). "Automotive Air Pollution in Dhaka City-Measures for Control and Management", International Seminar on Air Pollution in Dhaka City. October 30, 2001, Organized by FBAST.

Schaller, B. and Gilbert, G. (1996). "New York's Taxi Medallion System", *Transportation Quarterly*, Vol. 50, No. 1

UK Department of the Environment, Transport and the Regions (2000), "The Government's First Report on Road Traffic Reduction (National Targets) Act 1998: Tackling Congestion and Pollution."
(http:// www.roads.dtlr.gov.uk/roadnetwork/rtra98/report1/9.htm)

APPENDICES

ATTITYDE SURVEY QUESTIONNAIRES
[Questionnaire 1]
DEPARTMENT OF URBAN AND REGIONAL PLANNING
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY
Questionnaire for Taxi Passengers' Attitude Survey Regarding the Service
(Collected information shall be used for academic research only)

Please put tick mark in the box beside the appropriate answer

A. General information of the respondents

Age	Sex	Educational level	Occupation
1= 0- 14 ▢	1= Male ▢	1= S.S.C / O' level ▢	1= Govt. service ▢
2= 15-29 ▢	2= Female ▢	2= H.S.C / A' level ▢	2= Private service ▢
3= 30-44 ▢		3= Graduate ▢	3= Business ▢
4= 45-60 ▢		4= Others ▢	4= Student ▢
5= 60+ ▢			5= House wife ▢

B. How many times did you travel by taxi in the last week?
1= 1-3 times ▢	4= Can't remember	▢
2= 4-7 times ▢	5= Not at all	▢
3= More than 7 times ▢	6= others	▢

C. Please specify the reasons behind traveling by taxi.
(Multiple answers are acceptable)
1= More comfortable ▢	6= To avoid dirt, dust, sound and smoke	▢
2= Less travel time ▢	7= Ensured privacy	▢
3= Not crowdy ▢	8= Prestigious	▢
4= Ensured safety ▢	9= Others (please write down)	▢
5= Less waiting time ▢		

D. What is the purpose of the present trip?
1= Work / business ▢	5= Recreational	▢
2= Educational ▢	6= Social meeting	▢
3= Shopping ▢	7= Social welfare	▢
4= Treatment ▢	8= Others (please write down)	▢

E. How did you get this taxi?
1= By telephone call ▢	3= On reaching taxi stand (unofficial)	▢
2= Waiting on the street ▢	4= Others (please write down)	▢

F. How long did you wait for the taxi?
1= Less than 5 minutes ▢	4= 15-20 minutes	▢
2= 5-10 minutes ▢	5= 20-25 minutes	▢
3= 10-15 minutes ▢	6= More than 30 minutes	▢

G. What was the maximum waiting time for you?

1= 5 minutes ☐ 4= 20 minutes ☐
2= 10 minutes ☐ 5= 25 minutes ☐
3= 15 minutes ☐ 6= Others (please write down) ☐

H. How did you reach the taxi stand?

1= Not applicable ☐ 4= Minibus / bus ☐
2= Walking ☐ 5= Others (please write down) ☐
3= By rickshaw ☐

I. How much time did it take to reach the taxi stand?

1= Less than 10 minutes ☐ 3= 15-20 minutes ☐
2= 10-15 minutes ☐ 4= More than 20 minutes ☐

J. If you had been using other modes of transport and have recently started using taxis, what were the reasons behind this?

1= Not applicable ☐ 5= Comfortable ☐
2= Less waiting time ☐ 6= Free from dirt, dust, sound and smoke ☐
3= Less travel time ☐ 7= Change in income level ☐
4= Easy to get ☐ 8= Others (please write down) ☐

K. What alternative mode would you use for this trip if taxis were not available?

1= Bus / minibus ☐ 5= Auto-rickshaw ☐
2= Rickshaw ☐ 6= Own car ☐
3= Double Decker
 bus / BRTC city service ☐ 7= Rent-a-car ☐
4= Premium bus service ☐ 8= Others (please write down) ☐

L. Please compare the attributes of taxi with your preferred alternative mode.

Attributes					Comparison	
Fare rate	:		Low	☐	High	☐
Travel time	:		Low	☐	High	☐
Waiting time	:		Low	☐	High	☐
Cleanliness	:		Good	☐	Bad	☐
Drivers' behavior	:		Good	☐	Bad	☐
Safety	:		Good	☐	Bad	☐

M. What difficulties did you face using the taxi service in the past?

1= Scarcity of taxi ☐
2= No permanent taxi rank ☐
3= Driver reluctant to go to desired place ☐
4= Driver compelled to give more money rather than meter fare ☐
5= Others (please write down) ☐

N. Are you satisfied with the present service status of taxi?

1= Yes ☐ 2= No ☐ 3= No comments ☐

O. Please give your opinion on the following attributes of the taxi service.

Attributes	Too high	High	Moderate	Low	Very low
Fare rate					
Travel time					
Waiting time					

Attributes	Very bad	Bad	Moderate	Good	Very good
Cleanliness					
Drivers' Behavior					
Safety					

P. Do you have any suggestions regarding the service?

Thank you

The following part will be filled by the interviewer

Name of the taxi company   :
Name of the driver   :
Taxi number   :
Starting place of the journey :
Destination   :
Date   :
Time   :

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DEPARTMENT OF URBAN AND REGIONAL PLANNING
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY
Questionnaire for Taxi Drivers' Attitude Survey Regarding the Service
(Collected information shall be used for academic research only)

Please put tick mark in the box beside the appropriate answer

A. General information of the driver

Age	Educational level	Previous occupation	
1=15-30 □	1= S.S.C / O' level □	1= Car driver	□
2= 30-45 □	2= H.S.C / A' level □	2= Bus / Minibus driver	□
3= 45+ □	3= Graduate □	3= Truck driver	□
	4= Others □	4= Tempo / auto-rickshaw driver	□
		5= Student	□
		6= Others	□

B. Do you own the taxi?
   1= Yes   □   2= No   □

C. What type of taxi do you drive?
   1= Black   □   2= Yellow   □

D. How much do you earn per month as a taxi driver?
   1= 1-3 thousand   □
   2= 3-6 thousand   □
   3= More than 6 thousand   □

E. Why did you choose taxi driving as your occupation?
   1= To apply the experience of driving   □
   2= Like driving as profession   □
   3= Offers dignity and source of good income   □
   4= No haggling over price   □
   5= Did not get any other good job   □
   6= Others (please write down)   □

F. When do you drive taxi?
   1= 6 a.m. - 2 p.m.   □   3= 10 p.m. - 6 a.m.   □
   2= 2 p.m. - 10 p.m.   □   4= Others   □

G. How many days in a week do you drive taxi?
   1= 7 days   □   4= 4 days   □
   2= 6 days   □   5= 3 days   □
   3= 5 days   □   6= Others   □

H. From where do you start driving taxi?
    1= Shahbag   □   5= Rajlaxmi complex   □
    2= Asad gate / Parliament area   □   6= Kamlapur railway station   □
    3= Motijheel   □   7= ZIA   □
    4= Farmgate   □   8= Others (please write down)   □

I. Which area do you serve in the city?
    1= No fixed area   □
    2= All over the city   □
    3= Only few specified area (please write down)   □

J. What difficulties did you face during driving taxi?
    1= Lack of legalized taxi stands   □
    2= Police harassment   □
    3= Attack of miscreants   □
    4= Others (please write down)   □

K. For how long have you been driving taxi?
    1= Less than 1 year   □   3= 3-5 years   □
    2= 2-3 years   □   4= Others   □

L. Do you have any suggestion regarding this service?

Thank you   Name of the interviewer:

                                   Date and time   :

DEPARTMENT OF URBAN AND REGIONAL PLANNING
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY
Questionnaire for Taxi Operators' Attitude Survey Regarding the Service
(Collected information shall be used for academic research only)

A. Name of the taxi company:

B. Office address of the taxi company:

C. Year of establishment of the taxi company:

D. Number of taxi operated by the company:
    1= Black   □   2= Yellow   □
         Number =   Number =

E. Type of car (model) used by the company:

F. Fuel used in the taxi:
    1= Petrol / octane   □   2= CNG   □
         Number =   Number =

G. Service time provided by the taxi company:

H. What difficulties did you face to operate the taxi company?

I. Do you have any suggestion for the improvement of taxi service?

J. How many vehicles are you planning to introduce in the next one year?

Thank you   Name of the interviewer.
                                               Date and time   :

APPENDIX B

List of taxi companies presently operating in Dhaka city

Sl. No	Name Of Taxi Company	Office Address	Telephone
1.	Anudip Taxi Cab	158, Mirpur Road, Kalabagan, Dhaka-1207	8125690 9125138
2.	Aryan Automobiles Ltd.	78/A, Purana Paltan Line (2nd Floor), Dhaka-1000	9342731 9342732
3.	Cab Express (BD) Ltd.	177,Shohid Syed Nazrul Islam Soroni (New), 30, Bijoynagar (Old), Dhaka-1000	9348401 9337941 9339337
4.	Cab One/Cab Bangla Ltd.	33, Topkhana Road, Meherba Plaza (14th Floor), Purana Paltan, Dhaka-1000	7113282-3 0171540685 018230173
5.	Cab Salida Ltd.	63, Malibagh, DIT Road, (Ground Floor), Dhaka-1217	9344477 8321425 0171620888
6.	Capital Cab Company Ltd.	48, Bijoynagar, Dhaka-1000	9352847-9 8317452 8316973
7.	Classic Cab (Pvt.) Ltd.	32, Mayakanon Basabo, Dhaka-1214	7200825
8.	Comfort Cab Limited / Smart Cab	188B, Tejgaon, Gulshan Link Road, Dhaka-1208	9884031 9884029 8817610-4
9.	Cosmo Cab (Pvt) Ltd.	House#84, Road#7/A, Dhanmondi R/A, Dhaka-1209	9112959 8127208 8127191
10.	Cool Cab Limited	House#2, Road#9(Old), Dhanmondi Kalabagan, Mirpur Road, Dhaka-1205	8130485 9355957
11.	Limousine Cab Transport Ltd.	27, Nayapaltan, VIP Road, Dhaka	9337208 8322704 018226372
12.	Navana Taxi Cab	3/C, Puranapaltan, Dhaka-1000	9558065
13.	Orion Taxi Cab (Pvt.) Ltd	House#50, Road#27(Old), 16 (New), Dhanmondi R/A, Dhaka-1209	8118222 9347277
14.	Reliance Cab Ltd.	36, Puranapaltan Lane (VIP Road), Dhaka	9339563-4
15.	Saipa Taxi Cab	13, Santinagar ,(1st Floor) Dhaka-1217	8322524 8321226

Sl. No	Name Of Taxi Company	Office Address	Telephone
16.	The Taxi Cab Services (BD) Ltd.	78/A, Purana Paltan Line, (2nd Floor) Dhaka-1000	9342731 9342732
17.	Crystal Cab Ltd.	149, Elephant Road, (2nd Floor) Hatirpool, Dhaka-1205	9664360
18.	Eco Cab	64/A, Bijoy Nagar, Dhaka-1000	9336768
19.	Rainbow Cab Ltd	89, DIT Road, Malibag, Dhaka-1217	9340417
20.	South Point Cab	House#02, Road#03, Gulshan Avenue-1, Dhaka	8824813 8826706 011863863
21.	Cab Pacific Ltd.	3/1, Dinonathsen Road, Gendaria, Dhaka	7411129
22.	Chatra Prokalpa Ltd.	Joar Sahara, Khilkhet, Dhaka	0171931615
23.	Concab	35/1, Sonargaon, (1st Floor) Dhaka-1205	
24.	Dhaka Cab	House#45, Road#17, Block-E, Banani, Dhaka1213	0171621849
25.	Multi Cab	49, Motijheel, (4th Floor), Room No-404, Dhaka	9666502 0171233851
26.	Inter Ex Cab	230, New Elephant Road, Kantabon, Dhaka	8621985 019350197
27.	A&A Autos	28/B, Segunbagicha, Dhaka	8314599 8317452
28.	Help Line Cab	48/3, R.K. Mission Road, Dhaka	7110580-8
29.	Metro Cab	39,Dilkusha , Motijheel C/A, Dhaka	8818699 0171881044
30.	Shihab Cab Ltd.	15, Nilkhet, Babupura, Dhaka	018202477 018228675 0171206046
31.	Cab Line	108, DIT Road, Malibag, Dhaka	8321162
32.	Seba Cab Ltd	108, DIT Road, Malibag, Dhaka	9359885
33.	Bhandari Cab Ltd.	5, Outer Circular Road, Rajarbag, Dhaka	9347638 0171732250
34.	United Cab	453, Banspatri, Shoniakhra, Dhaka	7510166
35.	Cab For Less	64, Purana Paltan, Kakrail Lane, Garrage Patri, Dhaka	9356938 0171113534

Sl. No	Name Of Taxi Company	Office Address	Telephone
36.	Shatorupa Taxi Cab	House#37, Shah Mokhdoom Avenue, Sector-12, Uttara Model Town, Uttara, Dhaka	8913862 018127992
37.	Jatri Cab	74. Bhuia Manson, Kakrail, Dhaka	9347825 019327032 0171540074
38.	Nipun Cab	27/11/3A, Topkhana Road, Pranapaltan. Dhaka-1000	7160268-9 9572288
39.	Sajan Cab	108, DIT Road, Mahbag, Dhaka	9359885 018126036
40.	Amicus Cab	108, DIT Road, Malibag, Dhaka	8321162 9359885
41.	Gauno Cab	33, Topkhana Road, Meherba Plaza (14th Floor). Dhaka	9571919
42.	KGN Cab	272, Elephant Road, Dhaka	8620011 018289906
43.	Provati Cab Ltd.	135, South Kutubkhali, Jatrabari, Dhaka	011840133 0172022446
44	RSS Cab	123, New Kakrail Road,Moubon Super Market, Shantinagar, Dhaka	8318536
45.	Sigma Cab	675, Kazipara, Mirpur, Dhaka	011057599
46.	Shyamoli Taxi Cab (Pvt.) Ltd.	25/1B, Khilji Road, Shyamoli, Dhaka	9003331 9124139
47.	Fast Stop Cab	726/A, Dhanmondi-15,Dhaka	9332099 9338139
48	Badhon Cab	110, Goalban, Mirpur-14, Dhaka	019343832 0171601636 0172057243
49.	Cupid Cab	House#13, Road#12, Block-F, Banani, Dhaka	8814127 0172020681
50.	Yellow Line Cab Ltd.	113-116, Rangs Bhaban, Old Airport Road, Tejgaon, Dhaka	018251382 7518279 8120001-4
51.	My Cab Transport Ltd.	3, Jasimuddin Road, Kamalapur, Dhaka	0171548958 0172002555
52.	F Cab	51, Posogola DIT plot, Jurain, Dhaka	7415120
53.	Star Cab Ltd.	33, Topkhana Road, Meherba Plaza (14th Floor), Dhaka	9571919
54.	ISRA Cab Ltd.	Maskat Plaza, Khalpar, Sector-12, Uttara, Dhaka	8924241

SL. No.	Name Of Taxi Company	Office Address	Telephone
55.	Miny Cab/Tiny Cab Ltd.	South Matuail, College Road, Demra, Dhaka	7518954
56.	Ve Bridge Limited	75/76, Kakrail Road, Kakrail, Dhaka	8311940 9339674
57.	Weldone Cab Ltd	10/3, Toynobee Circular Road, Motijheel, Dhaka	9551639
58	R Cab Limited	Ka-6/1,Khilkhet, Tanpara, Joar Sahara, Nikunja-2, Dhaka-1229	8914782
59.	S S Cab	126/1, Gopipara, Uttar Badda, Dhaka	9862293
60.	Cab Fast Ltd.	H#55, Road#1,Sector-9,Uttara Model Town, Dhaka	8953761 0171435815
61.	Continental Autos Ltd.	10/3,Arambag (1st floor), Motijheel, Dhaka-1000	7100842-4 9558425 9667456
62.	Raiyan's Cab Ltd.	House#290, Lane#4, DOHS Baridhara, Dhaka-1206	9892070 0171806067 018214028
63.	Monsur Taxi Cab Ltd.	1219/C, Khilgaon Chowrasta, Dhaka	7216282
64.	Idas Cab Ltd.	257, DIT Road, West Rampura, Dhaka-1219	

APPENDIX C

List of leasing companies offering finance to taxi companies

Sl. No	Name	Address
1.	Islamic Finance And Investment Ltd.	66, Dilkusha C/A, Dhaka
2	Prime Finance And Investment Ltd.	63, Dilkusha C/A, Dhaka
3.	Pubali Bank Ltd.	Malibag Branch, Dhaka
4.	IDLC of Bangladesh Ltd.	Hadi Manson, 2 Dilkusha C/A, DIT Road, Dhaka
5.	Arab Bangladesh Bank Ltd.	30-31, BCIC Bhaban, Dhaka
6.	Al Baraka Bank	VIP Road Branch, 35/C, Naya Paltan, Dhaka
7.	Islamic Bank	Ramna Branch, 9, Bangabandhu Avenue, Dhaka
8.	The City Bank Ltd.	Head Office, Jiban Bima Tower, 10, Dilkusha C/A, Dhaka
9.	Dhaka Bank Ltd.	Adamjee Court, 115-120, Motijheel C/A, Dhaka
10.	Vanik Bangladesh Ltd.	20, Kamal Ataturk Avenue, Safura Tower (11th Floor), Banani, Dhaka
11.	Dutch-Bangla Bank Ltd.	Banani Branch, Plot-75, Block-B, Kamal Ataturk Avenue, Banani, Dhaka
12.	N.C C Bank Ltd.	Dilkusha Branch, 43, Dilkusha C/A, Dhaka
13.	Uttra Finance And Investment Ltd.	Jiban Bima Tower (6th Floor), 10 Dilkusha C/A, Dhaka
14.	Union Capital Ltd.	Sonartari Tower (14th Floor), 12, Sonargaon Road, Dhaka
15.	Bangladesh Commerce Bank Ltd.	Dholaikhal Branch, 48/3/F, R.K Mission Road, Dhaka
16.	Karmo Sangsthan Bank	187/B, Tejgaon Industrial Area, Dhaka

APPENDIX D

List of self financed taxi companies

Sl. No	Name	Address
1.	Cosmo Cab Private Ltd.	104/1, Kakrail, Dhaka
2.	Comfort Cab Ltd.	188/B, Tejgaon Industrial Area, Dhaka
3.	Yellow Line Ltd.	113-116, Old Airport Road, Tejgaon, Dhaka
4.	Nitol Taxi Cab Ltd.	Nitole Centre, 71, Mohakhali, Dhaka
5.	Anudip Autos Ltd.	158, Lake Circus Kalabagan, Dhaka
6.	Cab Salida Ltd.	63, Malibag, DIT Road, Dhaka
7.	Cab Express Bangladesh Ltd.	Ka-259, Bagbari, Mirpur, Dhaka
8.	Uttara Cab Ltd.	39, Dilkusha C/A, Dhaka

APPENDIX E

Photographs of few taxis operating in Dhaka City.
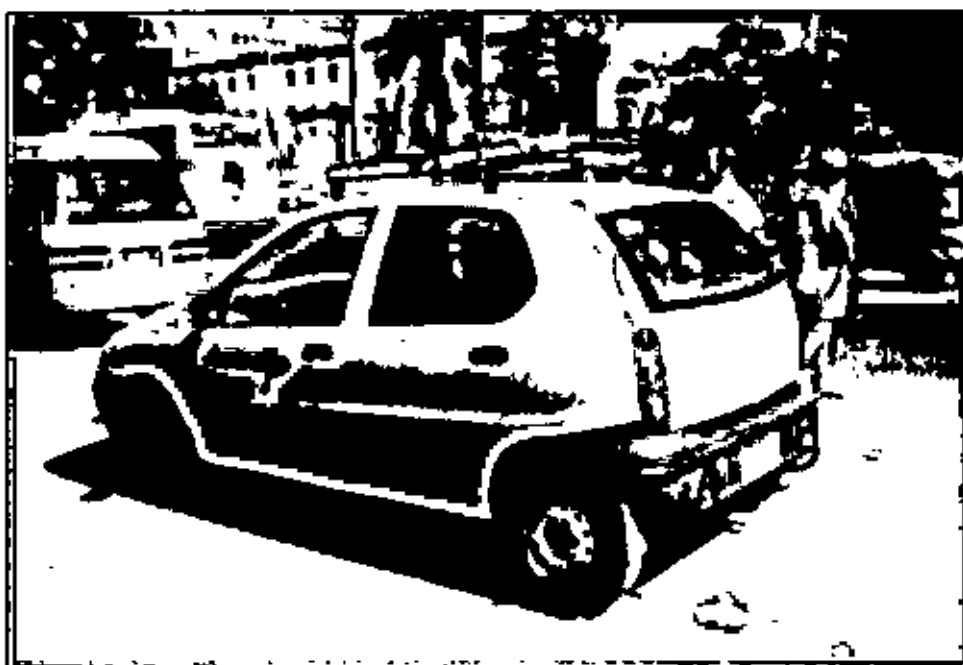A. Non Air Conditioned Taxis

Company: CabEx
Model: Maruti Suzuki

Company: RSS Cab
Model: Hyudai Santro

B. Air Conditioned Taxis

Company: Anudip Taxi Cab
Model: Tata Indica V2

Company: Shyamoli Taxi Cab (Pvt.) Ltd.
Model: Ambassador Classic

Statistics of taxi registration

Sl. No.	Designated engine capacity (cc)	Engine capacity (cc)	Registered before 26-07-03	Registered after 26-07-03		Black (Non-AC)	Yellow (AC)	Total
				New	Reconditioned			
1.	800-1250	800	3751	33	-	3784	-	3784
		1000	586	21	-	607	-	607
		1086	185	21	-	206	-	206
		1242	139	-	-	139	-	139
2.	1250-1600	1290	15	-	-	15	-	15
		1298	385	50	1	-	436	436
		1300	1337	76	23	34	1402	1436
		1405	1080	470	5	712	843	1555
		1500	671	-	38	2	707	709
		1580	23	-	-	1	22	23
3.	1600-2000	1800	61	35	-	25	71	96
Total			**8233**	**706**	**67**	**5525**	**3481**	**9006**