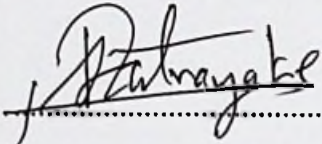


DECLARATION

"I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university to the best of my knowledge and belief it does not contain any material previously published, written or orally communicated by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation if accepted, to be available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations".


.....

Signature of the candidate

2014/02/17

Date

*Thesis submitted to the Department of
Mathematics for the Degree of Science in
Financial Mathematics.*

To the best of my knowledge, the above particulars are correct.

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Dedication

To my dear mother and to all others who added value to my life.

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Abstract

In the past, Sri Lanka had a very systematic, developed and effective transport system compared to other Asian countries. The transportation modes like trains, buses, boats and tram cars provided a good interconnected transport system even in absence of sophisticated technology and information.

Public transport is an essential service and is one of the most important components for well-being of growing and expanding areas. Public transport is a public service which is meant to provide service levels that comply with public demand. Since this is an industry, the sustainability purely depends on the organic cash generation of the business (internal flow).

It is known and accepted that bus fares have to keep with rising prices of input to the bus industry and therefore fares have to be revised accordingly from time to time. The absence of proper system to decide the rate of the fare revision, introduced a scientific way to decide the rate on the basis of operating cost through the bus fare policy in 2002.

Currently the fare is decided on the basis of operating cost per km. The absence of a proper scientific revenue calculation creates an uncertainty about the fares based on costs.

This study is an initial attempt to Formulation of Revenue Formula Based on Passenger Demand Pattern Analysis.

Data for this study were gathered through past (historic) data extracted from ticket machines and way bills of Sri Lanka Transport Board and use of actual boarding alighting count data by conducting two onboard surveys.

The first step is to analyze the current bus fares in different aspects such as historical view, current bus fares, section wise increments etc. Fares are the one and only contributor for revenue in bus industry. The identification of maximum load points carried out next.

Main variables of Revenue Formula are number of passengers and coefficients. Coefficients mean the average incremental fare amounts applicable to each section additionally travelled by a passenger. The number of passengers was approximated using maximum load points and coefficients were calculated using probability matrices which show both the sections wise increments and passenger alighting patterns.

On the basis of the results of this research, it can be concluded that the approximate revenue can be assessed based on passenger demand patterns.

TABLE OF CONTENTS

Declaration of the candidate	i
Declaration of the supervisor	i
Dedication	ii
Acknowledgements	iii
Abstract	iv
Table of content	v
List of Figures	viii
List of Tables	x
List of matrices	xii
List of abbreviations	xiii
List of annexure	xiv
Chapter 1: Introduction	
1.1 General Introduction	01
1.2 Problem Statement	04
1.3 Inflation	07
1.3.1 Terminology	
1.4 Objectives of the Study	10
1.5 Significance of the research	10
1.6 Scope & Limitations	
1.6.1 Scope	11
1.6.2 Limitations	12
Chapter 2: Literature Review	13
Chapter 3: Methodology	15
Chapter 4: Construction of the Revenue Formula	

4.1	Fare Analysis	17
4.1.1	History of Bus Fare	17
4.1.1.1	Early Bus Fare Period	17
4.1.1.2	CTB Period	18
4.1.1.3	NTC Period	19
4.1.1.4	Formulation of a Fares Policy for Bus Transport Services	20
4.1.2	Current Bus Fares	21
4.1.3	Fare Matrix for Twelve Sections Route	24
4.1.4	Sections wise Incremental Fare Matrix	25
4.2	Variants of Bus Operating Revenue (BOR)	
4.2.1	Type of Service	26
4.2.2	Type of Route	26
4.2.3	Bus Size	26
4.2.4	Speed	26
4.2.5	Trips per Day, Hours of Operations and Time between Two Trips	27
4.2.6	Distance & Travel Speed	27
4.2.7	Hours of Operation	27
4.2.8	kilometres operated	28
4.2.9	No. of Buses on a Route Type	28
4.2.10	Route supply Level	28
4.2.11	Number of days operated	28
4.2.12	Load Factor	29
4.3	Formulation of the Ten Representative Routes	30
4.4	Identification of Patterns in Routes	32
4.4.1	Route No. 201	32
4.4.1.1	Introduction	32
4.4.1.2	On-board survey results	33
4.4.1.3	Methodology of the Survey	34
4.4.1.4	On-board Survey Results and Relevant Graphs	36
4.4.1.5	Average Summary	37
4.4.1.6	Overview	39

4.4.1.7	Comments of the Results	39
4.4.2	Route number 273	
4.4.2.1	Route Introduction	39
4.4.2.2	Ticket machine data	41
4.4.2.3	Extracting Data	43
4.4.2.4	Analysing Data According to the Price of the ticket	43
4.4.2.5	Comments	53
4.4.2.6	Comparing similar days and times	53
4.4.2.7	Comments	56
4.4.2.8	Further Patterns	
4.4.2.8.1	Total Alighting matrix	57
4.4.2.8.2	Column Probability Matrix of Alighting	58
4.4.2.8.3	Row Probability matrix of Alighting	59
4.4.2.8.4	Residuals Alighting Matrix	60
4.4.2.8.5	Residuals Alighting Probability Matrix	62
4.4.2.8.6	Residuals Travelling Matrix	63
4.4.2.8.7	Residuals Travelling Probability matrix	64
Chapter 5: Final formula		
5.1	Simple Illustration of the Methodology	65
5.2	Generalized Formula Using route no. 273	68
5.3	Determining the Values of P_{ij}	73
Chapter 6: Conclusion		
6.1	Conclusion	74
6.2	Further Research	75
References		76
Appendix A: On-board survey results		77
Appendix B: Fare Tables		84

List of Figures

Figure 1.1: Share in percentages	2
Figure 1.2: Transport Model Share	5
Figure 4.1: 201 Ja-Ela to Gampaha Route Map	33
Figure 4.2: Survey no. 01	37
Figure 4.3: Summary graph of on-board survey	38
Figure 4.4: Route map of 273 Ja-Ela to Negombo bus route	40
Figure 4.5: Graph of Trip ID 55	44
Figure 4.6: Graph of Trip ID 138	45
Figure 4.7: Graph of Trip ID 140	46
Figure 4.8: Graph of Trip ID 168	47
Figure 4.9: Graph of Trip ID 170	48
Figure 4.10: Graph of Trip ID 172	49
Figure 4.11: Graph of Trip ID 304	50
Figure 4.12: Graph of Trip ID 169	51
Figure 4.13: Graph of Trip ID 171	52
Figure 4.14: Graph of Trip ID 104	54
Figure 4.15: Graph of Trip ID 176	56
Figure 5.1: Bus route with one section	65
Figure 5.2: Bus route with 02 sections	65
Figure 5.3: Example 01	66



Figure 5.4: Bus route with 03 sections

67

Figure 5.5: example 02

67

List of Tables

Table 1.1: The share in percentage	2
Table 1.2: Equity Capital vs. Dept Capital	3
Table 1.3: Transport Modal shares Sri Lanka (2011)	4
Table 4.1: Fare Rates	18
Table 4.2: Fare Increases in the CTB period	19
Table 4.3: Fare Revisions in the NTC Period (Before Implementing the Policy)	20
Table 4.4: Current Bus Fares	21
Table 4.5: No. of days operable in a route	29
Table 4.6: Data collection format	34
Table 4.7: Summary Table for data collection	36
Table 4.8: Results of 1 st onboard survey	36
Table 4.9: Summary Table of on-board survey results	38
Table 4.10: Ticket machines data- Sample	42
Table 4.11: Sorted out for price of the ticket	43
Table 4.12: Information of Trip ID 55	44
Table 4.13: Information of Trip ID 138	45
Table 4.14: Information of Trip ID 140	46
Table 4.15: Information of Trip ID 168	47
Table 4.16: Table of Trip ID 170	48
Table 4.17: Information of Trip ID 172	49



Table 4.18: Information of Trip ID 304	50
Table 4.19: Information of Trip ID 169	51
Table 4.20: Information of Trip ID 171	52
Table 4.21: Information of Trip ID 104	53
Table 4.22: Information of Trip ID 176	55
Table 5.1: Coefficients Table	72

List of Matrices

Matrix 4.1: Fare Matrix for 12 Sections Route (Up/Down)	24
Matrix 4.2: Section wise Incremental Fare Matrix	25
Matrix 4.3: Total alighting matrix	58
Matrix 4.4: Column probability matrix of alighting	59
Matrix 4.5: Row probability matrix of alighting	60
Matrix 4.6: Residuals alighting matrix	61
Matrix 4.7: Residuals alighting probability matrix	62
Matrix 4.8: Residuals travelling matrix	63
Matrix 4.9: Residuals travelling probability matrix	64
Matrix 5.1: Residuals Travelling Column Probability Matrix	69
Matrix 5.2: Section wise Incremental Fare Matrix	70
Matrix 5.3: Coefficients Matrix	71



List of abbreviations

NTC	National Transport Commission
SLTB	Sri Lanka Transport Board
PBOA	Private Bus Owners Association
BOR	Bus Operating Revenue

List of annexure

On-board Survey Results	77
Fare Table for Route no. 201	84
Fare Table for route no. 273	85
SLTB Ticket data (CD Attached)	

