

**AN ASSESMENT OF SPATIO-TEMPORAL
IMPACT OF TWO-WHEELED PUBLIC
TRANSPORT OPERATIONS IN
METROPOLITAN LAGOS**

By

OLATUNJI, VINCENT OLASEINDE

(MATRIC NO 909005046)

B.Sc (Geography) Ado Ekiti, M.Sc (Geography and Planning) Lagos

**THESIS SUBMITTED TO THE SCHOOL OF
POSTGRADUATE STUDIES, UNIVERSITY OF LAGOS,
LAGOS, NIGERIA IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF DOCTOR OF
PHILOSOPHY (Ph.D) DEGREE IN GEOGRAPHY
(TRANSPORTATION)**

SEPTEMBER, 2008

**SCHOOL OF POSTGRADUATE STUDIES
UNIVERSITY OF LAGOS**

CERTIFICATION

This is to certify that the Thesis:

**"AN ASSESSMENT OF SPATIO – TEMPORAL IMPACT OF
TWO WHEELED PUBLIC TRANSPORT OPERATIONS IN
METROPOLITAN LAGOS"**

Submitted to the
School of Postgraduate Studies
University of Lagos

For the award of the degree of
DOCTOR OF PHILOSOPHY (Ph. D)
is a record of original research carried out

By
OLATUNJI, VINCENT OLASEINDE
in the Department of Geography

OLATUNJI, VINCENT O

AUTHOR'S NAME

PROF. I. A. ADALEMO

1ST SUPERVISOR'S NAME

DR. IMOLA ONI

2ND SUPERVISOR'S NAME

DR. ADEMOLA OMOTOYA

3RD SUPERVISOR'S NAME

PROF. D. A. OYELEYE

1ST INTERNAL EXAMINER

Dr. N. O. ULUOCHA

2ND INTERNAL EXAMINER

Prof. Tayo Odunmoye

EXTERNAL EXAMINER

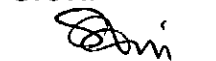
Dr. K. O. Ayegunmoja

SPGS REPRESENTATIVE

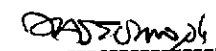
SIGNATURE



SIGNATURE



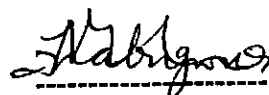
SIGNATURE



SIGNATURE



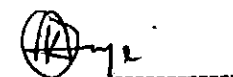
SIGNATURE



SIGNATURE



SIGNATURE



SIGNATURE

25-09-08

DATE

25-9-08

DATE

25-9-08

DATE

25/9/08

DATE

25-9-08

DATE

25-9-08

DATE

25-9-08

DATE

25-9-2008

DATE

DEDICATION

This Thesis is dedicated to the Glory and Honour of my Almighty God, the Alpha and Omega who gave me the courage and the wherewithal to complete this study.

ACKNOWLEDGEMENT

I am eternally grateful to my supervisors Prof. I.A. Adalemo, Dr. S.I. Oni and Dr. A. Omojola who amidst tight schedule ensured the successful completion of this work. They really encouraged me and we developed a relationship that is beyond that of student-lecturer.

My special thanks go to Prof. and Mrs M.O. Filani and Dr. Tunji Bolade for their support and encouragement for me to complete this work.

I am particularly grateful for the immense contributions of Dr. Feyi Oni, Fash, Tejuoso, Titi, Adeleke, Ayeni and Sina for their assistance in various ways particularly in making sense out of my data.

I recognize the input and assistance of all my colleagues like Olagunju, Sakiru, Charles, Eighe, Vide, Alex and Kemi. I am really grateful to you all for your critiques and contributions towards getting a good outcome of this work.

I also wish to thank my boss at work Mr. Emeka Ezekwesili for his understanding and brotherly assistance.

I am indeed grateful to my friend Banky for his support at all time and immense contributions at every time of need for this work. My brothers and friends Kay, Solozo, Olaonipekun, OK and Agbokeye, I say a very big thank you for all your assistance.

To my mother, Mrs Victoria Olatunji, my sisters and their husbands (Mr and Mrs Isola; Mr and Mrs Olaniyan), am really grateful for their untiring support at every point of need in my life. They contributed a great deal to every part of my success in life.

My dear wife, Olawumi, my dear daughter, Oluwafisikemi and our baby Oluwasunmimola I thank you all for your understanding and the time that I had to share between you and this work.

Lastly I thank the almighty God for the opportunity and empowerment to complete this work. To God be all glory, honour and adoration.

ABSTRACT

It has been asserted that unconventional modes of public transport in the 'third word cities flourish because of increasing urban population leading to public transport demand pressure, decreasing influence of conventional public transport companies and loss of purchasing power of citizens due to deteriorating economic situation. In metropolitan Lagos, response to this problem has led to the evolvement of various modes of public transport. One mode that has continued to enjoy increasing acceptance relative to other modes is the commercial motorcycle referred to as "Two-Wheeled Transport" in this study and 'Okada' locally.

Previous work done on the emergence of the two-wheeled transport as a means of public transport in metropolitan Lagos mostly concentrated on factors leading to the emergence. Others went further to state its neglect in terms of policy guidelines while others suggested its possible integration into total public transport provision.

However, there has been no study with serious geographic perspective to assess the extent of use, spatio-temporal distribution and its contribution to the total public transport planning and provision in Metropolitan Lagos. This study therefore sets to bridge this gap through a detailed academic research.

The study was done using metropolitan Lagos as a case study based on sixteen local government areas that fall within the Lagos metropolitan area. Specifically, the study examined the evolution of Okada, factors responsible for its use for commercial purpose, its spatio-temporal distribution, operational structure, characteristics of operators and users as well as income and employment generation, amongst others.

Data were collected from both primary and secondary sources. Primary data were collected from both the users and operators through reconnaissance survey and

structured questionnaires. The questionnaires administered covered background information and socio-economic characteristics of the respondents. Motorcycle traffic count was done while in-depth interview of operators was carried out at union offices. The secondary data were collected from various government bodies like Lagos state Ministry of Transportation, Federal Road Safety Commission, LAMATA and some hospitals. Local Assembly plants, motorcycle dealers and mechanics were also visited.

Relevant theories applied are the Node Connecting Model, Diffusion of Innovation Model and the Spatial Re-organisation Model.

Chi-Square was used to examine the factors responsible for the use of Okada for commercial purpose while ANOVA was used in testing the hypotheses.

The hypotheses tested include that:

- there is variation in the number of Okada being used for public transport in the different local government areas of metropolitan Lagos
- there is significant variation in the level of income generation amongst the different local government areas in the study area
- the patronage of Okada for public transport is independent of the Average Monthly Income of the Users in metropolitan Lagos

To assess the operational performance of Okada operators' in meeting commuters' need in metropolitan Lagos, the four elements of journey suggested by Adden-Brooke were applied. They include Access Time at Point of Origin, Waiting Time, Traveling Time and Access Time from Bus Stops to Point of Final Destination.

Problems associated with the use of Okada for public transport, institutional arrangement and government policies on public transport with particular reference to Okada in metropolitan Lagos were also examined.

From the various findings in this study, the need for adequate government recognition of the impact of two-wheeled public transport for commercial purpose and contribution to poverty alleviation have become obvious. This should be done through appropriate guideline and legislation to guide the operation of this mode that has become an integral part of public transport in the metropolis. In addition, full development and integration of requisite infrastructures for Two-Wheeled commercial transport was also made obvious.

In conclusion, necessary recommendations were made on the way forward. These measures were proposed for both short-term and long-term. Relevant areas of further research on the study are also suggested.

TABLE OF CONTENTS

	Page
Title Page	i
Dedication	ii
Acknowledgement	iii
Abstract	v
Table of Content	vii
List of Tables	xiv
List of Figures	xvi
List of Plates	xvii

CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Background to the Study	1
1.2 The Research Problem	4
1.3 Aim and Objectives of Study	6
1.4 Significance of Study	7
1.5 Scope and Layout of Study	8
1.6 Research Questions	9
1.7 Hypotheses	10
1.8 Study Area	10
1.9 Definition of Terms	16

CHAPTER TWO	20
2.0 LITERATURE REVIEW AND CONCEPTUALIZATION	20
2.1 Literature Review	20
2.2 Conceptualization	33
CHAPTER THREE	40
3.0 RESEARCH METHODOLOGY	40
3.1 Types of Data Required	40
3.2 Sources of Data and Method of Collection	40
3.2.1 Field Survey and Survey Instruments	40
3.2.1.1. Questionnaire Administration	40
3.2.1.2 Operators' Questionnaire	45
3.2.1.3 Users' Questionnaire	46
3.2.1.4 Two-wheeled Traffic Count and Measurement of Noise Pollution	47
3.2.1.5 In-depth Interview of Operators' Union	48
3.3 Secondary Data	48
3.4 Analytical Framework	50
3.5 Data Limitations and Problems	56
CHAPTER FOUR	58
4.0 TWO-WHEELED COMMERCIAL TRANSPORT IN METROPOLITAN LAGOS	58
4.1 Critical Review of Public Transport Service Provision and Institutional Framework in Metropolitan Lagos.	58
4.1.1. Federal Road Safety Commission (FRSC)	66
4.1.2. Vehicle Inspection Office	68

4.1.3. Federal Emergency Road Maintenance Agency (FERMA)	69
4.1.4. Lagos State Transport Management Authority (LASTMA)	70
4.1.5. Lagos Metropolitan Area Transport Authority (LAMATA)	71
4.2 Evolution of Two-wheeled Commercial Transport in Metropolitan Lagos	74
4.3. Factors Responsible for Commercial Motorcycle in Metropolitan Lagos	83
4.4 Structures and Operation of Two-wheeled Commercial Transport in Metropolitan Lagos	89
4.5 The Three Wheeler Auto-Rickshas (Keke-Marwa)	95
4.6. Social-Economic Structure of Okada Operators in Metropolitan Lagos	98
4.6.1. Average Passenger Per Trip/Per Day	100
4.6.2. Fare Per Drop	101
4.6.3. Daily Fuel consumption	101
4.6.4. Daily Delivery	102
4.6.5. Maintenance Cost	102
4.6.6. Hours of Operation	103
4.6.7. Type of Operation	103
4.6.8. Age and Marital Status	103
4.6.9. Type of Route Plied	103
4.6.10. Insurance Cover	105
4.6.11. Problems	105
4.6.12. Support for Use	105
4.7. Social-Economic Structure of Okada Users in Metropolitan Lagos	106

4.7.1 Gender	106
4.7.2 Age Grade	106
4.7.3 Marital Status	107
4.7.4 Educational Status	108
4.7.5 Occupational Status	108
4.7.6 Income	109
4.7.7 Type of Trips	109
4.7.8 Frequency of Use	110
4.7.9 Involvement in Accident	110
4.7.10 Reasons for Patronising Okada	111
4.7.11 Support for Use	111
4.7.12 Suggestions	111
 CHAPTER FIVE	 112
5.0 IMPLICATIONS OF TWO-WHEELED COMMERCIAL TRANSPORT IN METROPOLITAN LAGOS	112
5.1 Significance of Two-wheeled Commercial Transport in Metropolitan Lagos	112
5.1.1 Modal Access to bus Stops	112
5.1.2 Average Number of Passengers carried Per Day	114
5.1.3 Reasons for Choosing Okada for Public Transport	118
5.1.4 Source of Income	118
5.1.5 Employment Generation	119
5.2 Assessment of Two-wheeled Commercial Transport in Meeting Commuters' Need in Metropolitan Lagos	120

5.2.1 Access Time at Point of Origin	120
5.2.2 Waiting Time	121
5.2.3 Traveling Time	123
5.2.4 Access Time at Point of Destination	123
5.2.5 Space Economy	124
5.3 Problems of Two-wheeled Transport in Metropolitan Lagos.	125
5.3.1 Lack of dedicated Infrastructures	125
5.3.2 High Accident Rate	125
5.3.3 Congestion	127
5.3.4 Pollution	127
5.3.5 No Clear-cut Government Policy	128
 CHAPTER SIX	 130
6.0 PLANNING AND POLICY ISSUES	130
6.1 Government Policy, Guidelines and Planning Issues on Two-wheeled Commercial Transport	130
6.2 Potentials of Two-wheeled Transport as a Complimentary Mode of Urban Public Transport Provision in Metropolitan Lagos	136
6.3 Future of Public Transport Provision and the Place of Two-wheeled Transport in Metropolitan Lagos.	139
6.3.1 The Issues of Urbanization	139
6.4 The Place of Two-wheeled Transport	142

CHAPTER SEVEN	144
7.0 SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSIONS	144
7.1 Summary of Study	144
7.2 Research Findings	146
7.3 Recommendations	159
7.4 Contributions to Knowledge	164
7.5 Issues for Future Academic Research Work	166
7.5.1 Safety	166
7.5.2 Continuous Research	166
7.6 Conclusion	167
 REFERENCES	 169
APPENDIX	176
i. Questionnaire for Operators	176
ii. Questionnaire for Users	180
iii. Survey Sheet	184
iv. Number of Okada at Selected Points in the Study Area	185
v. Lagos State Government Edict on Okada Operation	189
vi. Multiple Comparison of Okada Operators' Income at Different Local Government Areas	191

LIST OF TABLES

		Page
Table 1.1	Local Government Areas in Lagos State, their Secretariats and Population Figures	12
Table 1.2	Local Government Areas and their Survey Points	42
Table 4.1	Total Number of Vehicles Registered in Lagos State from 1990 – 1999 with the Percentage of Motorcycle for each year.	77
Table 4.2	Number of Commercial Motorcycles by Local Government Areas	82
Table 4.3	Test of Significance of Variables Influencing Commercial Motorcycle Operation in Metropolitan Lagos	85
Table 4.4	Test of Significance of factors Influencing the Patronage Of Okada by the Users	86
Table 4.5	Test for Variation in the Number of Okada at Different Local Government Areas of metropolitan Lagos	87
Table 4.6	Test for Variation in Income Generation Pattern of Okada Operators at the Different Local Government Areas	88
Table 4.7	Test to Verify if the Patronage of Okada for Public Transport is Independent of the Average Monthly of the Users	89
Table 4.8	The Six Camps Covered by Okada Operation and the Corresponding Fair Charged at Ojo Military Barracks	90
Table 4.9	Autoricksha count at some Bus Stops on Hourly Basis	97
Table 4.10	Operational Characteristics of Okada Operation in Metropolitan Lagos (2000)	99

Table 4.11	Metropolitan Lagos Operational Characteristics of Okada Operation in Metropolitan Lagos (2005)	100
Table 4.12	Occupational Status of Okada Users in Metropolitan Lagos.	109
Table 5.1	Modal Access to Bus Stops in Metropolitan Lagos.	112
Table 5.2	Average Number of Passengers carried Per Day by Motorcycles in each Local Government Area of Metropolitan Lagos.	115
Table 5.3	Analysis of Okada as a Major Source of Income Generation	119
Table 5.4	Elements of Journey by Public Transport	124
Table 5.5	Accident Rate by Vehicle Type in Metropolitan Lagos.	126
Table 5.6	Measurement of Noise Pollution	128
Table 7.1	Spatio-Temporal Distribution of Okada in Ikeja Local Government Area of Lagos State	153

LIST OF FIGURES

	Page
Figure 1.1 Map of Lagos State Showing the Study Area (the 16 LGAs) and the Survey Points	15
Figure 2.1 Transport Evolution Model: Taffee, Morrill and Gould, (1963)	35
Figure 2.2 Model of Spatial Re-organization according to Jannelle (1969)	37
Figure 3.1 Summary of Research Methodology	55
Figure 4.1 Graph showing the Variation in Prices of Vehicles (1990-2000)	78
Figure 4.2 Time Plot Showing the Number of Registered Motorcycles in Lagos State (1991-2005)	80
Figure 4.3 Sample of Locations used as Okada point of Operation.	104
Figure 4.4 Graph showing Age Grade Classification of Okada Users	107
Figure 4.5 Pie Chart showing the Educational Background of Okada Users in Metropolitan Lagos.	108
Figure 4.6 Graph showing the Type of Trips Okada is being used for	110
Figure 5.1 Pie Chart showing Modal Access to Bus-Stops	114
Figure 7.1 Spatial Distribution of Okada Traffic Count in Metropolitan Lagos	150
Figure 7.2 Percentage Increase in the Distribution of Okada at Different on Local Government Areas (2000 & 2005)	151
Figure 7.3 Spatio-Temporal Distribution of Okada on Local Government Basis	152
Figure 7.4: Saptio-Temporal Distribution of Okada in Ikeja Local Government Area	154

LIST OF PLATES

	Page
Plate 4.1	Okada Riders in Procession to the Burial of their Colleague
	At Atan Cementary
	93
Plate 4.2	Motorcycle as a Means of Public transport for School Children
	94
Plate 4.3	A Ride Beyond the Manufacturer's Imagination
	94
Plate 5.1	Mass Movement of People on Okada
	117
Plate 5.2	A Typical Okada Terminal
	117

CHAPTER ONE

INTRODUCTION

1.1. Background to the Study

It is an indisputable fact that transport is an essential element in the daily functioning of any socio – economic system. Its importance to the survival of any society cannot be over-emphasized. It provides accessibility, which facilitates time and space utility for goods and services and foster socio-political interaction and cultural exchanges. Transport is directly related to the pace of economic, socio-political and technological development of any society. The strong linkage between transport and development is very obvious that even renowned geographers have supported this view in many ways. For instance Mumby (1968) wrote that “there is no escape from transport” while Owen (1964) asserted that “immobility perpetuates poverty”. Coming to Africa, Lord Lugard once claimed that the material development of Africa could be summed up in one word- “Transport”.

Given the above, it is obvious that no meaningful function, which involves movement, can be performed without transport. People absolutely depend on transport to move within and/or between regions to perform different functions that range from work to play; buy and sell; socialize and obtain other essential services for their survival. This has accounted for the high level of priority being accorded the development of different modes of transport and their maintenance by governments in different regions of the world.

Prior to the amalgamation of the Northern and Southern protectorates (in 1914) to a single entity now referred to as Nigeria, the basic transport demand by the then subsistence economy were met by the use of human portage and the beasts of burden (donkeys, camels, etc). The pace of modern transport development in Nigeria increased tremendously in the post colonial period. As a result of the importance attached to transport development after political independence in 1960, all the different modern mode of transport like road, rail, water, air, pipelines, etc are now available in the country in conjunction with the traditional mode of human portage and the use of animals.

Road transport in Nigeria, is more developed than other modes. It is estimated that over 90% of transport demand of urban dwellers is met by public transport through road transport. This is however being dominated by private (i.e. non-governmental) operators through bus operation, taxi-hire and lately the use of motorcycles. Federal, State and Local Governments Authorities partake in public transport provision through some agencies established for such purposes e.g. the Nigeria Railway (for Railway Operation), Inland Waterways Department of the Federal Ministry of Transport (Ferry Operation) and the defunct Federal Urban Mass Transit Agency, which was mainly involved in road and water transport, and provision of transport infrastructures. All the states of the Federation and some local governments also established their own mass transit agencies to cater for public transport services in their areas.

Public transport demand is increasing at a very fast rate in Nigeria as a consequence of increasing population, economic, political and socio-cultural

activities. At the same time, the supply of public transport is be-devilled with a lot of problems emanating from:

- (i) inadequate provision of public transport facility as compared to the high level of demand
- (ii) ineffective transport planning and management
- (iii) downturn in the economy and the negative effect of the Structural Adjustment Programme (SAP).

The challenges to public transport provision are more severe in major cities like Lagos, Ibadan, Enugu, Port Harcourt, Kaduna and Kano. The general dissatisfaction with the level of available service has led to interventions by government and private interests through provision of a variety of alternative means of transport to supplement the existing ones in order to meet the ever increasing urban transport demand. For instance 'kabu-kabu' (unpainted cars/buses) vehicles and canoes that were not originally designed for public transport are now being used for public transport. There is also the use of wheelbarrow and carts especially for transferring physical goods from one place to another.

One of such means that is assisting in a very important way in meeting both urban and rural travel demands is the two-wheeled transport. While bicycles that are human powered are used mostly by institutions like the Nigerian Postal Services (NIPOST), for physical exercise in schools, in high-class residential areas and by farmers in the rural areas, the two-wheel motorized cycles are used mainly for commercial transport. It is popularly known as "Okada" in metropolitan Lagos. Its significance encouraged the Lagos State Government to make an attempt to

improve on it through the introduction of the three-wheeled autokrisha also known as "Keke Marwa."

1.2 Research Problem

Lagos is the commercial capital of Nigeria. The urban activities in Lagos are located in various parts of the metropolis hence, people need to move to overcome the distance separating them. To achieve this movement, people require a particular means of movement, which is mainly provided through public transport in metropolitan Lagos. This demand for Public transport has continued to increase at a very fast rate as a consequence of increasing population, economic, political and socio-cultural activities whereas the supply is not keeping pace with demand.

Road transport provides about 90% of the total commuting services in metropolitan Lagos. However, it is be-devilled with a lot of problems emanating from over-concentration and dependency on it, over-reliance on its provision by the private sector; the ineffectiveness in transport planning and management; downturn in the economy and the negative effect of the Structural Adjustment Programme.

Due to the above problems, the public transport system was on the brink of collapse and could therefore not provide adequate services for the ever increasing population. At the same time, the number of private cars was decreasing on daily basis in the early 90s. For instance, newly registered vehicles in Lagos declined from 72,000 in 1982 to 17,000 in 1986 and 10,000 in 1988 (Bolade 1993). Consequently, a variety of other means of public transport began to emerge to supplement the existing ones. One such means that is becoming important and

prominent in metropolitan Lagos is the "Two-Wheeled Commercial Transport" popularly referred to as "Okada".

"Okada" is currently a prominent means of road transportation in Metropolitan Lagos. It has become a major medium of promoting spatial interaction, economic transactions and social contacts in the Lagos socio-economic system. Statistics show that motorcycles accounted for about 14% of total vehicles registered in Nigeria in 1989. This percentage rose to about 34% in 1994 with Lagos having 18% (The Nigerian Police Force Headquarter, 1995).

Also recent investigations have revealed the fact that commercial motorcycling has been accepted by Lagosians as a means of augmenting public transport provision especially in the areas of short distance journeys between bus stops and from bus stops to the inner parts of many neighborhoods. Ikya (1996) made it known that as much as 20 – 25% of daily motorized trips in Metropolitan Lagos are by "kabu-kabu" (unregistered mini-buses and cars) and 'Okada' (commercial motorcycles). In addition to this is the fact that a casual look at major bus stops in Metropolitan Lagos would reveal that practically every available open space there and at road junctions have been converted to motorcycle parks.

It is however pertinent to state that there is still no well packaged policy statement or guideline on the use, adaptation, organization and management of two-wheeled transport in the public transport provision of Lagos State. Hence the required facilities, (both infrastructural and institutional) for managing the upsurge in the use of motorcycles as a means of public transport are not in existence. The actions taken are in the areas of the promulgation of an edict on the wearing of crash helmets and the introduction of "Keke Marwa." This is however not enough

considering the impact of “Okada” on the socio-economic activities of metropolitan Lagos. The neglect has led to a lot of problems for operators and commuters as well as the society at large. Both commuters and operators are subject to harassment by law enforcement agents; suffer serious injuries and total loss of lives and property. They experience traffic obstruction/congestion and other associated problems.

In addition, motorcycles as a means of mobility is now a major issue for urban transport planners especially in developing countries like Nigeria and particularly for a metropolis like Lagos. Despite the fact that it is a valid mode for transportation and accessibility, motorcycles were not designed for commercial purpose originally.

This study therefore examined the use of two-wheeled transport (“Okada”) for commercial transportation in Metropolitan Lagos through the evaluation of its evolution, operations, usage, efficiency and management with a view to work towards critically assessing the situation and proffering solutions to the various challenges emanating from its adaptation for public transport.

1.3 Aim and Objectives of Study

The aim of this study is to specifically evaluate the contribution of Two-Wheeled Commercial Transport to Public Transport Provision in Metropolitan Lagos. The objectives are to:

- (i) critically review the dynamics and institutional framework of public transport provision in metropolitan Lagos

- (ii) examine the evolution and the use of two-wheeled transport for commercial purpose in metropolitan Lagos.
- (iii) analyse the spatio-temporal distribution of two-wheeled transport and variation in income generation of operators at different locations in metropolitan Lagos.
- (iv) evaluate the structure, socio-economic and operational characteristics of commercial motorcycling and their consequential positive/negative impacts in metropolitan Lagos.
- (v) examine the existing policy framework and or policy guidelines for public transport with special emphasis on two-wheeled transport.

1.4 Significance of Study

The changes in public transport provision in metropolitan Lagos are a direct response to the transport demand of the inhabitants. This demand has necessitated the use of unconventional modes like motorcycles, yet there is no detailed study of the current situation for effective planning and management. This study is therefore necessary to investigate and reveal the ambiguity in their operation as well as bridge the existing information gap in the development, level of use and impact of two-wheeled commercial transport in the total transport provision of metropolitan Lagos. Specifically the following were established:

1. Evolution, Structure of operation, the level of employment and income generation vis-à-vis poverty alleviation.
2. The level of its contribution to the total public transport provision
3. Socio-economic characteristics of both the operators and the users.
4. Serve as a good reference point with unique insight that will contribute to the work of researchers, transport planners and policy makers in

surmounting the challenges of public transport provision and planning in metropolitan Lagos.

5. Assist in enhancing efficient, well coordinated and integrated transportation system in metropolitan Lagos.

1.5 Scope and Layout of Thesis

Generally, the focus of this study is on the increasing demand for public transport and its attendant problems, which has led to a lot of dynamics in its provision in metropolitan Lagos. In particular the study is mainly concerned with the use of motorized two-wheeled vehicles for public transport and the extent of its usage and impact on public transport provision in metropolitan Lagos. This involves its evolution, operational structure, characteristics, problems and prospects. The study also involves a comparative analysis of two-wheeled commercial transport in the different local government areas of metropolitan Lagos.

The first section of the thesis, which includes chapters one to three deals with the introductory aspect that is, the general situation of Public Transport. It also outlines the research problem and aim and objectives of the study, as well as literature review and conceptualization. The last chapter in this section deals with the research methodology and its associated problems.

The second section covers chapters four to six and discusses the empirical data generated from field surveys on two-wheeled commercial transportation in metropolitan Lagos i.e. its demand, provision, problems and prospects. The section thoroughly accounts for the results of the field survey.

The last section, which is chapter seven, is the concluding chapter. Here the summary of findings and the policy and planning implications of the existing situation are discussed. Appropriate recommendations are also made.

1.6 Research Questions

The study examined the dynamics in Public Transport provision over time in metropolitan Lagos and specifically evaluated the contribution of two-wheeled transport to total public transport provision. This is with a view to providing an in-depth understanding of the mode and its possible integration into total public transport planning for the metropolis. The research questions are:

1. What are the factors responsible for adopting two-wheeled vehicles for Public Transport in metropolitan Lagos?
2. What are the spatio-temporal distribution and income generation pattern for operators for public transport in the Metropolis?
3. What are the operational and socio-economic profiles of two-wheeled commercial transport in Metropolitan Lagos? .
4. What are the regulatory (or policy) framework and the trend of commercializing two-wheeled public transport over time in the area?
5. What should be the policy direction or guidelines considering the effects of two-wheeled transport in the general public transport provision in the Metropolis?

These questions are yet to be answered at this level in the use of two-wheeled transport in Metropolitan Lagos. Answering them sufficiently will therefore

provide ready-made solutions to some of the obvious challenges in public transport provision and planning in the Metropolis.

1.7 Hypotheses

Based on some of the research questions, the understated hypotheses were tested.

1. H_0 There is no marked variation in the number of Okada being used for public transport in the different Local Government Areas (LGAs) of metropolitan Lagos.

H_1 There is marked variation in the number of Okada being used for public transport in the different Local Government Areas of Metropolitan Lagos.

2. H_0 There is no significant variation in the level of income generation of Okada operators at the different local government areas in the study area.

H_1 There is significant variation in income of Okada operators at the different local government areas.

3. H_0 The patronage of Okada for public transport is independent of the average monthly income of the users in metropolitan Lagos.

H_1 The Patronage of Okada for public transport depends on the average monthly income of the users in metropolitan Lagos.

1.8 Study Area

The city of Lagos has grown from the initial settlement of Lagos Island to include a group of islands and adjacent mainland areas. It is bounded in the south by creeks and unoccupied islands, which together serve the recreational needs of the metropolitan population. Lagos has grown in areal extent from a settlement of 1.5 square miles (3.8sq. km.) in 1881 to a metropolis of about 102 square miles (265sq km.) by 1981. This excludes the area covered by water (McNulty and Adalemo 1988).

The rapid urbanization and urban explosion of Metropolitan Lagos cannot be over-emphasized. This has included the growth of settlements such as Mushin, Somolu, Orile-Iganmu, Ojo and areas along Ikorodu and Badagry Roads. Reclamation of portions of wetlands towards Lekki and nearby non-urban settlements; the absorption of Agege, and other outlying villages like Abule-Egba, Ipaja, Abesan, Alagbado etc into the metropolis are obvious testimonies of the expansion and rapid urban explosions which have earned Lagos the status of the fastest growing city in Black Africa (Oni, 1992).

Globally, there is no consistent parameter for defining a metropolitan area. It is usually named after the largest or most important central city which serves as a hub to surrounding neighborhoods. For metropolitan Lagos also, there is no official boundary due to its rapid expansion into hitherto uninhabited areas (Adeniyi 1978 in Oni 1992). However, Oni (1992) identified the areal extent of Metropolitan Lagos within latitudes $6^{\circ} 23' N$ $6^{\circ} 41'$ and longitudes $3^{\circ} 09' E$ and $3^{\circ} 28' E$. This definition is very relevant to this study and it is therefore adopted. Currently, Lagos and its metropolis extend over an area of 1140 square kilometres, which is about one third of the total area of Lagos State (3577 square kilometres).

Administratively, the entire Lagos State is divided into Twenty Local Government Areas (LGAs) and Thirty Seven Local Council Development Areas. Almost all the local government areas except Four (Badagry, Epe, Ikorodu and Ibeju-Lekki) fall within the metropolitan region. The Twenty Local Governments, their Secretariat and Population distribution are listed in table 1.1

Table 1.1 Local Government Areas in Lagos State and their Population Figures

S/No	Local Government Area	Headquarters	Population
1.	Apapa	Apapa	217,362
2.	Agege	Agege	459,939
3.	Amuwo Odofin	Festac Town	318,166
4.	Ajeromi Ifelodun	Ajegunle	684,105
5.	Badagry	Badagry	241,093
6.	Lagos Mainland	Ebute-Metta	317,720
7.	Epé	Epé	181,409
8.	Ifako – Ijaiye	Ifako	427,878
9.	Ikeja	Ikeja	313,196
10.	Alimosho	Ikotun	1,277,714
11.	Lagos Island	Lagos Island	209,437
12.	Kosofe	Ogudu	665,393
13.	Ojo	Ojo	598,071
14.	Ikorodu	Ikorodu	535,619
15.	Ibeju-Lekki	Akodo	117,481
16.	Somolu	Somolu	402,673
17.	Surulere	Surulere	503,975
18.	Eti-Osa	Ikoyi	287,785
19.	Mushin	Mushin	633,009
20.	Oshodi-Isolo	Oshodi	621,509
	TOTAL		9,013,534

Source: Federal Government of Nigeria, Official Gazette Extraordinary (2006).

According to the provisional figure of the 2006 national census shown in table 1.1, the total population of Lagos State is Nine Million, Thirteen Thousand, Five Hundred and Thirty Four (9,013,534). Out of this population, metropolitan Lagos accounts for over 85% on a land area that is about one-third of the total size of the state.

The rate of population growth is about 300,000 persons per annum with a population density of about 1,308 persons per square kilometer. In the built-up urban areas of the Metropolis, the average density is 20,000 persons per square kilometer. In a recent United Nations' Study, the city of Lagos is expected to hit the 24 million-population mark and thus be among the ten most populous cities in the world by the year 2015.

Metropolitan Lagos is the fastest growing urban region in the whole of Nigeria. It accommodates over half of the nation's industrial, commercial and economic activities. These generate increasing demand for transport, which is supplied by both the government and private entrepreneurs. Generally speaking, road transport provides over 90% of the commuting service in Lagos. The strategic road networks in the area is estimated to be about 632 kilometres with about 222 vehicles per every kilometre as compared to the national figure of about 11 vehicles per kilometer. The fleets of the state and local government transport companies around 1999 included over 700 buses, (although less than 5% is functioning at present).

Generally speaking, total vehicular fleet in Lagos State increased from 52,270 in 1976 to 165,000 in 1984 before the decline in the economy and introduction of the Structural Adjustment Programme which made public transport provision to

decline drastically. In terms of road network, metropolitan Lagos has about 2,600km of road network out of which 60% are tarred.

Road transport is being complemented by the little effort from rail and water. About 20km of the Nigerian Railway Corporation network used for urban transport in Lagos carries less than 50,000 passengers daily while about 14 possible routes in water transport in Lagos are yet to be exploited despite the fact that water bodies constitute about 30% of the total area of Lagos. Although Lagos Island, the commercial nerve-centre of metropolitan Lagos has less than 3% of Lagos population, it handles about 50% of the state's traffic. It is estimated that over 250,000 vehicles and two million passengers enter and leave Lagos Island and the adjoining Ikoyi and Victoria Island for the mainland daily.

The structure of the city, which displaces inhabitants of the city center (CBD), especially the low income earners, to the outskirts, has required people to make long journeys between places of work and residence.

Among the problems confronting the city of Lagos, that of urban mobility presents the greatest challenges. Lagos is reputed to have one of the worst traffic congestion in the world. These problems are complex and multi-dimensional due to the human and socio-economic conditions prevailing in the city.

For the purpose of this study, attention is focused on sixteen LGAs out of the existing twenty in the state. They have been carefully selected to cover both the rural and urban local government areas, which fall within the area that can be classified as metropolitan Lagos. The local government areas and the survey points are shown in figure 1.1.

1.9 Definition of Terms

Transport is the movement of people, goods and services from one geographical location to another. Transport facilitates accessibility, which is very crucial in the effective and satisfactory functioning of any society. Transport can be regarded as the most important component in the process of development. On Africa, Lord Lugard once wrote that the material development of Africa could be summed in one word – ‘Transport’. This suggests that the level of development in Africa today is directly related to the level of development of transportation system in the continent. The level of urbanization and transport development in metropolitan Lagos is also highly inter-related and the importance of Lagos to Nigeria as a nation cannot be over-emphasized. It has been stated severally that “when Lagos sneezes, the entire country is shaken”

Metropolis in the context of this thesis refers to a region with high population density, a reasonable level of infrastructural investments, active community life and exchanges and with a low percentage of agricultural employment. A metropolis is subject to more than one government (Ayeni 1983). The inter-governmental relations are of two types: -

- (a) between levels of government
- (b) among units of government at the local level.

Consequently, the existing transportation system and the metropolis are locked in a continuing interacting process.

Two-wheeled Transport can be regarded as a para-transit means of transport with low capacity and simple technology usually driven by an engine on two-wheels

and with a seat for the driver. It is usually used in satisfying transport demand over short distances e.g. from bus stops to final destinations of commuters.

Accessibility is a concept that is used freely until one is faced with the problem of its measurement. Consequently, it has been defined in different ways by different authors. (Gould 1969). It can be conceived as the mutual reachability between two points in a traffic network (Adefolalu 1981).

The level of or efficiency of accessibility is provided between any two points that are linked by a thoroughfare, like a path for walking or cycling, and a highway (road, railway, waterways) for faster movement. The level of accessibility can be measured by cost of travel, travelling time, physical distance between origin and destination, and through the possibilities of origin and trip end opportunities.

Inter-modal choice involves selection from among the available transport modes. In an urban area where rail, road and water modes are available, a choice of one of these modes is an inter-modal choice.

Intra-modal choice is a choice within a mode. In road transport for instance, the vehicles of movement are buses, taxis, mini-buses, private cars, motorcycle etc. Choosing to make a trip by bus or taxi is a choice within mode. The existence of two or more modes affords trip makers the opportunity of alternative mode of transport. A mode used in completing a trip started by another mode is a supplementary mode.

Through Transport refers to the totality of journey from place of origin to final destination, which usually involves one single mode or different modes. It must however be noted that through transport does not necessarily refer to a single

stretch trip from one point to another, even if it is broken. As far as there is a route and vehicle connection for journey without being stranded in transit, it is still through transport.

Transit Time refers to the time spent in moving from point of origin to the place of destination i.e. time spent in transit during a journey from one place to another. This is usually minimal in places where the road is free and where effective and adequate traffic management schemes exist. In places where the level of congestion is high as the case is in metropolitan Lagos, transit time is usually high because of delay in transit due to congestion.

Coordinated Transport System is a concept which refers to a transport organized in a way that the various modes complement or supplement each other. According to Loclin (1996) co-ordination in transport is the fitting of each form of transport into its proper place in the total system. On his own part, Ekong (1977) views it in a more restricted sense that co-ordination involves joint services by two or more agencies which result from the establishment of through routes and joint routes.

Adefolalu (1980) explained co-ordination as the integrated planning and development of all transport facilities and services in order to provide and maintain a comprehensive and inter-related transport system at the least possible cost. He is of the view that public and private capital should not be wasted in providing uneconomic and duplicate facilities. The main purpose of co-ordination is therefore to ensure that a country's transport costs are kept down to a minimum while at the same time providing an adequate and efficient transport system.

Terminal and Terminus are sometimes used interchangeably, thereby leading to confusion in their usage. A terminus is the point where something (e.g. way)

comes to an end. A terminal means almost the same thing but in transport usage, it has much wider connotation and can mean a traffic interface. So the word terminus can be used to describe a terminal situation at the end of a way but not one situated in an intermediate position.

Operators/Cyclists refers to those who operate motorcycle for commercial purpose.

User/Rider refers to a person that is carried on the motorcycle by operators. A specified amount of money is usually paid to the operator by the rider.

Average Daily Total Revenue is the total amount of money realized by the operator at the end of a day's work.

Average Monthly Income is the total amount accruing to the operator/owner after all other expenses have been deducted from the total amount realized in a month.

Average Monthly Maintenance Cost is the total amount spent on servicing, repair or replacement of parts and any other expenses that may be incurred in a month.

In addition, it is obvious that walking was and is still an important means of travel within metropolitan Lagos. Infact due to the economic crunch, it is becoming a basic part of the city's transport system. It should however be noted that there is a limit to the distance that people can cover through walking yet they need to cover distance between their homes and major bus stops/terminals or central areas where they are engaged in one service or the other. These routes may not be adequately serviced by the few available public transport system and where and when they are available; it is usually strenuous for both the commuters and the vehicle owners. This may be due to bad roads, traffic congestion or limited number of vehicles because of the high cost of their purchase and maintenance. A means of satisfying this need and feeding the major artery of the transport system is the use of 'two-wheeled' mode which is generally referred to as Okada in metropolitan Lagos.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Literature Review

The use of two-wheeled transport is very common all over the world. However, its usage for the provision of public transport varies from one region to the other depending on a lot of factors predominant in these countries. Consequently, the studies carried out on two-wheeled transport also vary depending on whether it is bicycle or motorcycle and whether it is specifically for private (social/recreational) or mainly for commercial or both or generally for the improvement of the area's traffic situation.

Pharaoh (1992) opined that if city traffic can decrease through cycling then journeys by car owners should be transferred to cycling rather than from walking or public transport to cycling. He also stated that if any improvement is to be witnessed in cycling, the city populace must be adequately encouraged through the provision of cycling facilities and creation of awareness in both the cyclists and other road users.

In China the non-motorised mode through bicycle constitutes a major means of transportation. According to Liu, Shen and Plen (1993), China, which is the most populous country in the world, relies heavily on bicycles for passenger transportation. It caters for up to 70% of total passenger trips of the country. From their study on the country's transport system, they concluded that in the foreseeable future bicycle will still continue to play a domineering role because of its flexibility, economy, efficiency and affordability. Therefore, one of the most

important tasks ahead of China's traffic engineers is conducting research in the areas of improving bicycle traffic flow in the urban environment.

Ren and Koike (1993) were of the opinion that economic growth has been hampered by inefficient transport system in Tianjin – one of the three most important cities in China. Consequently, Non-motorised Transport, especially bicycle has emerged to meet transport demands. It offers alternative to motorised transportation for many short trips. They concluded that Bicycle transport mode is reasonable and acceptable for the development of Tianjin city's traffic systems. Its advantages were listed to include productivity superiority, market superiority, improved road network superiority and inferiority of city's public transportation amongst others. However, despite the advantages, future bicycle transportation in Tianjin city is threatened by growing motorisation, loss of street space for safe bicycle use and changes in urban form prompted by motorisation. They suggested that Non-motorised and motorized transport should work together to promote growth and development hence for long distance bicycle trips, the 'bike – and – ride' transport system needs to be gradually adopted, but that priority should be given to bicycles.

In the United States, Ferguson and Montgomery (1993) stated that bicycling is becoming more and more popular in America both for recreational and regular transportation. Hence funding and institutionalization appear to be more supportive of state bicycling. This may however be due to the importance of recreational and tourist activities in bicycle system utilization. One of the means of developing/encouraging bicycling is the Inter-modal Surface Transportation Efficiency Act of 1991 (ISTEA) which encourages far greater bicycle planning

efforts at the State level. With this agency and more of it to come they concluded that there will be tremendous assistance in meeting the need of cyclists more rapidly than in the past and bicycle planning programmes in the States will expand and pave way for a safer and more accessible bicycling environment thereby increasing the number of cyclists with resultant cleaner air, less noise, more efficient use of energy resources and more effective use of existing state transportation system.

Cynecki, Perry and Frangos (1993) revealed that Phoenix is encouraging bicycle riding as a non - polluting and healthy alternative to automobile use by adding bike routes (as of July 1992, the city had a bicycle system of about 300 Miles while another 45 Miles of on - street bike lanes were planned for 1992 -93 fiscal year), putting bike racks on all city buses, providing showers and bike lockers at some city building and encouraging private industries to do the same . They concluded that Phoenix would continue the effort in increasing the usage of bicycles. It is however unrealistic to expect bicycling to replace automobile but it can assist to improve the air quality, which would have been polluted by automobiles.

Other developed countries that have encouraged cycling include Denmark, Japan, Netherlands, and Sweden. They however believe that the usage of bicycle is not an indication of poverty in a country, but of a sensible balanced approach of meeting the ever-increasing urban transport demand both economically and socially.

With increasing use of motorcycles for recreation in the United States, necessary attention is being accorded its operation especially through appropriate policy and guidelines for motorcycle operators. For instance, an intending operator of

motorcycle in the state of Maryland will have to thoroughly study and understand the official "Motorcycle Operator Manual" produced by Maryland Motor vehicle Administration (MVA) before a license is issued. The handbook produced in collaboration with the Motorcycle Safety Foundation is to provide operators with the information needed to enable them obtain license and learn those special motorcycle operating skills and knowledge. Specifically information is provided in the area of licensing requirement, mandatory safety course, licensing test, penalties for violation of rules, appropriate equipment for operators, responsibilities on the highway, effect of alcohol, etc. This is in recognition of the fact that motorcycles are now common means of recreating as evident with the presence of bikers in every major street of the state especially during summer. It is also to tell operators that their life and that of others depend largely on what they do while operating motorcycles. In the manual it is stated that riding motorcycle can be safe and fun when riders act responsibly, wear proper protective clothing and headgear, ride within speed limits, obey the law and "share the road" with other highway users.

In the Philippines, Guillen and Ishida (2003) noted that lack of common or traditional forms of public transport network and infrastructure such as mass public transportation encouraged all modes of imaginable means of motorized public transport to ply the road. This is exemplified by the presence of jeepneys, multi-cabs, mega-taxis, tricycles and "habal-habal" with the last two being an innovation from motorcycles in the late fifties and nineties. One of the likely reasons suggested for the adaptation of motorcycles was attributed to its cheap conversion into public transportation. The presence of the motorcycle-propelled public transport which has gained wide acceptance in Davao city and other areas

of Philippines are attributed to inadequacy of either national or local policy that defines its operation and physical design. Amongst other things, the study concluded that in the development of local transport policy, there is the need to consider the effects of policies to drivers/operators as exemplified in the case of triciboat operations.

In most African Countries, it was not very common to consciously acknowledge the two-wheeled mode as a means of public transport hence not much has been done as regards an in-depth study of the real situation on ground. However, it is now becoming realistic that two-wheeled transport is gradually increasing in the continent mostly as an alternative mode in depressed economies.

Howe and Dennis (1993) argued that it is precisely in a period of economic recession that bicycles are mostly needed and are capable of alleviating some of the transport demand that is otherwise met by expensive motorized vehicles and oil importation. To be sustainable, cycling should be viewed positively and not as the outcome of crises as this may discourage users especially when their economy improves. In achieving the sustainability they believe that demonstration and education will play significant roles.

Godard (1991) argued that currently, the urban areas of Sub-Saharan Africa are almost totally lacking in infrastructural provisions for cyclists. Unsafe operating conditions are a major restraint on greater bicycle use. Therefore to be viable, its integration into the economic, transport and social systems of a Country is important.

Adegnika (2001) ascribed the emergence of commercial motorcycles commonly known as "Zemidjan or Zem" in Cotonou to the collapse of their Public Transport

System. Other factors include shortage and dilapidation of road infrastructures as well as economic reasons. Commercial motorcycling was introduced in 1987 and was subsequently recognized by government in 1989 for its contribution to the reduction of unemployment of youths and re-distribution of wealth. The total registered in the city of Cotonou in 1992 was 3,842 and this increased significantly to 47,868 in 1999. Now motorcycles meet more than 50% of total public transport requirement in the city of Cotonou with an estimated population of over 1.2 million. Reasons given for this success include affordable fare, flexibility, availability and regularity. Others are efficiency, rapidity as well as quality of service.

The major problems he identified were in the areas of air pollution and tax evasion. He therefore suggested the re-organization of the urban transportation sector through the implementation of traffic plan, establishment of stricter regulation on the quality of both four-wheeled and two-wheeled motorcycles to take into account the emission rate of gas. Also there should be a gradual replacement of two-wheeled motorcycles' two-stroke engines by four stroke ones. He also suggested that the road network should be improved upon to encompass better bikeways.

In his conclusion, he suggested that for cities that suffer from multiple transport shortcoming whose outcome is not quickly perceptible, the commercial motorcycles appear to represent a stage towards the attainment of more sustainable cities. He however stated that there should be a way of controlling its nuisance and maintenance of its efficiency not to threaten the emergence or re-emergence of more standard forms of transportation.

In Nigeria, Olamigoke (1993) is of the view that the use of two-wheeled Transport dated back to the pre-oil boom period when bicycles were commonly used by women and girls for businesses and to run errands respectively whereas motorcycles are mostly operated by men who ride them to go to work (farm or offices) or lately for earning a living. In some cities, especially in the Delta area of Nigeria, motor-bikers tend to outnumber motorists and, in some, taxicabs are almost non-existent; hence motor-bikers are the major means of intra-community transport. The major problems associated with its operation are that the road designs in the cities put them at a great disadvantage over motorists. He concluded that the usage of motorcycle is not encouraging but that commuters should be given better alternatives in the areas of abundant buses, organized city cabs, a metro system and ferries on waterways. With these in place, commuters would not use bikes. However, he recommended the encouragement of bicycle that is cheaper and ecologically friendly.

Ogunsanya and Galtima (1993) discovered that the adverse economic situation in Nigeria has forced the operators of commercial motorcycles into the business, and not the interest of meeting the demand created by inadequate transport facilities. On the part of the users the study revealed that they are constrained to use the mode in the absence of alternatives. The study also showed that motorcycle is not a mode to be used for intra-urban public transport. They suggested that its usage should be restricted to private use alone, but where taxicabs are completely absent roofed tricycle should be used. If and when motorcycle is to be used, adequate facilities should be provided and government should make definite pronouncements and guidelines.

Federal Urban Mass Transit Agency (FUMTA) and Oni (1994) stated that economic downturn and insufficient public transport services have forced both the operators and commuters into the use of motorcycle as a complementary mode in road transport. They posited that Two-Wheeled Transport play a mediatory role and balanced mix of transport of satisfying certain travel needs that cannot be given by heavy motorized transport and absolute non-motorized transport. Therefore all necessary effort must be put in place to legitimize, institutionalize and plan for the already accepted mode.

In his own view, Osagie (1994) stated that commercial motorcycle launched itself into Nigeria through Calabar and later spread to other parts of the country like Sokoto, Kano, Ibadan, Osogbo, Umuahia, etc. The peculiarities of the operators is mainly in the areas of their recklessness on the road, rush to get passengers and maneuvering on the roads to get to their destination on time while their major difference lies in their daily income which varies from one place to the other. He however, stated that the bicycle option that is cheaper to buy and maintain than motorcycle has been totally neglected.

Ikya (1996) stated that reasons adduced for the evolution of the motorcycle for public transport vary from place to place. In the Nigerian context, motorcycle came with the emergence of motor cars on the Nigerian roads since the 1920s but their usage for public transport is associated with four historical factors viz:-

- (a) Its emergence as a means of "Inter-city transport in the riverine areas of the then Bendel, Rivers and Cross Rivers States in the 1960s and 1970s".

- (b) Economic reasons due to the effect of the Structural Adjustment Programme between 1987 and 1996.
- (c) Specialised movement requirements e.g. for flexible means of transport in beating traffic hold-ups and congestion.
- (d) Employment for job seekers

He noted that the rise in motorcycle importation and its usage for public transport in Nigeria has increased by over 400%. It is now playing a significant role in public transportation in Nigeria where in some areas it dominates intra-urban commuting. Consequently he suggested that effort should be made to gather relevant data that will enhance government decision on proper regulation of its operation for commercial purpose and where and when feasible, facilitate their integration into the country's National Transport Planning. This could only be achieved through understanding of the dynamics, economics, efficiency and safe usage of motorcycles.

Fasakin, (2000) asserted that unconventional modes of public transport in the third world cities flourish because of increasing urban population leading to public transport demand pressure, decreasing influence of conventional public transport companies and loss of purchasing power of citizens due to deteriorating economic situation. Specifically, he stated that in Nigeria, two factors have contributed to the emergence of a series of unconventional modes of public transport. The first is the astonishing pace of urbanization from a modest population of about 18.7 million in 1921 to about 88.5 million by 1991 population census figure. The second reason is the economic recession which started in 1981 and the subsequent introduction of the Structural Adjustment Programme (SAP) in 1986.

The above factors led to mass of citizens whose access to public transport is generally decreasing at an astonishing rate. Hence, Nigerians responded to this problem in their cities by evolving various modes of public transport. One mode that has continued to enjoy increasing acceptance relative to other modes is the commercial motorcycle.

In Akure, he discovered that motorcycles constituted 23% of total traffic in the entire major roads and even on a particular commercial road it accounted for 50-80% of a total weekly traffic. He adduced the main reasons for this high figure to the high level of daily profits usually posted by the operators as compared to their daily operational costs. He found out that over 50% of commercial motorcycle operators made more than twice as much profit as they incurred on their daily expenses.

In his conclusion, he posited that the economies of the third world countries have suffered great difficulties thereby forcing a critical review of Strategic Long-term Transportation Planning (SLTP) models and approaches to public transport. He applied the Transportation System Management with series of activities that produced shifts in the supply-demand equilibrium of transportation modes (Wagner and Gilbert, 1978). The activities are:

- (a) Measures that produce effective reduction in demand for transport.
- (b) Measures producing effective increase in supply.
- (c) Measures producing effective reductions in demand and supply.
- (d) Measures that produce effective reduction in demand and increase in supply.

In the case of Nigeria, he concluded that a combination of b and d will probably alleviate the public transport anomalies of Nigerian urban centres. Hence, Okada is regarded as having contributed to improve public transport in Nigerian cities; therefore, any study that seeks to characterize the determinants of daily profits will definitely contribute to better management of the mode. Improved management could take the form of increased availability of motorcycles through ploughing-back of profits into operations. However in the long run, the desirable policy may be to reduce demand for Okada by providing high capacity buses in order to reduce traffic congestions. It should be noted that Okada is a mono-passenger mode which has become popular due to non-availability of mass transit vehicles.

In the case of metropolitan Lagos, Federal Urban Mass Transit Agency and Oni (1995) were of the view that the appearance and development of a para-transit mode like Okada is a response to an unsatisfied demand. For instance, the short distance trips from bus stop to the final destination of commuters are being neglected and highly uncatered for. Hence "a smaller mode of commuting with say two seats at most, no special truck compartment and low kerbed weight" has risen to satisfy this need. They concluded that the use of these low capacity, simple technology vehicles is extremely beneficial for urban employment both directly and indirectly and yet the interest shown to this mode within the institutional system has been weak and barely heard. They therefore suggested the encouragement of motorcycle usage with the creation of new statutory power to champion the interests of cyclists.

Adeshina (1994) stated that the influx of motorcycles to Lagos transport system was hitherto unnoticed since they came in trickles and likened their invasion to that of a swarm of locust bees which came in full force as evident in both the low and high density areas of Agege, Egbeda, Ojodu, Ikeja, Ojota, Iju, Isolo, Muritala Mohammed Airport Road, Mushin, Obalende, Maroko and everywhere. He described them as the "Kings of Lagos roads with legs of rubber and metal with bus stops as their palaces" which have completely taken over not only the roads but commercial transportation in Lagos.

Federal Urban Mass Transit Agency (1995) revealed that commercial motorcycling in metropolitan Lagos was relatively new. It started around early 1990s due to the effect of the Structural Adjustment Programme, which led to shortage of commercial vehicles, coupled with the ever increasing transport demand and employment generation for the operators. Its usage has played a significant role in solving intra-urban mobility problems hence it can no longer be ignored in planning, operation and management of the Lagos Urban Mass Transit System. Unfortunately little or nothing is known about their operation, contribution to the economy and possibility of their integration into the urban transport-planning programme. This has led to a lot of problems amongst which are harassment and intimidation by the law enforcement agents, traffic congestion and frequent accidents. In addition to these problems caused by them are others like bad roads and lack of parking spaces which affect their smooth operation in Metropolitan Lagos. It was therefore suggested that both the Federal and State Government should encourage commercial motorcycling through legal backing and official recognition. Their operation should however be limited to secondary and access routes where motorists will not threaten their operation.

From the above, it is obvious that various reasons are accountable for the emergence and operation of two-wheeled transport in various parts of the world. In the case of Nigeria, and Lagos in particular it has been purely due to economic recession in the country. It has now become a significant part of our transport system and it is not without its merits and demerits. According to Raymond (1984) the merits include amongst others low maintenance cost, wide flexibility, adjustment to wide variety of users and highly cherished in rural or unmotorable roads. It is also very fast and in this, Olekhojie (1994) discovered that motorcycle is being referred to as 'Okada' in Lagos because people believe that it is as fast and efficient as the defunct Okada Airplanes were.

On the other hand, the shortcomings of operating two-wheeled transport in metropolitan Lagos amongst others include low capacity, interruption during raining season, accidents, harassment by law enforcement agents and lack of specific guidelines and policy issues from the government.

From the foregoing, it is obvious that some work have been done on the emergence of the two-wheeled transport as a means of public transport. However they were mostly concentrated on factors leading to the emergence. Guillen and Ishida (2003); Adegnika (2001); Olamigoke (1993) and Ogunsanya and Galtima (1993). Others went further to state its neglect in terms of policy guidelines Ikya (1996); FUMTA and Oni (1994) while others suggested its possible integration into total public transport provision (Fasakin 2000; FUMTA and Oni (1995).

However, there has been no study with serious geographic perspective available to assess the extent of use, structure, spatial-temporal distribution and its contribution to the total public transport planning and provision in metropolitan Lagos. This

study has therefore bridged the information gap through a detailed academic research and contribution.

This is done by examining what has been done and why the operation is still as it is. Hence the conditions favourable for optimum use, operational control and basic infrastructural facilities were thoroughly examined to harness the strategies for solving the problems associated with two-wheeled public transport in metropolitan Lagos.

2.2 Conceptualization

Theoretically, the evolution of the transport system in any area is determined by several factors, which operate over a period of time. These factors include, political, economic and others which are based on:-

- (a) Spatial diversity and zonal arrangement of agricultural resources
- (b) Spatial distribution of mineral resources
- (c) Spatial arrangement of service outlets. This is very relevant in the case of a metropolitan area like Lagos.
- (d) The recent need or development of transport to open up some new areas for the purpose of development

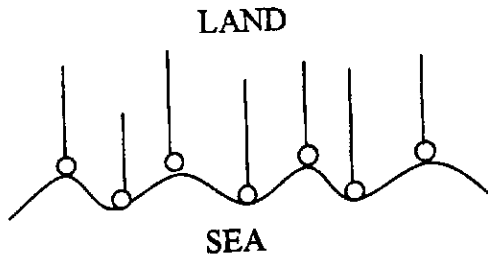
Based on the above factors operating historically in different countries, various models have been postulated in the attempt to trace the sequential states through which various transport systems have developed.

On a regional scale, the Node connecting model was posited by Taaffe, Morrill and Gould (1963) based on the sequence of transport route development in under-developed countries especially in Ghana and Nigeria. They are of the opinion that

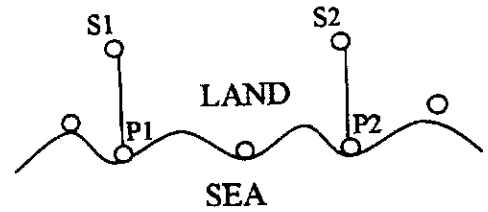
population and economic factors are crucial in explaining the evolution of transport in these two countries.

This model though generally applied to the growth of national transport systems in colonial and post colonial economies is suggestive of at least one principle that relates to the evolution of two-wheeled transport in metropolitan Lagos. This is because Okada operation in Metropolitan Lagos first started by connecting lesser settlements or places not served by public transport and overtime became integrated in the city's general transport system. Okada's initial role of serving pre-journey and after-journey trips (from homes to bus stops and vice versa) has now changed. It is now being used to connect other areas or complete the totality of trips. (Fig. 2.1)

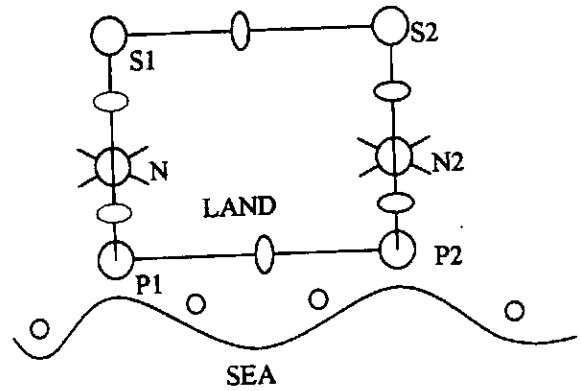
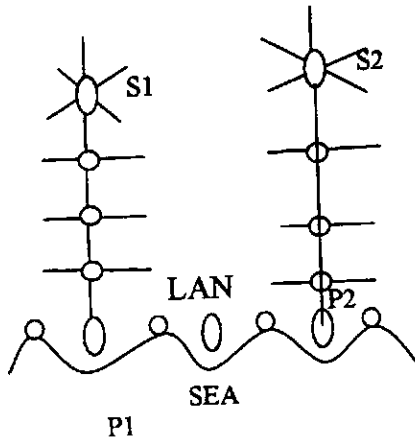
1ST STAGE: Scattering of small ports



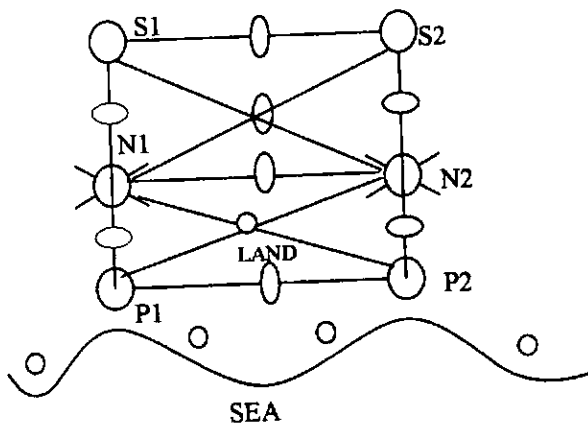
2ND STAGE: Penetrating lines of port concentration



3RD STAGE: Development of feeders 4TH STAGE: Beginning Interconnections



5TH STAGE: Complete Interconnections



6TH STAGE: Growth of high priority main street (Expressway)

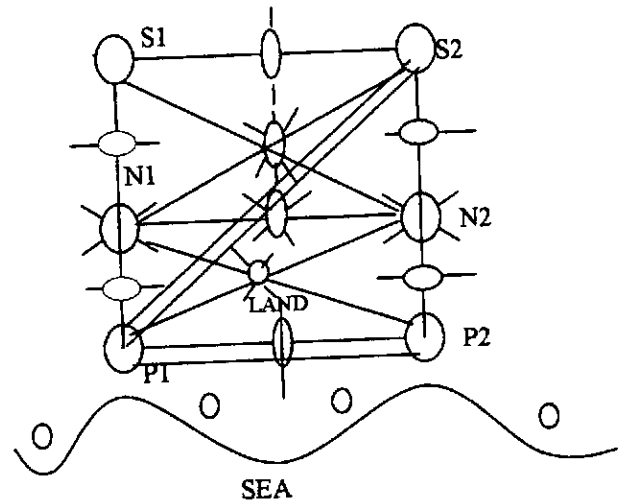


Figure 2.1: Transport Evolution Model: Taffee Morrill and Gould, (1963)

Source: Onyemelukwe & Filani (1983).

On a micro-level, two-wheeled commercial transport in metropolitan Lagos could be conceptualized as a "Diffusion of Innovation" this refers to the spread of a phenomenon. It could be innovation over space and through time (Gregory 1994). That is, diffusion of innovations could be in two dimensions viz:

- a) Spatial diffusion – spread of innovation over space
- b) Temporal diffusion – spread of innovation over time.

These two dimensions are obvious in the commercial use of Okada in metropolitan Lagos in that it is a phenomenon that has spread over space and time.

Diffusion process has received considerable attention in geographical studies (Bowman, 1931; Jeerg, 1932; Walter, 1980). In Sociology, it has also been examined (Edmonson, 1961; Rogers, 1962) and in Epidemiology (Tinline, 1992; Gilg, 1973)

Hagerstrand (1952, 1953) form the basis for most geographical studies on the diffusion process. The acceptance of an innovation is rather slow at the initial stage and this is followed by a rapid build up as the innovation takes-off. Ultimately, there is a leveling out as saturation of the susceptible population is approached. (Hagget et al, 1977).

Another theory that applies to the evolution of two-wheeled transport in metropolitan Lagos is that developed by Janelle (1969). He was of the opinion that transport development is mainly necessitated by increasing demand for accessibility due to the introduction of transport system and its spatial effect. This model also shows that the demand for accessibility is a periodic one, responding to

the technological development and spatial re-organisation of phenomena. See figure 2.2 below:

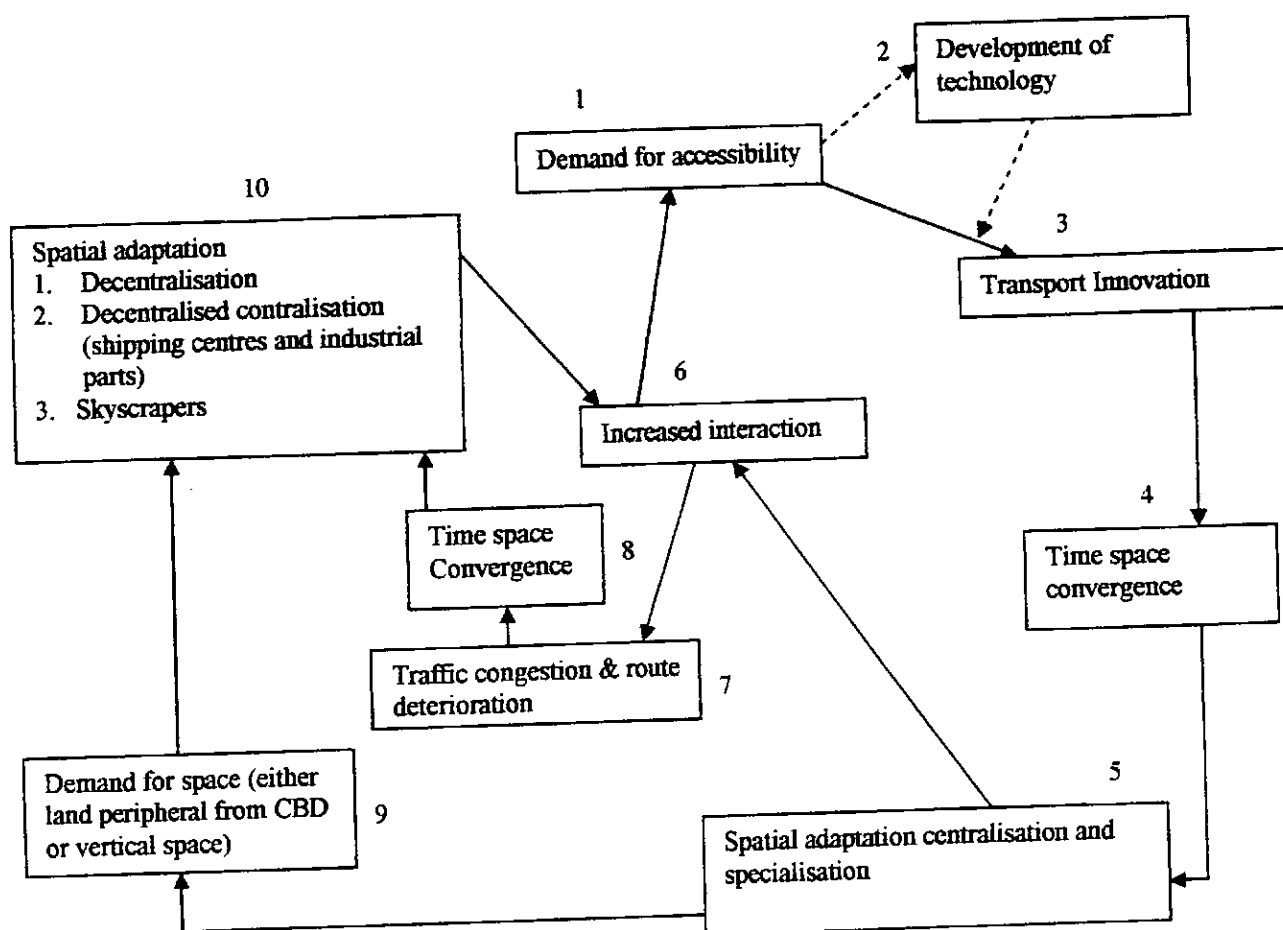


Figure 2.2: Model of Spatial Re-Organization. Jannelle (1969)

The development of the use of Okada in metropolitan Lagos is due to increasing urbanization in terms of population growth, spatial expansion and a resultant area of specialization. The decrease in total vehicle registration from 72,000 in 1982 to 17,000 in 1986 and 10,000 in 1988 further aggravated this situation (Bolade 1993). However, the advent of the defunct Federal Assisted Mass Transit Programme and the increasing importation of “second hand” and used cars and buses from Western Europe significantly altered the deteriorating situation thereby

pushing the figures to 25,372 in 1991 and decreasing back to 17,319 in 1992. The influx of two-wheeled transport has now assisted in increasing the figures in the nineties and after. For instance, out of the total registered vehicle of 66,624 in 1993, Okada had a total number of 7,609 that is far higher than buses and minibuses that were 337 and 7,000 respectively. In 1994, out of a total of 41,081 vehicles, Okada had 5,597 which is also higher than buses and minibuses which had 3,863 and 1,988 respectively. A total of 38,925 motorcycles were also registered in 2002 as against 30,612 buses (Federal Road Safety Commission, 2006) whereas these buses and minibuses are major means of public transport provision in Lagos.

The issue of capacity is however an important thing to be mentioned here. Despite the fact that the percentage of registered motorcycle was higher than buses and taxis, the number of passengers carried by these buses would have been higher during the period since the buses can carry as much as 18 passengers per trip while motorcycles should ideally carry only two passengers per trip. The distance and frequency of these trips will however be good variables in measuring the actual number of passengers carried within a given period of time by the different means of transportation.

It should however be noted that in a more developed environment, the increasing demand for accessibility in the transport sector could have been responded to through technological development leading to transport innovation. But in the case of Metropolitan Lagos, it was adaptation to Okada. Maybe it is a case of having to make do with what we have or what we can afford.

The three concepts are closely linked together in the sense that transport development in any area usually starts by connecting lesser settlements or places not served by public transport and overtime become integrated in the city's transport system. This will lead to urbanization with increasing demand for accessibility and the trend will continue to spread over space and time. The trend of the growth in the commercialization of two wheeled transport operation in metropolitan Lagos is closely related to this as it started from hitherto unserved rural area like Alakuko in Agege local government. However, with increasing urbanization and demand for accessibility, other urban areas adopted the use of Okada and it is now spreading through space and time in metropolitan Lagos.

Theoretically therefore, evolution of two-wheeled commercial transport in Metropolitan Lagos could be attributed to the following three factors:

- increasing population and the attendant socio-economic activities;
- increasing demand for accessibility due to urbanization, spatial expansion and attendant area of specialization; and
- spread of a phenomenon (use of Okada for public transport) over space and time.

These reasons appear relevant as some of them were also confirmed in some of the literature review. These may however change with time and there may be more peculiar reasons for this evolution in metropolitan Lagos. The thorough investigation that will be done in this study will bring out the salient features inherent in two-wheeled transport through which we will know whether it is a worthy adaptation or otherwise.

CHAPTER THREE

RESEARCH METHODOLOGY

The research methodology involves the acquisition of relevant data and analyzing it by using appropriate statistical techniques.

3.1. Types of Data

Based on the objectives of this study and the research questions to be answered, relevant data were collected on the following:

- Evolution of two-wheeled transport for commercial purpose in metropolitan Lagos
- Spatio-temporal distribution and income generation pattern of operators
- Socio-economic and operational characteristics of operators
- Socio-economic characteristics of users
- Policy and regulatory framework for the operation of two-wheeled commercial transport

3.2 Sources and Methods of Data Collection

Data for the study were collected from both primary and secondary sources. They were collected in two phases i.e. 2000 and 2005 in order to evaluate the trend and observe changes in variables that were investigated for the study.

3.2.1 Field Survey and Survey Instruments

3.2.1.1 Questionnaire Administration

A reconnaissance survey of the 16 local government areas was carried out in June 2000 to identify facilities like schools, motor parks, bus stops, markets, government offices etc that influenced the siting of Okada terminals. Five major terminals i.e. terminal with minimum of 12 motorcycles were then selected from each of the 16 local government areas thereby making a total of 80 locations

where questionnaires were administered. The primary data were collected at these points through two different structured questionnaires i.e. one for users and another for operators.

At the 80 locations, 10 questionnaires were administered for users (totaling 800) and 10 for operators (totaling 800) during the first phase in year 2000. This was repeated during the second phase (2005). The two-phased data collection was to observe the spatio-temporal distribution of Okada operation and to examine changes in some of the investigated variables.

In all, a total of 3,200 questionnaires were administered (i.e. 1,600 during the first phase and another 1,600 during the second phase) within the study area. This is to cater for the large volume of operators and users even though smaller questionnaires were administered for studies like this in the past. For instance, Fasakin (2000) used 250 questionnaires to obtain data on "Some factors affecting daily profits of commercial motorcycles in Akure" while Layode (1998) and Adesanya (1998) used 178 and 122 for Lagos and Ibadan respectively. The language of the research is English language and interpretation was done for illiterate respondents. The survey points are listed in table 1.2

Table 1.2: Local Government Areas and the Survey Points

S/No	Local Government Areas	Survey Points
1.	Eti-Osa	(i) Bar Beach
		(ii) Sandfill
		(iii) Adeola Odeku
		(iv) Idejo
		(v) Eko Hotel Round About
2.	Mainland	(i) Brewery
		(ii) Iddo
		(iii) Oyingbo
		(iv) Makoko road
		(v) Kano Street
3.	Amuwo Odofin	(i) Mile 2
		(ii) Navy Town Gate
		(iii) Last Bus-Stop
		(iv) Satellite Town Gate
		(v) 1st Gate
4.	Ikeja	(i) Awolowo Road
		(ii) Alausa Secretariat
		(iii) Ogba
		(iv) Maryland
		(v) PWD
5.	Oshodi/Isolo	(i) Oshodi
		(ii) Beecham
		(iii) Oshodi bus-stop
		(iv) Oja
		(v) Ladipo

S/No	Local Government Areas	Survey Points
6.	Mushin	(i) Mushin bus-stop
		(ii) Palm Avenue
		(iii) Atewolara
		(iv) Sadiku Ilasa
		(v) Isolo Road
7.	Somolu	(i) Bariga bus-stop
		(ii) Onipanu
		(iii) Ile-Epo
		(iv) Palmgrove
		(v) Jagunmolu Market
8.	Alimosho	(i) Agbelekale
		(ii) Mosalasi
		(iii) Council
		(iv) Ojokoro
		(v) Pleasure bus-stop
9.	Lagos Island	(i) Falomo
		(ii) Marina
		(iii) Tinubu
		(iv) Apongbon
		(v) Obalende
10.	Agege	(i) Pen Cinema
		(ii) Orile Agege
		(iii) Oniwaya Road
		(iv) Agbotikuyo
		(v) Iyana-Ipaja
11.	Surulere	(i) Yaba Bus-Stop

S/No	Local Government Areas	Survey Points
		(ii) Ojuelegba
		(iii) Ijesatedo
		(iv) Lawanson
		(v) Masha
12.	Ifako/Ijaye	(i) Jankara
		(ii) Oyemekun
		(iii) Iju
		(iv) Powerline
		(v) Station
13.	Kosofe	(i) Ogudu
		(ii) Ketu bus-stop
		(iii) Demurin
		(iv) Alapere
		(v) Mile 12
14.	Ojo	(i) Alaba International Market
		(ii) Okokomaiko
		(iii) PPL
		(iv) Volkswagen
		(v) Ajangbadi
15.	Ajeromi/Ifelodun	(i) Alaba
		(ii) Wilmer
		(iii) Okoya
		(iv) Mosafejo
		(v) Boundary
16.	Apapa	(i) Wharf

S/No	Local Government Areas	Survey Points
		(ii) Ijora
		(iii) Waterside
		(iv) Agbomalu Junction
		(v) Roundabout

Source: Field work 2000 & 2005

3.2.1.2 Operators' Questionnaire

For the operators, the questionnaires (Appendix 1) were targeted towards extracting information on the structure of their operations, socio-economic characteristics and their perception of the commercialization of Okada. The respondents were randomly selected through a ballot process which involves asking the potential respondents to choose from a bag of prepared ballot papers that contained 20 ballot papers of 10 Yes and 10 No. Only those who picked yes were interviewed.

The following variables were investigated through the questionnaires:

1. Sex
2. Age
3. MS (Marital Status)
4. OOO (Ownership of Okada)
5. NOO (Number of Okada)
6. COP (Cost of Purchase)
7. IC (Insurance Cover)
8. TOO (Type of Operation)
9. EDUSTAT (Educational Status)
10. AMI (Average Monthly Income)
11. ADTR (Average Daily Total Revenue)

12. ADD (Average Daily Delivery)
13. NoPPT (Number of Passenger Per Trip)
14. ADP (Average Daily Passenger)
15. ADTR (Average Daily Total Revenue)
16. ADFE (Average Daily Fuel Expenditure)
17. AMME (Average Monthly Maintenance Expenditure)
18. DHOP (Daily Hours of Operation)
19. BOO (Ban of Okada Operation)
20. LOO (Legalisation of Operation)
21. MofU (Membership of Union)
22. BfU (Benefit from Union)
23. IA (Involvement in Accident)
24. Problems during operation
25. SS (Suggested Solutions) to their problems

3.2.1.3 Users' Questionnaires

Users' questionnaires (Appendix II) were designed with a view to examining the impact of Okada on personal transport needs of respondents, views on operation, safety, flexibility and affordability amongst others. The questionnaires were administered by using stratified systematic random sampling technique. This method was selected because of its probability and stratification advantage which helped to ensure that all possible categories of users were considered.

The following variables were investigated:

1. Sex
2. Age
3. (MS) Marital Status
4. Occupation
5. (EDUSTAT) Educational Status
6. POK (Patronage of Okada)

7. TOT (Type of Trip)
8. FoU (Frequency of Use)
9. IA (Involvement in Accident)
10. AMI (Average monthly Income)
11. RFUO (Reason for Using Okada)
12. Efficiency
13. LOO (Legalisation of Okada Operation)
14. BOO (Ban of Okada)
15. SUPUSE (Support for the continued use for public transport)
16. SR (Suggested Routes)
17. Problems
18. SS (Suggested Solutions)

Other questions in the questionnaires that are not listed here are follow-up questions to the above listed.

3.2.1.4 Two-Wheeled Traffic Count and Measurement of Noise Pollution

A count to ascertain the number of Okada in each of the eighty locations was also done by recording the numbers counted on a survey sheet (Appendix III). This was done from 6:00 am to 8:00pm to cater for both peak and off peak hours. The essence is to find out their spatial distribution in the study area in order to complement the data obtained from Federal Road Safety Commission/Central Licensing Office which may not necessarily mean that if a motorcycle is registered in a local government area, it will be used within the local government area or even for commercial purpose at all. The traffic count was done in 2000 and repeated in 2005 in order to observe if there is significant increase or decrease in the number of Okada at these locations.

In addition, Noise Meter was used to measure the level of noise pollution in areas with high number of Okada. This was done in order to compare with locations without Okada or with very low number.

3.2.1.5 In-Depth Interview with Operators' Union

The Amalgamated Commercial Motorcycles Owners and Riders' Association of Nigeria (ACOMORAN) and Motorcycles Operators Association of Lagos State (MOALS) were consulted for relevant information. The Okada union executives were visited at their offices for discussion on the activities of their groups/unions. Information was collected on their membership, mode of operation of their unions and regulations guiding their operation amongst others.

3.3 Secondary Data

Relevant information were extracted from existing records and informal interview on public transport provision, regulatory framework or policy guidelines, evolution of motorcycle for public transport, road infrastructures, law enforcement, vehicle registration, accident data, prices of vehicles, membership of union and organization amongst others. These were collected from relevant published works, journals and Internet sources. Organizations visited for relevant information and data included:

- a) Lagos State Ministry of Transport: The State organ responsible for the coordination of transport related issues in Lagos State. Information on government policies/guidelines and public transport planning and provision with special emphasis on Okada were collected from here.
- b) Lagos Metropolitan Area Transport Authority (LAMATA) and Lagos State Traffic Management Authority (LASTMA). The two organizations are involved in transport planning, transport policy formulation, maintenance

of roads and related infrastructure, overall improvement in traffic flow, general improvement of public transportation systems, and orderly and structured development of the rail and water mass transit systems in Lagos State amongst others. Information were collected on their mandate, policies and guidelines for public transport especially as related to public transport infrastructural demand and provision.

- c) Some Local Government Headquarters to collect data/information on available local government input or guidelines to motorcycle operation
- d) Lagos State Licensing Office/ Vehicle Inspection Office to collect data on the registration of vehicles by type on yearly basis
- e) Federal Road Safety Commission (FRSC) for information on government policy/guidelines, vehicle registration and accident rate.
- f) Hospitals including Igbobi Orthopaedic Hospital; General Hospital, Lagos Island; Lagos State University Teaching Hospital, Ikeja; to collect data/information on accident records.
- g) Police Stations on reported cases of accidents, crime and other law enforcement related issues as may affect Okada operators and users.
- h) Amalgamated Commercial Motorcycles Owners and Riders' Association of Nigeria (ACOMORAN) and Motorcycles Operators Association of Lagos State (MOALS) where data were collected on organization of their associations, method of becoming members, membership registration and records and benefit to members, etc.

- i) Military Formations where the use of motorcycle first became popular as a means of transportation within the barracks e.g. Ojo Military Cantonment, Ikeja Military Cantonment and Ikeja Naval Base
- j) Some Motorcycle Assembly Plants (Boulus and Honda), dealers of new (Jencheng, Bajaj, etc) and fairly used motorcycles as well as spare parts and motorcycle mechanics. From them data was collected on staff strength, income generation, prices of Okada, hired purchase scheme, maintenance, etc.

3.4 Analytical Framework

In order to achieve the objectives of this study, the data collected were subjected to both quantitative and qualitative analysis. Analytical methods like Simple Frequencies, Graphs, Charts and Percentages were used in the quantitative analysis, while the Statistical Package for Social Sciences (SPSS) and Microsoft Excel were used for the qualitative data analysis.

On the evolution of Okada, necessary information were extracted from existing literature in addition to information gathered from operators' union. This formed the background of the study. On the factors responsible for the operation of Okada for commercial purpose, Chi square, a statistical test of significance was used to confirm the degree of confidence in accepting or rejecting the investigated variables of operating Okada at the different local government areas. Such variables include Marital Status, Occupation, Average Monthly Income, Ownership of Okada, Average Total Daily Revenue, Average Monthly Maintenance Expenditure, Number of Passengers Per Trip, Amount Charged Per Trip, etc. It was used to confirm if the variables differ or are uniform enough amongst the sampled local government areas in order to generalize for metropolitan Lagos.

Chi Square is used to determine whether there is any significant difference between the observed and expected theoretical frequency. That is, if there is a difference between them, to know whether it is due to chance or not (Obijiofor, 1985 in Dixon-Ogbechi, 2002). It can be used to test the following:

- a. the dependence or independence of two attributes of classification
- b. the goodness of fit of a given distribution to any of the theoretical distributions
- c. homogeneity of a given set of observations with respect to certain characteristics.

Chi Square is usually based on the following assumptions:

1. The sample must be randomly drawn from the population of interest.
2. Data must be reported in raw frequencies (not percentages);
3. Measured variables must be independent;
4. Values/categories on independent and dependent variables must be mutually exclusive and exhaustive;
5. Observed frequencies cannot be too small.

The formula used in computing *chi square* is:

$$\chi^2 = \sum \frac{\{(O_i - E)^2\}}{E_i}$$

Where O = observed frequency

E = expected frequency

i = the number in item, and i = 1,2,3,...n

Once the χ^2 is computed, the decision rule is then stated.

Accordingly, if $\chi^2 < 0.05$, the investigated variable is significant and if $\chi^2 > 0.05$, it is not significant. The lesser the value of χ^2 the greater is the level of significance and the higher the value to 0.05, the less the level of significance.

For the total number of Okada in the different local government areas, simple descriptive statistics using mean, standard error and standard deviation were

employed for the analysis in order to determine the lower and upper bound. They are presented in tables, graphs and arch view GIS maps. A critical comparison of the total number and intensity of use in relation to population density and the level of commercial activities were also done.

The spatio-temporal distribution was done by analyzing the total number counted at the different locations during the two-phased survey. Simple percentages were employed to determine the level of increment in the total number at the different locations. This is presented in tables, graphs and charts.

Analysis of Variance (ANOVA), a test for significant differences between means was also used for multiple comparisons to test for the three hypotheses on the number of Okada, Variation in income generation of Okada operators and dependency or independence of Okada usage on income of the users in the different local government areas.

ANOVA was developed by Fisher in the 1920s and 1930s and published in his classic book titled "the Design of Experiments" published in 1947. The classical ANOVA has been improved upon for it to be able to handle situations whereby several independent variables are involved. Oyatoye (2002) in Dixon-Ogbechi (2002) defined ANOVA as a broad class of techniques for identifying and measuring the various sources of variation within a collection of data. He added that it is synonymous with the field of statistical analysis where one is concerned with the variation inherent in data collection. The interest in most ANOVA problems is therefore to test for the differences in the values of the means of the dependent variable (y) which are associated with different values of independent variable (x). It allows testing for homogeneity of population variances and several means using a single test. It usually based on the following assumptions:

- a. the samples are drawn from normally distributed population with equal variances.
- b. a scale of high precision such as high interval and ratio scales being used in generating data for the analysis.

Specifically, the interest of this study is to test if there is variation in the number of Okada and income generation of Okada operators at the different local government areas where the survey was carried out. It was also to ascertain if the choice of the use of Okada for public transport is dependent on the user's income or not.

To achieve the objective, the following steps are taken:

- a. Statement of the hypothesis
- b. Compute the test statistic by calculating:
 - i. the variance for the first sample using the following formula:

$$S^2_1 = \sum \frac{(x - \bar{X})^2}{n - 1}$$

- ii. variance of the second sample using

$$S^2_2 = \sum \frac{(X - \bar{X})^2}{n_2 - 1}$$

- iii. find the F ratio using the large variance as numerator

$$F = S^2_1 \dots \dots \dots \text{when } S^2_1 \text{ is larger then } S^2_2$$

- c. Determine the degrees of freedom (Vi) which is:

$$V_1 = n_1 - 1$$

$$V_2 = n_2 - 1$$

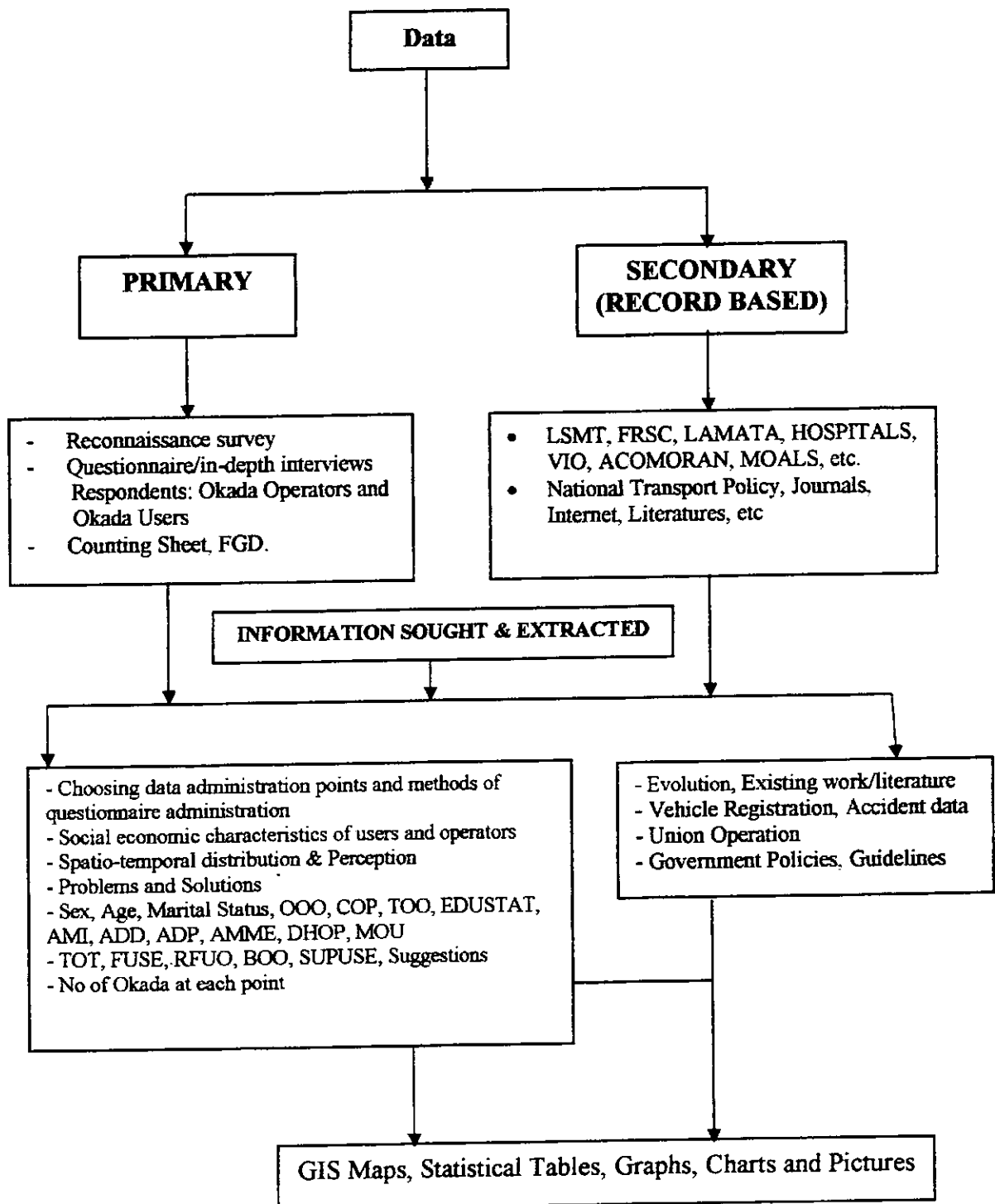
- d. Select significance level, confidence limit
- e. State decision rule

f. Read F from table and make decision.

At 0.05 decision rule, the mean difference is judged to be significant hence if the value obtained is ≤ 0.05 , the null hypothesis would be accepted but if it is > 0.05 , it would be rejected.

The Research Methodology is summarized in figure 3.1

Fig 3.1: The Methodology and Data Collection Approaches Adopted



Source: Fieldwork 2005

3.5 Data Limitation and Problems

This study involves breaking new grounds. A study of this type and magnitude is not very common hence a lot of problems were encountered in collecting and collating the data.

Firstly, most of the information required from the institutions visited (e.g. the Nigerian Police Force, National Population Commission, Lagos State Ministry of Transportation, Hospitals, etc.) were not readily available. Where and when available, they are not-up-to date and are disjointed. This is due to lack of proper filling/record keeping and non-availability of modern information technology devices which would have facilitated the generation and storage of data.

Moreover, during the questionnaire administration, some of the interviewees (especially the illiterates) were not ready to co-operate with the field assistants. Some deliberately skip questions on their age, income/revenue etc. which they believe should be personal and confidential to them. Some of the questionnaires were therefore not fully completed thereby making it impossible to obtain 100% value in the analysis of some variables.

In addition, during the raining season, a lot of problems were encountered in moving from one point to the other. Expectedly, the operators/users also were not as many as during the dry season. They were also more aggressive during this season and they were generally not willing and ready to spare the time necessary to complete the questionnaire despite our willingness to provide umbrella for cover.

At the analysis stage, a lot of problems were encountered in merging the data together and choosing the appropriate method and statistical tools that will best serve the purpose of the study.

Generally, it was observed that the country is still lagging behind in the way we generate, analyze and store data on very important and sensitive issues in most government offices and parastatals. This problem should be thoroughly addressed especially in view of developments in information management, storage and dissemination in the advanced countries particularly with the advent of information technology.

CHAPTER FOUR

TWO-WHEELED COMMERCIAL TRANSPORT IN METROPOLITAN LAGOS

4.1 Critical Review of the Dynamics in Public Transport Provision and Institutional Framework in Metropolitan Lagos

Lagos being the commercial centre of Nigeria requires a high degree of transport to meet the daily demand of people who move from one place to the other to work, play, socialize or perform other functions. Mobility in most cities (like Lagos) of developing world is still one of the most serious problems. This is so because the development of automobile in the 20th Century and resultant ease of movement brought about multi various functional activities. These have brought about high population growth, dispersion of land-use activities, increased trip length and physical expansion of a place like metropolitan Lagos. The challenge to solve this mobility problem is an ever-recurring one especially with the type of transport service demand in Lagos.

Bolade (1994) observed that the estimate of urban transport demand in metropolitan Lagos in 1990 ranged from Six to Nine Million passenger trips daily and that the public transport share by road is about 85-90%. This figure would have increased by now with increasing activities and more complex functions of Lagos. For instance, a traffic demand analysis in the metropolis shows that total two-way traffic crossing the three bridges (Eko, Carter and Third Mainland) between the Mainland and Lagos Island in 2001 alone was 1.5 Million per day of which 77% were public transport passengers. This represents an annual growth rate of 3.4% in public transport demand over the last decade (World Bank, 2002).

The percentage share of public transport in total public transport provision in metropolitan Lagos is now about 95%.

John Nicolas Zarpas, a Greek businessman pioneered bus transport service in Lagos in 1929. He started by operating on a small scale from Olowu Street with staff strength of One Hundred. Other operators who later came to compete with Zarpas and company were the defunct Elias Transport Service, Nigerian Union of Transport Service Limited, Oshinowo Transport Service, Charity Transport Service and Benson Transport Service. From the above, it is obvious that the origin of public transport provision was mainly a private sector affair and this remained the case till 1958 when the Lagos City Council acquired Messrs. J.N. Zarpas and Company which was the largest single private sector public transport operator in the city during the period. With the acquisition, the name was changed to Lagos Municipal Transport Service (LMTS) which was established as a semi independent body on 1st April, 1958. The basis for the acquisition was to improve on what the private sector was doing in terms of services and coverage. Consequently, more buses were purchased and added to the existing 43 in the fleet of Zarpas. Other private operators were also allowed to continue with the services rendered through the provision of buses.

Another mode of meeting public transport demand was through Ferry operation that was pioneered by Ricketts Water Transport Company (which operated the Lagos-Ikorodu, and Ijede-Ejirin routes) and Owolowo Company. These were latter complemented by the Inland Waterways Department and Nigerian Ports Authority, which commenced service in 1974. This was improved on during Jakande administration with the launch of Ferries like "Baba Kekere" and Ita

Faaji". They provided services from areas like Festac, Ajegunle, etc to Marina. The defunct Federal Urban Mass Transit Agency also provided ferry services linking areas like Ijora, Oworonsoki, Ajegunle, Festac, Marina and Maroko.

Operation of scheduled short-distance passenger rail service within metropolitan Lagos commenced around 1960 through the operation of passenger train service between Lagos and surrounding market towns like Ifo, Ilaro, Abeokuta etc. with intermittent stops at some points within metropolitan Lagos. From this emanated the train services introduced specifically to cater for the needs of Lagos working class who were then residing in areas like Ebute-Metta, Yaba, Idiro, Mushin, Oshodi, Ikeja, Agege and Iyana-Ipaja. The train services referred to as "workmen's train" was offered as social service rather than a profit making service to railway workers who mostly inhabited these areas. This was later extended to other workers within these areas.

Of the three means (road, water and rail) of public transport provision in metropolitan Lagos, road transport dominates by handling over 95% of total passenger traffic through the use of buses and cars. This to date is being dominated by the private sector.

The government contributed through the introduction of the defunct Lagos State Transport Services with a fleet of over 500 buses at a time but they are all grounded now. Various Local Governments like Lagos Island, Mainland, Eti-Osa, Surulere, Ikeja, Oshodi-Isolo, Mushin etc. within metropolitan Lagos also introduced their own Transport outfit around 1991/92 but most of them are no longer operational. The defunct Federal Urban Mass Transit Agency established by the Federal Government in 1988 to address the urban mobility problems also

placed adequate priority on metropolitan Lagos in allocating buses. Some were even dedicated mainly to metropolitan Lagos because of its peculiar problems and position in the economy of Nigeria. Despite all these, mobility still constitutes a major problem in Nigeria that Bolade (1994) noted that annual urban rail passenger traffic even in the best of years (1988 – 1990) when the Mass Transit Rail Services were introduced, was under four million passengers per year while those offered by both the Federal and Lagos State Ferry Services was less than one million passenger per annum. For the Lagos State Government owned Transport Corporation (LSTC), its annual passengers fluctuated from ninety million in 1978 to fifty three million in 1983, seventy-six million in 1986, eighty seven million in 1989 and less than sixty million in 1992. Other Local Governments owned transport services couldn't have yielded more than fifty percent of the LSTC capacity and carriage. Taken together, the mini-buses and omni buses must have been carrying about 4.5-5 million passengers daily or 1.2 to 1.5 billion passengers per annum. They are therefore the most significant means of public transport in metropolitan Lagos.

However, Urban Transport and traffic management problems which Bolade (1993) summed up as traffic congestion, over-crowded buses, environmental pollution, poor road infrastructures, absence of integrated traffic management measures and enforcement etc. have grossly affected road transport and effective public transport service provision in metropolitan Lagos. Abubakar (1993) made it known that the effectiveness of a mass transit system by water transport can be measured by the number of people carried at a time; availability and reliability; comfortability of passengers; and movement of people quickly and safely. All these are absent in the ferry service provision in metropolitan Lagos hence it is not

functioning well. In addition to these are the problems associated with rail transport like low speed of trains, inflexibility, use of makeshift facilities, sharing of way with other traditional railway traffic and cost recovery. All these have hindered effective rail transport provision in metropolitan Lagos.

All the above problems coupled with the downturn in the economy and the fact that road transport, which is the major mode of transport was at the brink of collapse as ageing vehicles could not be replaced and the prices of spare parts went up led to a lot of innovations to public transport provision. For instance the Federal Government established the defunct Federal Urban Mass Transit Programme in 1988, which became a full fledged government agency (Federal Urban Mass Transit Agency) in 1993. The following were the objectives:

- a) Plan and advice on the orderly and efficient implementation of the urban mass transit programmes and related projects;
- b) Offer financial and technical assistance to the mass transit operating agencies at both the Federal and State Levels as well as the organised private transport operators where and when feasible;
- c) Develop and issue operational guidelines that will facilitate coordinated and orderly programme implementation by the executing and operating agencies; and
- d) Liaise with national and international agencies on Federal Government Urban Mass Transit related matters.

To a large extent, metropolitan Lagos benefited from the activities of this agency through the provision of road infrastructures like pedestrian bridges and road

barriers to prevent people from crossing at grades. A large and well-equipped bus terminal was built at Ketu and handed over to Lagos State government for management. Also out of about 468 buses in the fleet of the LSTC in 1991 the share of FUMTA was 155 units making LSTC, the State Agency that had the highest allocation of buses from FUMTA as the next in rank i.e. Abuja and Kaduna were allocated only 89 and 60 units respectively. In addition to this, out of about 1,250 units of buses allocated to the private sector under the Nissan Civilian Bus "Federal Assisted Mass Transit Scheme", about sixty were allocated to operators in Lagos State while another 40 units were mainly dedicated for use within metropolitan Lagos. Other bus programmes under which metropolitan Lagos benefited were the union scheme and the Bedford scheme under which 200 units of Bedford D12000 buses were allocated to 7 cities in Nigeria, Lagos got the highest of 95 units because of its peculiar need. The LMTS was also resuscitated by FUMTA with allocation of 12 Nissan Buses in 1991 and a modern workshop was built and adequately equipped for the maintenance of these buses and others purchased by Lagos Island Local Government.

In addition, to this were some local and international training/workshop programme under which staff of LSTC benefited.

The Lagos state government on their part established the Lagos State Transport Corporation (LSTC) by Lagos State Edit number 10 of 1977 to:

- i) Provide or secure or promote the provision of an efficient, adequate, economically and properly integrated modern system of public inland transport facilities for passengers and goods with due regard to safety of

operation and to extend and improve such facilities to meet the need of public, agriculture, commerce and industry.

- ii) To advise the state government generally on the utilization and development of transportation in the state.

Through the above intervention, the LSTC succeeded in providing public transport bus service for people in metropolitan Lagos such that by 1991 their fleet size rose to as high as 468 units. They also provided required standard for the numerous private transport operations.

As a follow up to this, the Jubilee scheme was introduced in 1992/93 under which Bedford buses were allocated to private operators on instalmental payment. It is however unfortunate that all the buses (both LSTC and Jubilee) are no longer functioning.

In addition to the above, Local Governments in metropolitan Lagos ventured into public transport provision. Thus Adele and Davies (1993) stated that the involvement of Local government in the provision of public passenger transport in Nigeria has become inevitable because of the inadequacy of public transport facilities in large metropolis, where demand for passenger transport services far outstrips supply. This service however can be regarded as both social and economic. Consequently various local governments within metropolitan Lagos embarked on public transport service with Lagos Island having as many as 60 units of buses in the fleet as at 1993. All these have however collapsed now.

On the private sector part, the post Structural Adjustment Era witnessed the use of "Tokunbo" buses for public transport and massive dependent on the Federal Urban

Mass Transit Agency where buses could be purchased on soft loan basis. Some people also used their privately owned vehicles for “kabu-kabu”. The situation was very critical that as at 1991, a total of 3,961 kabu-kabu mini buses were counted at 24 major bus stops during a study carried out by FUMTP in 1991.

In the area of traffic management, various efforts were also put in place by Federal, State and Local Government Authorities in order to ensure effective and efficient transportation system in metropolitan Lagos. Such measures include the development of policies and establishment of relevant institutional framework to implement the policies as well as the construction/maintenance of roads and the provision of other related road infrastructures like foot bridges, traffic lights, bus stops, etc for effective traffic flow.

Such policies include the Nigerian National Transport Policy. The first comprehensive National Transport Policy document in Nigeria was produced in 1993. It was developed out of the fact that the Nigerian transport system was “in crisis due to existing imbalance between the needs of Nigerian society and economy for adequate transport facilities and ability of the transport sector to meet the demands” There were also problems like high transport cost, urban traffic congestion, accident and environmental pollution especially in the area of road transport which is relevant in this study. The goals of the policy were therefore to address the problems associated with Adequacy, Efficiency, Safety, Reliability and Self Reliance in the Nigerian transport sector. This is in recognition of the vital role of transport in the country’s socio-economic development.

This policy has since gone through many reviews with the latest one produced in 2003. The main goal of the policy is to develop an adequate, safe, environmentally

sound and efficient transport system in the context of a progressive and competitive market economy. This is to be achieved through public private partnership with all the stakeholders having specific roles to play. The key role of government under this policy is mainly in the development, direction and supervision of the country's overall transport system.

In addition, institutional frameworks have been established to play important roles in the management of the dynamics in the public transport demand and provision in metropolitan Lagos. Such federal institutions include Federal Road safety Commission (FRSC), Traffic Unit of the Nigerian Police, National Inland Water Ways Authority (NIWA) and lately, the Federal Emergency Road Maintenance Agency (FERMA)

4.1.1 Federal Road Safety Commission (FRSC)

The Federal Road Safety Commission was established by Decree number 45 of 1998 as a full federal paramilitary establishment with operational formations similar to the police and army.

The goals of the FRSC are to enlighten the public especially public transport operators on the causes and prevention of road accidents and safe driving habits by:

- Making available to the public, information gathered from eminent scholars in the transport and safety field through workshops and seminars

- Minimize road accidents through checks on Federal and State roads especially during festive periods
- Bringing standards to the issuance of vehicle and drivers license through proper scrutiny and test of applicants to meet international standard using computerized matrix systems that makes it difficult to counterfeit
- National Vehicle inspection scheme
- Bringing road safety as priority to government not only in Nigeria but in Africa
- National motor vehicle administration

Projects and programmes:

- Introduction of bye laws regarding speed limits on the interstate, Federal and State roads and installation of speed regulatory alarms in commercial vehicles
- Development of national network of road emergency services
- Developing standards for driving schools
- Harmonization of road traffic acts in Nigeria
- Establishment of a corps of special Marshals of educated and responsible members of the public as volunteers
- Establishment of state and local government committees on road safety
- Operation of FRSC mobile courts throughout the federation to effectively and speedily try traffic offenders.
- Enforcing speed limits in state and interstate highways

- Rescue operations for road accident victims
- Clearing of road accidents scene
- An average of patrol distance of 100,000 vehicle daily

With the mandate of FRSC, the organization is very relevant in monitoring the activities of Okada operators to ensure their compliance with laid down rules or guidelines if any. However, due to no clear cut guidelines, they constitute nuisance to the work of FRSC officials and this has led to the arrest of many of the operators, seizure of motorcycles and sometimes assault on some of these officials.

4.1.2 Vehicle Inspection Office (VIO)

The Vehicle Inspection Office was established under police department in 1932 as a paramilitary organization. Its basic function was to over look the standard, quality and road worthiness of Vehicles.

After independence, the VIO was transferred to the Federal Ministry of Transport and opened offices all over the country with head quarters presently in Abuja

Structured to be compactable with each state's transport system, the Lagos State VIO with headquarters in Alausa, Ikeja has six zonal offices in Anthony, Badagry, Epe, Ikorodu, Lagos Island and Ojodu. The VIO plays an important role in ensuring that all vehicles on the road of Lagos State are road worthy. Their presence on the road assists in checking unsafe vehicles that cause congestion when they break down on the roads.

The VIO officials are by law establishing them suppose to inspect the quality and road worthiness of the motorcycles before they can be put on the road. This is rarely done with Okada operators hence, the operators convert just ant type of motorcycles to commercial purpose since there is no standard. To a large extent, this has contributed to the level of fatality of Okada accident in metropolitan Lagos.

4.1.3 Federal Emergency Road Maintenance Agency (FERMA)

The Federal Emergency Road Maintenance Agency was established in 1999 by the approval of the national assembly.

The primary responsibility of the Federal Road Maintenance Agency (FERMA) is to ensure the efficient and effective maintenance of all existing Federal Trunk roads. Other functions include to:

- Plan and develop strategies towards ensuring efficient and effective movement of traffic on the Federal Trunk roads and ensure their implementation.
- Control of traffic on Federal High ways
- Restriction of type or class of vehicles and Vehicle inspection
- Prohibition on parking or waiting as the case may be on Federal Highways or on specified parking or waiting places and on spaces reasonably required for vehicles approaching or leaving premises

- Generally ensuring the uninterrupted flow of vehicular and pedestrian traffic
- Currently the agency has been involved in road maintenance in the state ensuring that those parts of Federal roads which constitute bottlenecks to traffic flow have been eliminated.

At the state level, organizations like Lagos State Ministry of Public Transport, Lagos State Transport Management Authority, Lagos Metropolitan Area Transport Authority, amongst others are playing important roles.

4.1.4 Lagos State Traffic Management Authority (LASTMA)

The Lagos State Transport Management Authority was established in 2000 with the primary responsibility of aiding free flow of traffic. The objectives and functions include:

1. To make Life easier for the workers, Marketers and Lagos dwellers
2. To Make sure that both private and commercial drivers follow traffic rules of the state
3. To promote healthy traffic flow in the state
4. To arrest traffic offenders
5. To reduce road accidents in the state
6. To evacuate broken down vehicles in order to avoid obstruction
7. To make sure all vehicles on the road are road worthy.

Operational Threshold

LASTMA's operation is zoned into the following:

- Zone 1 - Lagos Island/Epe
- Zone 2 - Ikeja
- Zone 3 - Lagos Mainland/Ikorodu
- Zone 4 - Oshodi
- Zone 5 - Badagry Division
- Zone 6 - Agege
- Zone 7 - Ministry of Works Yard PWD Ikeja
- Zone 8 - LSTC Yard, Agege motor road, Cappa, Oshodi
- Zone 9 - Isolo/Ejigbo

4.1.5 Lagos Metropolitan Area Transport Authority (LAMATA)

The Lagos Metropolitan Area Transport Authority (LAMATA) was established by an act signed into law on January 13, 2002 and formally launched on December 2, 2003. It has the primary mandate to play a leading role in carrying out transport planning for the metropolitan area and assist in transport policy formulation, coordination and implementation of major operational and investment decisions. The Authority is designed to carry out the comprehensive maintenance of roads and related infrastructure, inventory of road and transport network, continuous evaluation of road network status, overall improvement in traffic flow and planned and programmed traffic engineering and management works. In addition is the overall improvement of public transportation systems, and orderly and structured development of the rail and water mass transit systems, amongst others.

Specifically, LAMATA's responsibilities also include to:

- Co-ordinate the transport policies, programmes and actions of all transport related agencies in the Lagos metropolitan area
- Maintain and manage the declared road network of about 632 kilometres within metropolitan Lagos. This may be expanded as the need arises.
- Plan, coordinate, manage and develop the supply of adequate and effective public transportation within metropolitan Lagos.
- Recommend on route planning and general location of bus shelters, pedestrian ways and bridges.
- Collect and levy transport road user charges and establish a Transport Fund to sustain the performance of LAMATA.
- Coordinate activities of the State Licensing Authority and all vehicle inspection units
- Recommend on policy issues on public transportation to the Governor including mechanisms for implementation.
- Prepare plans for the management and development of transportation in Metropolitan Lagos

In performing their functions, there are various overlaps in the activities of these institutions especially between Federal and State institutions and even amongst state institutions. For instances, there have been instances of conflicts between the following organizations:

- National Inland Waterways and Lagos State Ferry Service
- Federal Road Safety Commission and Lagos State Traffic Management Authority
- Federal Road Safety Commission and Vehicle Inspection Officials
- Federal Emergency Road Maintenance Agency and Lagos State Traffic Management Agency

Despite the conflicts, it is important that the agencies were established at various levels and periods towards achieving one goal of effective and efficient public transport provision in Metropolitan Lagos. Their establishment at various periods was definitely in response to the dynamics of Nigerian and indeed Metropolitan Lagos' transport demand and provision.

It should however be noted that in spite of the aforementioned measures and efforts on the part of both the government and private public transport service providers, the inadequacy in meeting the transport demand of metropolitan Lagos is still obvious. Hence new innovations that popularized the use of two-wheeled vehicles (Okada) for public transport emerged.

It pertinent to state that since the emergence of Okada for public transport in metropolitan Lagos was not originally planned for, the various institutions managing public transport do not have clear cut framework to guide and regulate their operation. Those in charge of enforcement do not enforce the existing guidelines while those providing road infrastructures like roads, parks, etc do not consider right of way for Okada riders. The result of the challenges is chaos in the

way Okada mingle with other means of public transport in sharing available infrastructures.

4.2 Evolution of Two Wheeled Commercial Transport in

Metropolitan Lagos

Mobility is a serious problem confronting most cities of the world. Before the advent of the automobile, urban morphology was essentially concentric. The 'foot-cities' of this period were characterized by centralized functions that ensured short trip-lengths. The development of the automobile in the 20th Century and the resultant ease of movement conferred on these cities multi various functions. Population grew, land-use became dispersed, trip-length increased and the resultant multi-nuclei morphology of the 'new' city required greater and better forms of transport to meet their ever increasing and specialized functions. (Ogunsanya and Galtima 1993). With the inability of cities to meet up with this transport demand, various means are being adopted and this has made the problems more complex that Daniel and Warnes (1983) exclaimed that "despite all methods of movement, the problems in the city is still how to move".

In Nigeria, successive governments have tried to solve this problem by applying various traffic management schemes, provision of four wheeled motorized facilities and other related transport infrastructures. But the problems still persist especially in Lagos where traffic congestion in various parts of the metropolis has almost nullified the effects of the measures taken by government. The response of the private public transport operators to this immobility problem is in the area of providing automobile and one of such means is the use of two-wheeled transport.

This type of automobile is usually of low capacity simple technology with two seats at most, no special trunk compartment and low Kerb weight.

In the 1950s, the bicycle used to be the status symbol, an object of pleasure and leisure. It predominated the means of transport to schools, social functions etc. mostly by the few elites who have 'made it'. By 1970s, the bicycle racks in most government offices used to be filled with bicycles. The Post and Telecommunication offices relied mainly on this for courier services. The popular types of bicycles then were Raleigh, Avon, Hero and Atlas. This demand for Bicycle led to the setting up of a bicycle factory (the largest in Africa) in Kano in 1975. The price of a Raleigh bicycle even as at 1981 was N240 and N500 in 1986. However, the demand for bicycle decreased because of the shift to the use of automobiles. For instance, the national bicycle requirement in Nigeria was 600,000 units in 1976, 620,000 in 1977 and 900 units in 1978; by 1986 it has slumped to as low as 400 units. Nowadays the use of bicycle is not very common except by Nigeria Postal Services for the distribution of mails and in the high class Residential Areas where they are used for exercise especially for children and more fashionable brands like 'chopper' are being used

Increasing quest of Nigerians for technological development and the oil boom era of early 70s to 80s paved way for the use of motorcycles and cars. People hitherto using bicycles but who could not afford car now graduated to the use of motorcycles. Mainly government workers dominated this category and it later spread to other company workers. Hence one can say that the use of motorcycle popularly referred to as Okada in metropolitan Lagos is not a new phenomenon, it is its commercialization that is new.

The use of Okada for commercial transport in Lagos dated back to 1980 by a group of 5 old men at Alakuko Area in Agege Local Government Area. These men used their motorcycles for carrying passenger after returning from their normal daily work. Their main focus then was meeting commuters' demand mostly in the pre-journey and after journey trips from their homes to bus stops and vice-versa. They were mainly limited to feeder roads. The success achieved by these men made others to join them and commercial motorcycles started to spread to other areas in Agege. Now they are found everywhere in metropolitan Lagos. They were formerly insignificant but now they have come to stay.

Ogunsanya (1993) posited that this development could be adduced to certain factors such as the Structural Adjustment Programme of the government and its very stringent attributes. This mode has also evolved as public commercial transport in response to need.

The poor macro economic situation with a resultant skyrocketing prices of cars and vehicles used for commercial purposes and lack of spare parts led to near collapse of public transport provision. The demand for public transport however, continued to increase at an accelerated rate due to increasing population growth, economic, political and social cultural activities etc.

Consequently, people then focused more on the use of the motorcycle. By 1992, more motorcycle riders now convert their previously private-used bikes to commercial ventures (kabu-kabu) while the unemployed hired bikes from dealers and some made outright purchase of used motorcycles to be operated on commercial basis. This scenario continued to the extent that motorcycles accounted for up to 14% of total vehicle registered in Nigeria in 1989 and this

percentage rose to as high as 34.10% in 1994 with Lagos having 18% (Source: The Nigeria Police Force Headquarters, Lagos, 1995).

Table 4.1: Total number of vehicles registered in Lagos State from 1991 to 2005 with the percentage of motorcycle for each year.

YEAR	BUSES	TYPES OF VEHICLE			MOTOR CYCLES AS % OF TOTAL
		CARS	MOTOR-CYCLES	TOTAL	
1991	4,142	23,057	556	27,755	2.0%
1992	6,221	33,666	1,123	41,010	2.73%
1993	7,891	36,286	3,860	48,037	8.03%
1994	8,810	31,064	11,061	50,935	21.71%
1995	9,430	13,430	5,610	28,470	19.70%
1996	9,960	13,930	4,428	28,318	15.63%
1997	11,432	15,178	7,957	34,567	23.01%
1998	12,023	16,232	10,353	38,608	26.81%
1999	12,410	16,432	11,066	39,908	27.73%
2000	12,290	70,856	12,070	95,216	12.67%
2001	32,367	148,584	18,420	199,371	9.23%
2002	30,612	148,812	38,925	218,349	17.82%
2003	17,788	85,457	32,561	135,806	23.97%
2004	8,960	58,150	15,369	82,479	18.63%
2005	4,793	28,035	5,318	38,146	13.94%

Source: Federal Road Safety Commission (2006)

The high percentage of motorcycle (up to 27.73% in 1999) in the total vehicle registered in Lagos State especially between 1991 and 2000 was due to the availability of fairly used and new motorcycles the price of which was far cheaper than either new or 'Tokunboh' cars/buses used for commercial purposes then. The graph in figure 4.1 shows the variation in the prices of selected 'Tokunboh' motor-vehicles from 1991 to 2000.

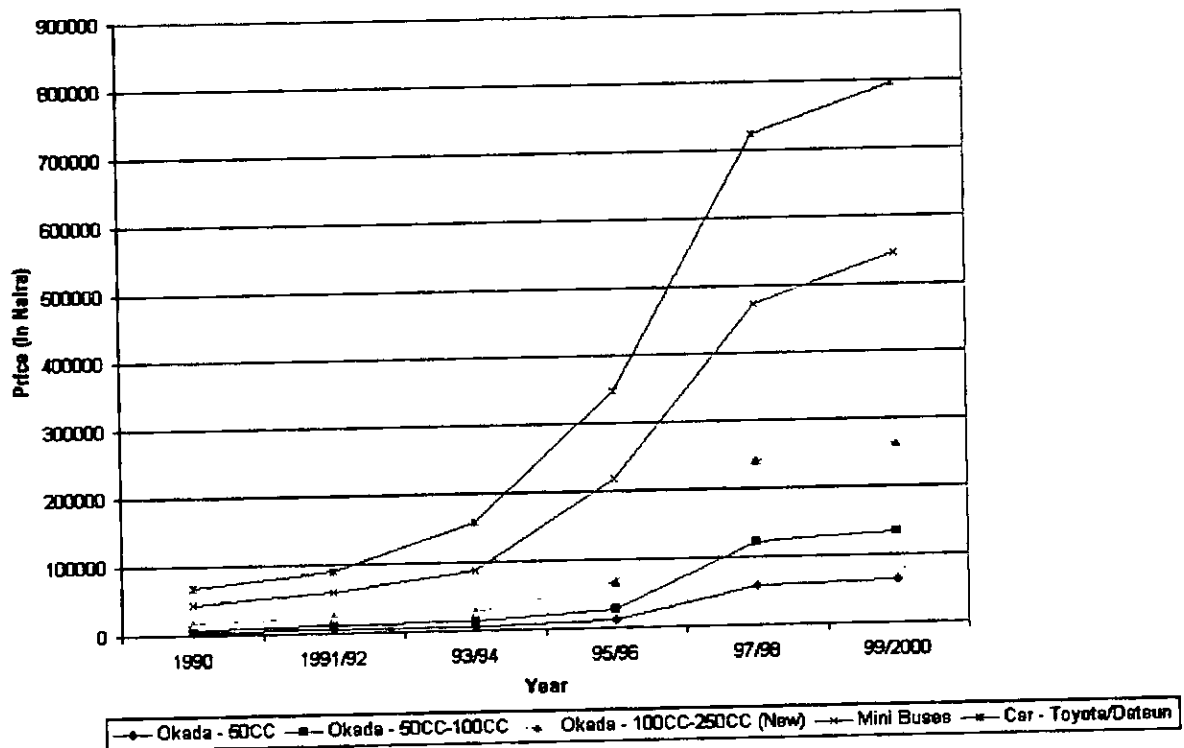


Figure 4.1: Variation in the prices of vehicles (1990-2000).

Source Fieldwork (2000)

Three types of motorcycles were identified in figure 4.1 above i.e. 50cc, above 50cc to 100cc and above 100cc to 250cc. It shows that the 50cc motorcycle popularly referred to as 'ladies' was the cheapest. The ones in the range of about 50-100CC were mainly used for private purpose. The early commercial motorcycles however started with this type but the owners did not purchase them originally for commercial purpose. Those in the range of over 100-250CC are mostly new and also used for private purpose. If available as tokunboh, they may have mainly been imported by the users. Compared to mini buses or cars used for commercial purpose, the prices of Okada were still far cheaper. For instance in 1991 when the average price of 'tokunboh' cars and mini buses were about N80,000.00 and N60,000 respectively that of motorcycle (ladies) was just N10,000.00.

From 1995 – 2000 the prices of mini buses rose to between N350,000 and N800,000 and cars between N350, 000.00 and N550, 000, Okada (Ladies) was still less than N70,000 only.

This trend however changed between 2001 and 2005 when the purchase of Tokunboh was no more common because new motorcycles could be purchased for between N60, 000 and N70,000 from local assembly plants like Boulous (Suzuki), Honda and major distributors of Jencheng, Lifan, etc. This scenario shows that most low-income earners tend to buy what they could afford from their little savings/loans as the prices of Tokunboh cars and buses were still increasing. Hence, the option of buying Okada for commercial use takes precedence over cars and buses.

Accordingly the input of motorcycles to total public transport registration in Lagos state continued to increase progressively from 1990 up till 2002 when it got to a peak of registering over 38,000 motorcycles. The trend is shown in figure 4.2

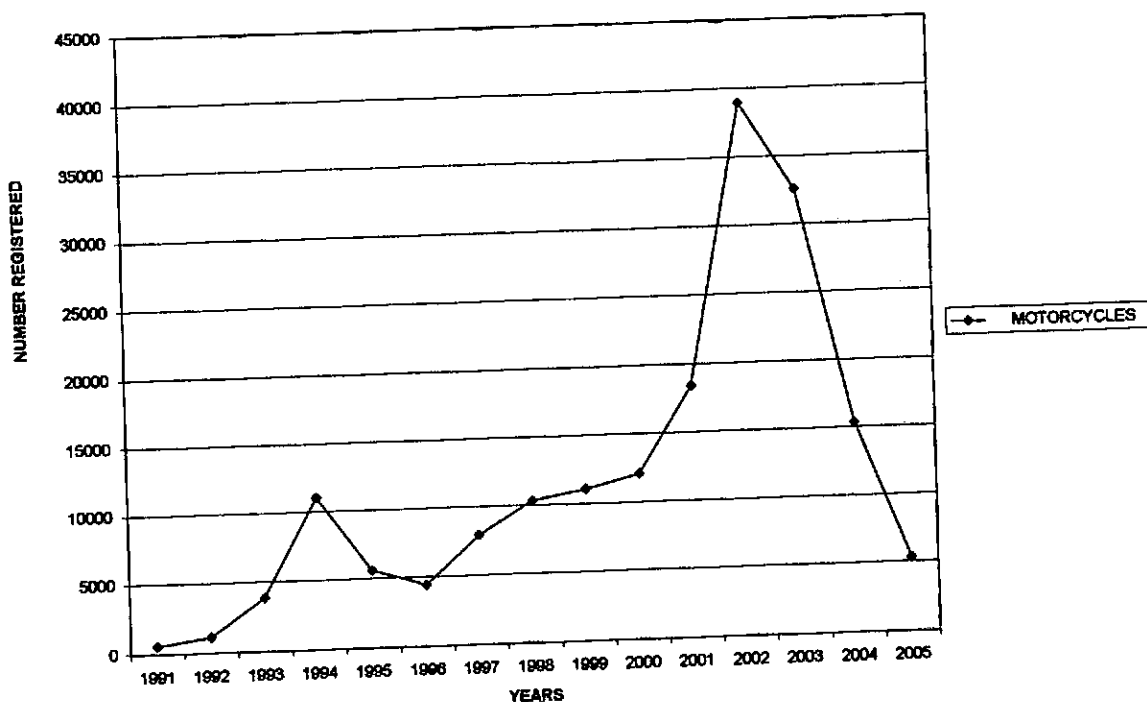


Figure 4.2: Time Plot Showing the Trend of Motorcycle Registration in Lagos State

Source: Fieldwork Analysis (2006)

The figures of total motorcycles registered from 2003 started to decline but the cumulative figure continued to increase especially with the life span of an average Okada being 4 years. The survey for this study revealed that there was an average increment of 73.61% in the numbers of commercial motorcycles counted in 2000 and 2005. The figures recorded from 2004 may be an indication of when Lagos state government started printing number plates and the total data on vehicle registration could not be captured by the Federal Road Safety Commission which was a major source of data on vehicle registration for this study.

All over metropolitan Lagos, the motorcycle is now used extensively for public transport on commercial basis. Latest investigation and the data gathered from this

study revealed that commercial motorcycling in Lagos has been accepted by Lagosians to cater for the inadequacy in the public transport provision and the neglect of short distance journeys (especially pre-journey and after-journey trips). This is very obvious in the number of stationery commercial motorcycles at the various bus stops/points where data were collected and those counted in transit. (Appendix III).

A total of 1,556 stationery motorcycles were counted at the survey points in 2000 and this increased to 2,776 in 2005 indicating 73.61% of growth in the number of Okada at these 80 survey points within the study area. However, those counted in transit was 30,592 and 82,491 in 2000 and 2005 respectively. This reflects the increment in the level of usage for commercial purposes. This data is analysed on local government basis in Table 4.2

Table 4.2: Number of Commercial Motorcycles by Local Government Areas

Local Govt Area	N	Mean	Std Deviation	Std Error		
					Lower Bound	Upper Bound
Mainland	5	830.2	151.966	67.961	641.51	1018.89
Oshodi-Isolo	5	1165.2	266.558	119.208	834.22	1496.18
Eti-Osa	5	373.6	110.81	49.556	236.01	511.19
Amuwo Odofin	5	762.8	140.151	62.677	588.78	936.82
Ikeja	5	1108.4	290.675	129.994	747.48	1469.32
Ajeromi Ifelodun	5	1546.2	143.051	63.975	1368.58	1723.82
Surulere	5	996.2	314.759	140.764	605.38	1387.02
Somolu	5	1482.2	290.635	129.976	1121.33	1843.07
Mushin	5	1184.4	554.217	247.854	496.25	1872.55
Kosofe	5	582	37.417	16.733	535.54	628.46
Ojo	5	1534.4	39.929	17.857	1484.82	1583.98
Apapa	5	1155.8	40.911	18.296	1105	1206.6
Lagos Island	5	931.8	171.398	76.651	718.98	1144.62
Agege	5	550.8	131.957	59.013	386.95	714.65
Ifako-Ijaye	5	889.4	308.416	137.928	506.45	1272.35
Alimoso	5	1554	328.726	147.011	1145.83	1962.17
	80	1040.46	424.446	47.454	946.01	1134.92

N = Number of survey points

Source: Fieldwork 2005

Table 4.2 shows the number of Okada that were found in each of the local government area at 95% confidence level. Eti-Osa has the lowest number ranging between 236.01 (lower bound) to 511.19 (upper bound) followed by Kosofe from 535.54 (lower bound) to 628.46 (upper bound) while Alimoso has the highest from 1145.83 lower bound to 1962.17 (upper bound) followed by Somolu from 1121.33 lower bound to 1843.07 (upper bound).

This survey has revealed that the intensity of the operation of Okada varies from one local government to the other. This is closely related to the population density and attendant social economic activities. The low density local government and settlements mostly inhabited by high class people have lower number of Okada while the high density areas mostly inhabited by low and medium class people have higher number of Okada operators.

The total number and intensity of operation of Okada as evident in table 4.2 is high and its importance cannot be overlooked in public transport planning/provision in metropolitan Lagos.

However, the structure and operation has not been thoroughly assessed to really document the prospects and problems and the possibility of really integrating it into the total public transport provision. Hence the significance of this type of study cannot be overlooked in public transport planning in metropolitan Lagos.

4.3 Factors Responsible for Commercial Motorcycling in Metropolitan Lagos
Various authors have adduced several factors to the commercialization of motorcycles in metropolitan Lagos. However, to bring out the most recent and relevant factors, some perceived factors were examined using Chi Square.

Out of the 12 socio-economic variables investigated on the part of the operators, 8 were found to be significant and therefore confirmed as major determinants of Okada operation. In interpreting the values, the lesser influencing the operation of Okada for public transport in metropolitan Lagos was carried out using Chi Square. This is to confirm if the perceived variables investigated were really responsible for the commercialization of Okada in the obtained value is to 0.05 the higher the level of significance and if it is higher than 0.05, it is considered insignificant. With 95% probability level, the following values were obtained for the variables investigated on the part of operators.

Table 4.3: Test of Significance for Variables influencing Commercial Motorcycle Operation in Metropolitan Lagos

Variable	Value	Significance Level
MS (Marital Status)	0.000	**
OCCUPATION	0.001	**
AMI (Average Monthly Income)	0.001	**
OOO (Ownership of Okada)	0.000	**
COP (Cost of Purchase)	0.008	**
MofU (Membership of Union)	0.000	**
Benefit from the Union	0.002	**
AMME (Average Monthly Maintenance Expenditure)	0.000	**
Number of Passengers Per Trip	0.364	
Amount Charged Per Trip	0.681	
(CoF) Cost of Fuel	0.425	
DHoP (Daily Hours of Operation)	0.355	

Source: Fieldwork (2005)

The result of the analysis as shown in the table 4.3 above shows that variables like MS, OCCUPATION, AMI, OOO, COP, MofU, Benefit from Union and AMME with double asterisks are significant while those with one asterisk (ADTR) are also significant but not as high as those with double. The variables without asterisk (Number of Passengers Per Trip, Amount Charged Per Trip, CoF and DHoP) are not significant for those going into Okada operation.

On how their perceptions influence their decisions to operate Okada for commercial purpose, they perceived Okada as something that would be legalized by government (.000), perceived it as cheaper than other means (0.000). BOO (Ban of Okada) 0.169. This shows that they see their operation as something that should not be banned.

For the users, some of the variables investigated and the probability value obtained revealed the following:

Table 4.4: Test of Significance for Factors influencing the Patronage of Okada by the Users.

Variable	Value	Significance Level
OCCUPATION	.000	**
ToT (Type of trip)	.030	*
Efficiency	.000	**
Okada is not a nuisance	.000	**
cause of accident	.000	**
SUPPUSE (Support for Usage)	.000	**
Advantage over other means	.000	**
AMI (Average Monthly Income)	.120	
Waiting Time	.816	

Source: Fieldwork (2005)

As demonstrated in table 4.4 variables like Occupation, Type of Trip and Efficiency are factors that are significant for patronizing Okada. They perceive the means as having significant advantage over other means and not a major cause of accident and support its continued usage for public transport. In addition, the values show that average monthly income does not exert significant influence on the use of Okada as a means of transport because its usage cuts across all income

earners. The time a commuter spent in boarding Okada also turns out not to be a major factor.

The result of the tested hypotheses revealed the following:

Table 4.5: Test for Variation in the number of Okada at the different Local Government areas of Metropolitan Lagos.

NUMBER OF OKADA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10326746.688	15	688449.779	11.282	.000
Within Groups	3905443.200	64	61022.550		
Total	14232189.888	79			

As presented in table 4.5, at the level of significance of 0.05 and calculated F statistic 11.282 which is greater than the table value of 1.4206, the Null hypothesis that there is no marked variation in the distribution of Okada at the different local government areas is rejected while the alternate which states that there is marked variation in the number of Okada at the different local government areas in metropolitan Lagos is accepted. This may however be due to various factors like population figure, the level of socio-economic activities and availability of other means of transport or otherwise in the different local government areas.

Table 4.6: Test for variation in the income generation pattern of Okada Operators at the different local government areas of Metropolitan Lagos.

MONTHLY INCOME OF OPERATORS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.98E+10	15	3322497396.625	3.472	.000
Within Groups	6.75E+11	705	956970822.222		
Total	6.75E+11	720			

It is obvious in table 4.6 that at the level of significance of 0.05 and calculated F statistic 3.472 which is greater than the table value of 1.4206, the Null hypothesis that there is no significant variation in income generation of Okada operators amongst the different local government areas in the study area is rejected while the alternate which states that there is significant variation in income generation of operators at the different Local Government Areas in Metropolitan Lagos is accepted. This may possibly be due to variation in the number of Okada, number of trips per day, number of passengers per day, amount charged per trip and the type and level of socio-economic activities at these different locations.

Table 4.7: Test to verify if the patronage of Okada for Public Transport is Independent of the Average Monthly Income of the Users.

AVERAGE MONTHLY INCOME OF USERS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	162602621.700	6	27100436.950	1.609	.144
Within Groups	5035940678.953	299	16842610.966		
Total	5198543300.654	305			

Table 4.7 shows that at the level of significance of 0.05 and calculated F statistic 1.609 which is less than the table value of 2.0986, the Null hypothesis which states that the patronage of Okada for public transport is independent of the Average monthly income of Okada users in metropolitan Lagos is accepted while the alternate hypothesis which states that the patronage of Okada is dependent on the monthly income of users is rejected. This may be so because the patronage of Okada for public transport in metropolitan cuts across all levels of income earners.

4.4 Structures and Operation of Two-Wheeled Commercial Transport in Metropolitan Lagos

The use of Okada for commercial transport started as a response to the need of commuters especially in meeting pre-journey and after-journey trips between bus stops and homes and areas that were not originally covered by public transport especially buses. Consequently, there was initially no laid down procedure or guidelines to follow for an intending operator. What they do is just to convert their

privately used motorcycles to carry passengers on commercial purpose. They could also buy second hand motorcycles to be used for this purpose. It was at the military barracks like Ojo cantonment, Ikeja cantonment and Airforce base, Ikeja that proper organization of operators into unions started. For instance the use of Okada for commercial purpose in Ojo cantonment started in 1984 by soldiers who normally used their motorcycles for commercial purpose from 4.00 p.m. after the close of their normal daily work. This was met with stiff opposition by the military authority that accused them of aiding crimes within the barracks. They were later allowed to continue with their operation especially as the mode became popular outside the barracks.

In organizing themselves at Ojo Military Cantonment, the Ojo Cantonment Cyclists Association was formed to co-ordinate and monitor the activities of members. An operator has to register with (a) the cantonment and (b) the union, before he can commence operation. On daily basis, it is mandatory for the operator to contribute N20.00 to the purse of the union, which they use in running/maintaining, their office. The operation of Okada in the cantonment is divided among the six camps within the cantonment and fares are charged according to the areas covered.

Table 4.8: Six camps covered by Okada operation and the Corresponding fares charged at Ojo Military Cantonment

	<i>Camps</i>	<i>Position</i>	<i>Fare Charged</i>
1.	Camps 1 and 4	Short distance	N20.00
2.	Camps 3 and 5	Medium distance	N25.00
3.	Field Niger	Far	N30.00
4.	Officer's Village	Long distance	N40.00

Source: Fieldwork (2005)

Their point of take off where the distance of destination is measured from is beside the main gate. Other fares are charged according to where the passengers are picked and their destination. Also, it is mandatory for members to wear uniform with identification numbers. The uniform is yellow in colour while the number is boldly written with black ink hence the cyclist is easily visible even from a long distance. The purpose of the uniform and number is to curb the excesses of members and reduce crime rate since anyone caught operating contrary to the laid down rules can easily be identified and dealt with appropriately.

In addition, it is mandatory for the cyclists and the passengers to wear crash helmet according to Lagos State Governments' edict on safety. This has helped in reducing the rate of head injury in case of accident.

Furthermore, all intending operators are made to undergo training to make sure they are qualified before they can operate in order to reduce the risk and accident rate. The motorcycles are also properly checked to confirm their suitability for commercial purpose. Environmentally, the operators are highly favoured here because the roads in the cantonment are good and well tarred. There are less vehicles as compared to what operates outside hence the level of accident is very low and when it happens it is not always serious thereby recording low death rate.

The structure and operation here are better organised although the return, which is between N400.00 to N450.00 per day is lower when compared to what operates outside the cantonment.

On the other hand, the Amalgamated Commercial Motorcycle Owners and Riders Association (ACOMORAN) and Motorcycles Owners Association of Lagos State were formed in Lagos State due to serious harassment being experienced daily in

the hands of law enforcement agents like the Police, Local Government Officials and Vehicles Inspection Officials. They also see all motorists as threat to their life hence they decided to form a common forum, which can control and regulate the conduct of their members and protect and or defend them when the need arises. On the surface the Association appears very strong but an in-depth study of their operation shows that they are not as strong and coordinated as it appears. They are however strong at their local wings when compared to the central body representing them at the state level.

Most operators just buy their motorcycles and register them either as commercial or private; they then give to riders to give them daily delivery of a specified amount that ranges between N500 to N600 depending on the location. Some are also owner riders. In some local wings, it is mandatory for new entrants into the trade to register with a bottle of hot drink, 2 crates of minerals and some amount of money and these conditions depend on the location. The operators also pay between N20 and N50 on daily basis to their association. Their solidarity or unionism is more felt or pronounced during accident or burial of any of their members. In case of accident, they all abandon whatever trip they may have embarked on and stay with their colleague(s) involved in the accident until the case is logically concluded. While during burials, they all accompany the corpse(s) to the burial ground or city exit gate (in case the corpse is being taken out of Lagos) in very large number while carrying leaves and driving recklessly just to express their solidarity. An example is shown in Plate 4.1.

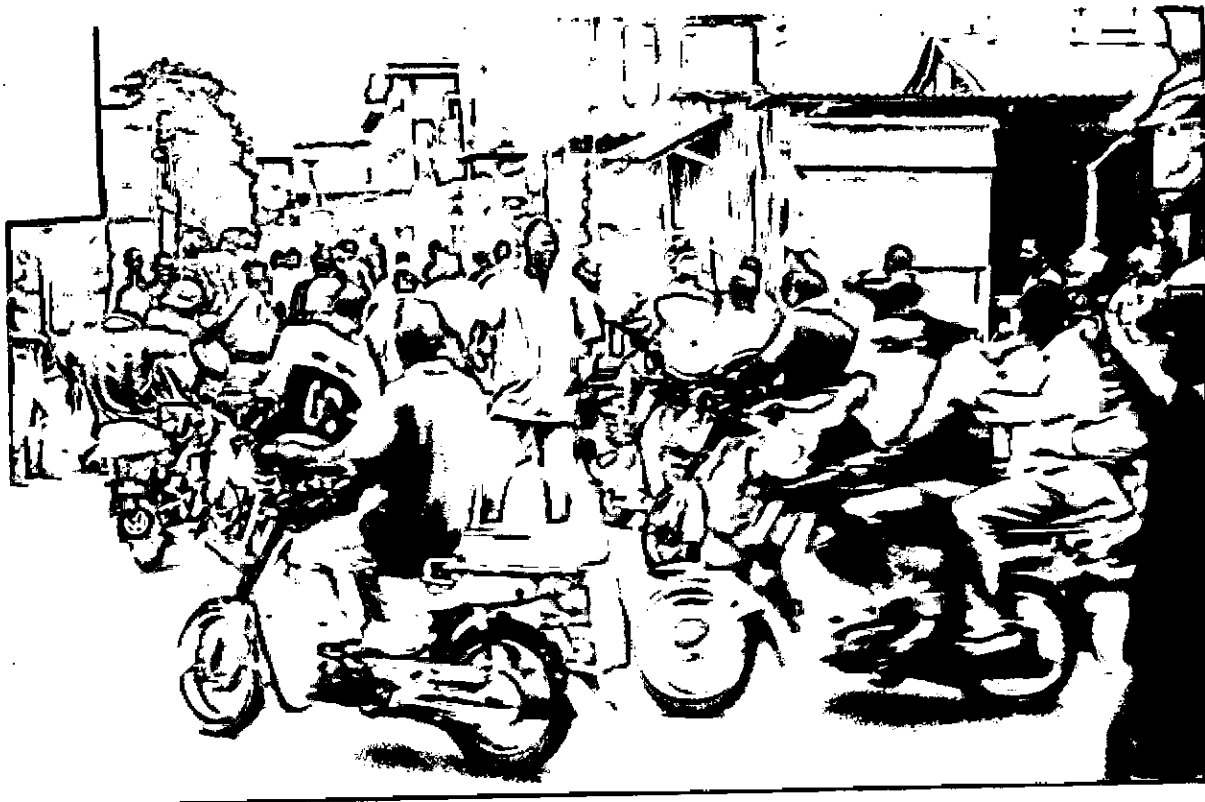


Plate 4.1: Okada Riders in procession to the burial of their colleague at Atan Cemetery

Source: Fieldwork (2006)

In terms of safety precautions, most of the riders do not obey the available laid down simple safety guidelines/laws especially the edict on the wearing of crash helmet and insurance. They meander through traffic, flagrantly disobey the use of crash helmets while some of the motorcycles are in very bad shape and some of them are not registered for commercial purpose. They also carry more than the specified number of passengers, which is, not supposed to be more than 2 inclusive of the driver. Some even carry up to 3-4 passengers! This is obvious in plates 4.2 and 4.3.



Plate 4.2: Motorcycle as a means of Public Transport for School Children

Source: Fieldwork (2006)

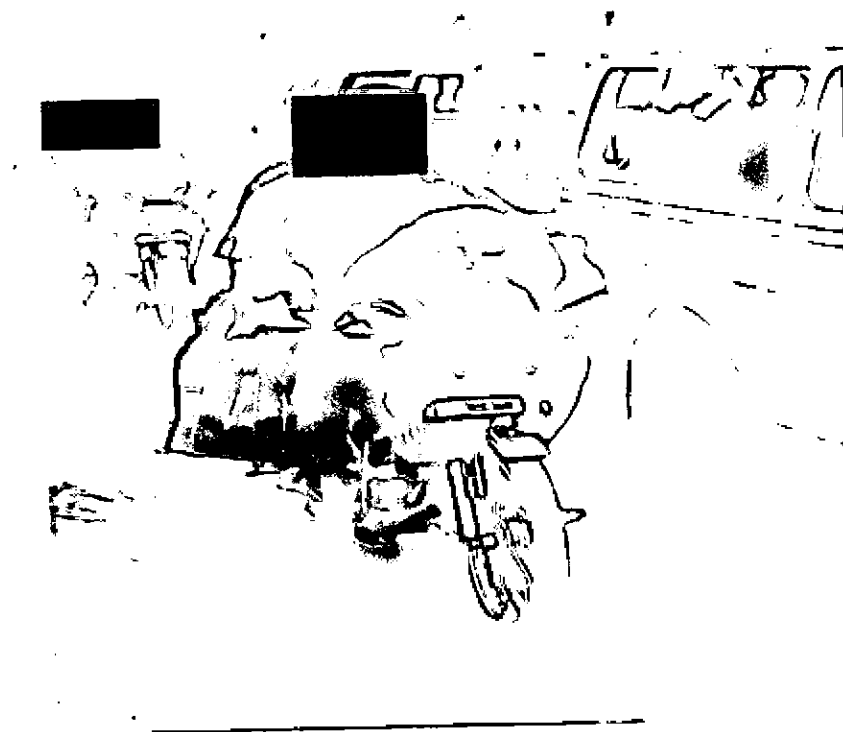


Plate 4.3: A Ride beyond the Manufacturers' Imagination

Source: Fieldwork (2006)

Furthermore, okada operators mostly operate within a locality. It may be from a major bus stop to adjoining streets within the area. Their fares are charged according to the distance between the bus stops to the destination of the passengers. In a few cases, they operate "charter service" to long distance. This is however not very common as they try to limit their operation to their localities or "familiar terrain".

The problems associated with their operation however put the state government in a dilemma. A perceived way out of this dilemma was the introduction of the three-wheeler Auto-rickshas popularly referred to as "Keke Marwa".

4.5 Three Wheeler Auto-Rickshas (Keke-Marwa)

The rapid and uncontrolled use of motorcycles (Okada) for public transport in metropolitan Lagos posed a lot of challenges to the government of Colonel Buba Marwa in the late 1990s as the problems associated with its operation was enormous especially in the areas of safety measures. This gave the government a lot of concern and it was believed that a way of improving and complementing the operation of Okada for commercial purpose was the introduction of the three-wheeled auto-ricksha popularly called "Keke Marwa". The first batch was launched on 19 March 1998. It was believed that this mode "Keke-Marwa" would offer the economy of Okada and the comfort and safety of a Taxi for both the operators and the users.

The three-wheeler autoricksha was developed more than twenty-five years ago in Italy as a derivative of the well-known 'Vespa' scooter. It is now being used in many densely populated developing countries like India, Indonesia, Thailand, Philippines, Bangladesh, Chile, Sudan, Sri-Lanka, etc. Hence there are well over 9

million 3 wheeler autorickshas being used for commercial transport in the world. It is of simple technology equipped with a modified 'Vespa' type engine. It has 3 wheels with cover to protect its occupants from sun or rain. The maximum speed of the autoricksha is 55kph. It can conveniently accommodate 3 adults (including the driver) and 1 child with hand luggage. It can offer more than 3 times the revenue of a normal Okada and yet has almost the same operating cost.

At the launch of the scheme, all the necessary modalities for its operation and maintenance were well stated. The scheme appeared very robust interesting and viable. For instance, it was to be done in phases with the 1st phase covering the deployment of 500 units of Autorickshas within Lagos to individual operators on a deferred payment basis. The main focus was to ameliorate the suffering of commuters in metropolitan Lagos and to employ directly and indirectly over 5,000 people as operators, mechanics and other support staff.

The total cost of one unit was N300, 000. Beneficiaries were to pay 10% of the cost and spread the balance over a period of 24 months at a monthly installment of N11,250 only. The money realized from the down payment and monthly installment was to be used in purchasing additional tricycles to be distributed to new beneficiaries. Hence the scheme was designed to be revolving and self-sustaining. The government, in order to assist and encourage the beneficiaries, subsidized the cost of registration, licensing and hackney permits. They were also comprehensively insured against risks.

The drivers were also to undergo 6 days of intensive training on how to handle and carry out minor routine maintenance on the tricycle. A well-equipped workshop was set up at the Lagos State Transport Corporation depot at Oshodi where

adequate maintenance/repairs was to be carried out. Some selected motorcycle mechanics were also to be trained for routine maintenance service outside the government workshop.

The scheme appeared attractive. At the time of collecting part of this data, the table below reveals the number counted on hourly basis at some local government areas being the major areas/locations of their operation in metropolitan Lagos.

Table 4.9: Autoricksha Count at some Bus Stops on hourly basis

<i>S/N</i>	<i>Local Govts</i>	<i>Locations</i>	<i>No. of Tricycles</i>	<i>Average Total Per Hour</i>
1.	Ikeja	Awolowo Road	233	16.64
2.	Surulere	Ijeshatedo	167	11.93
3.	Agege	Pen Cinema	239	17.07
		Total	639	45.64
		Average	213	15.21

Source: Fieldwork 2005

The average counted in three local government areas visited was 213 units which was a very high figure. Their operation was limited to certain routes and the beneficiaries make a daily delivery of between N1000 – N1, 500 per day. However, they complain of excess consumption of fuel because the tank, which is about 8 litres, has to be refueled at least 3 times daily and they usually mix this fuel with a special type of oil which they have to buy separately.

Sooner than envisaged the scheme was be-devilled with a lot of problems that emanated from the operators accusing state government of making frivolous

financial demands which was different from what both parties agreed upon at the beginning of the project. The state government was said to have also reneged on its promise of free maintenance of the tricycles that constantly developed engine faults contrary to their expectations. Consequently, they could not meet their monthly repayment schedule to the state government.

The law enforcement agents especially police and vehicle inspection officials have also contributed to the problems of these operators. Some of the tricycles have even been impounded by Vehicle Inspection Officials and kept at their depots.

In addition, the fact that "Keke Marwa" is not as maneuverable as Okada has been identified to be another factor militating against its adoption.

Due to these problems, coupled with the poor financial performance of the operators, the scheme has now become more or less a "white elephant or abandoned project" hence government could not continue with the second phase and very few of them are still functional now. Most of the original beneficiaries have therefore reverted to operating Okada. Hence, Okada operation is still very valid as the alternative offered by Keke Marwa is not sustainable

4.6 Socio-Economic Profile of Okada Operators in Metropolitan Lagos

This study has revealed that the intensity of the operation of Okada varies from one local government to the other. To a large extent, this depends on the density of the population together with the attendant social economic activities that take place within the local government areas on daily basis. Generally the low density local government/settlements like Eti-Osa which are mostly inhabited by high

class people have lower number of Okada while the high density areas like Alimoso, Agege, and Ajeromi-Ifelodun mostly inhabited by low and medium class people have higher number of Okada operators.

Generally, the operational characteristics of Okada in metropolitan Lagos have witnessed changes in some variables investigated in 2000 and 2005. The changes in these variables are presented in the tables 4.10 and 4.11

Table 4.10: Operational Characteristics of Okada in Metropolitan Lagos for 2000

L.G.A.	Average Passengers Per Trip	Average Passengers Per day	Average Price per Drop (₦)	Average Daily Fuel Expenses (₦)	Average Daily Returns (₦)	Average Daily Delivery (₦)	Average Monthly Maintenance Cost (₦)
1. Mainland	1.03	28.7	18.40	165.00	528.08	350.13	1,295.63
2. Oshodi/Isolo	1.2	36.5	21.00	220.00	766.05	380.20	1,747.39
3. Eti-Osa	1.0	23.0	25.00	100.00	575.00	300.00	1,110.03
4. Amuwo/Odofin	1.4	29.9	16.50	165.00	493.35	250.75	1,200.00
5. Ikeja	1.05	24.0	22.00	165.00	528.00	300.00	1,220.40
6. Lagos Island	1.1	22.01	22.80	165.50	501.28	300.70	1,271.30
7. Agege	1.3	31.1	16.50	165.50	513.15	300.90	1,350.00
8. Ifako/Ijaye	1.4	27.5	17.00	150.60	467.50	300.91	1,300.00
9. Alimoso	1.4	28.0	15.00	170.30	700.00	350.14	1,308.23
10. Ajeromi/Ifelodun	1.4	32.6	18.00	165.00	586.80	350.19	1,350.50
11. Surulere	1.2	31.6	16.60	165.00	568.00	300.30	1,298.61
12. Somolu	1.2	24.4	20.00	110.00	488.00	300.00	1,297.92
13. Mushin	1.3	28.0	21.60	165.00	604.80	350.19	1,254.00
14. Kosofe	1.1	33.0	20.30	220.00	660.00	300.20	1,310.20
15. Ojo	1.3	32.5	18.00	180.25	585.00	300.49	1,415.00
16. Apapa	1.25	27.5	20.80	165.00	572.00	300.00	1,312.00
Average Total	1.22	28.73	19.34	165.41	571.00	314.69	1,315.07

Source: Fieldwork 2000

Table 4.11: Operational Characteristics of Okada in Metropolitan Lagos for 2005

L.G.A.	Average Passengers Per Trip	Average Passengers Per day	Average Price per Drop (₦)	Average Daily Fuel Expenses (₦)	Average Daily Returns (₦)	Average Daily Delivery (₦)	Average Monthly Maintenance Cost (₦)
1. Mainland	1.15	37.5	30.20	390.00	1132.50	500.00	2,045.63
2. Oshodi/Isolo	1.35	48.0	27.10	487.50	1300.80	500.00	2,708.05
3. Eti-Osa	1.10	32.0	42.50	325.00	1360.00	500.00	1,505.05
4. Amuwo/Odofin	1.4	39.6	25.50	455.00	1009.80	500.00	2,380.20
5. Ikeja	1.25	33.5	35.00	390.00	1172.50	500.00	1,720.40
6. Lagos Island	1.1	33.5	40.60	325.50	1360.50	500.00	1,970.52
7. Agege	1.5	43.4	27.50	500.50	1199.00	500.00	1,945.00
8. Ifako/Ijaye	1.4	38.0	26.50	400.60	1007.00	500.00	1,900.70
9. Alimoso	1.4	43.0	30.00	450.30	1290.00	550.00	1,908.53
10. Ajeromi/Ifelodun	1.4	44.0	29.50	400.00	1298.00	500.00	2,450.50
11. Surulere	1.25	32.0	35.00	350.00	1120.00	500.00	1,798.43
12. Somolu	1.4	36.5	32.80	350.00	1250.60	500.00	1,897.52
13. Mushin	1.35	47.5	26.60	500.00	1263.50	500.00	2,554.00
14. Kosofe	1.1	35.0	27.80	400.00	973.00	500.00	1,647.50
15. Ojo	1.3	41.0	25.20	450.25	1033.20	500.00	2,375.45
16. Apapa	1.25	39.2	32.80	450.00	1285.76	500.00	1,715.20
Average Total	1.28	38.20	19.34	420.125	1183.75	500.00	2,127.99

Source: Fieldwork 2005

The analyses of the two tables (4.10 & 4.11) are presented as follows:

4.6.1 Average Passenger Per Trip/Per Day

The tables show that in 2000 an average of 1.22 persons were carried per trip and average of 28.73 passengers per day. These however vary from one local government area to another. For instance, Lagos Island has an average daily passenger of 22.01 while Kosofe and Oshodi-Isolo have an average of 33.0 and 36.5 passengers per day respectively. The average number of passengers carried per trip increased slightly to 1.28 in the validation investigation done in 2005 while the average number of passengers per day increased to 38.2. However, the variation from one Local Government Area to another is still valid.

4.6.2 Fare Per Drop

Table 4.10 shows that the average fare charged per drop in 2000 ranges from ₦15.00 at Alimoso to ₦18.00 in Ajeromi/Ifelodun, to ₦20.00 in Somolu and up to ₦22.00 in Ikeja. Eti-Osa has the highest, which was ₦25.00. The fares were charged according to the economic status of people living in these areas and availability of businesses or commercial activities. The fare is highest at Eti-Osa because it is a highbrow area with a lot of corporate offices and people with high standard of living. Table 4.11 shows that in 2005 data, the fares increased from ₦20.00 in Alimoso to ₦30.00 in Ajeromi Ifelodun, ₦29.50 in Somolu and Ikeja and ₦42.50 in Eti-osa. The total average for the entire metropolitan Lagos also increased to ₦30.91.

4.6.3 Daily Fuel Consumption

On the average, daily fuel consumption, to a large extent depended on the number of trips made per day and fuel consumption level of the motorcycles. A local government like Oshodi/Isolo with high population density and attendant high socio-economic activities resulting in high demand for public transport had the highest number of trips per day which was an average of 36.5 trips. Concomitantly, the tank of the motorcycles was being filled with petrol twice per day and this cost an average of about ₦220.00 per day. Those of Eti-Osa Local Government Area were fuelled once per day with ₦110.00 because they made less number of trips. However, it should be noted that the difference in their daily returns/delivery was not much because higher fares were charged in Eti-Osa area as compared to places like Ifako/Ijaye, Ojo, Agege which charged less and make higher number of trips because of the high demand and resultant higher number of motorcycles.

The scenario changed in 2005 with a litre of petrol being sold for ₦65.00. In Oshodi Isolo, about ₦520 is now spent on petrol per day while it is about ₦300 in Eti-Osa.

4.6.4 Daily Delivery

The average total daily delivery in 2000 was ₦314.69. It was highest in Oshodi/Isolo (₦380.20), Mushin, Alimoso, Mainland (₦350.00) and ₦300.00 in Surulere, Somolu, Apapa, Ikeja etc while the lowest was recorded at Amuwo-Odofin, (₦250.00). In 2005, this also changed to an average of about ₦500.00 in all the Local Government Areas.

4.6.5 Maintenance Cost

In terms of cost of maintenance, a total average of ₦1, 315.07 was recorded for the 16 local government areas in 2000. Like other variables this also varied from one local government to another. For instance, it was highest at Oshodi-Isolo Local Government (₦1, 747.37). The lowest maintenance cost was recorded at Eti-Osa Local Government Areas where an average of ₦1, 100.03 was being spent to maintain a motorcycle per month. This to a large extent depended on the type and the level of usage of these motorcycles as well as the condition of roads in these areas. For instance, motorcycles being used where higher number of trips were made per day, to carry more than one passenger coupled with bad roads as well as aging motorcycles will definitely attract more maintenance cost than a place like Eti-Osa where the roads are good and they make low number of trips and rarely carry more than one passenger per trip.

The average for all the local government areas also increased to ₦2,127.99 in 2005.

Other characteristics investigated revealed the following:

4.6.6 Hours of Operation

The day of an average Okada operator in metropolitan Lagos is between 6.00a.m. and 11.00p.m. depending on the location and its attendant social/economic activities. The motorcycle operators are either owner operators or hired operators who hire the motorcycles from the owners and make daily delivery. Arrangement is made on the procedure for maintenance. Some even take motorcycles on hired purchase and make instalmental payment until they complete their payment and the motorcycle then fully become theirs. Some of the owners have up to three or more motorcycles but majority has only one.

4.6.7 Type of Operation

Most of the operators are otherwise unemployed hence they operate on full time. 65.3% of the total interviewed operate on full time while 27.6% operate on part time and less than 1% operate it for pleasure.

4.6.8 Age and Marital Status

Men in the age grade of between 21-30 years, made up 51% while those between 31-40 years are about 40%, of the total operators interviewed. Hence men between ages 21-40 years are the main operators of Okada because they are about 91% of the total interviewed in all the Local Government Areas. On their marital status 59.1% of the respondent are married while 37.1% are single and less than 4% are widowed or divorced.

4.6.9 Routes Plied

Most of the operators limit themselves to routes within their localities. But it was observed that apart from their major parking points at major motor parks they are mostly found on minor routes linking major roads. They also serve adjoining streets within the areas they are located. Example of their locations is show figure 4.3.

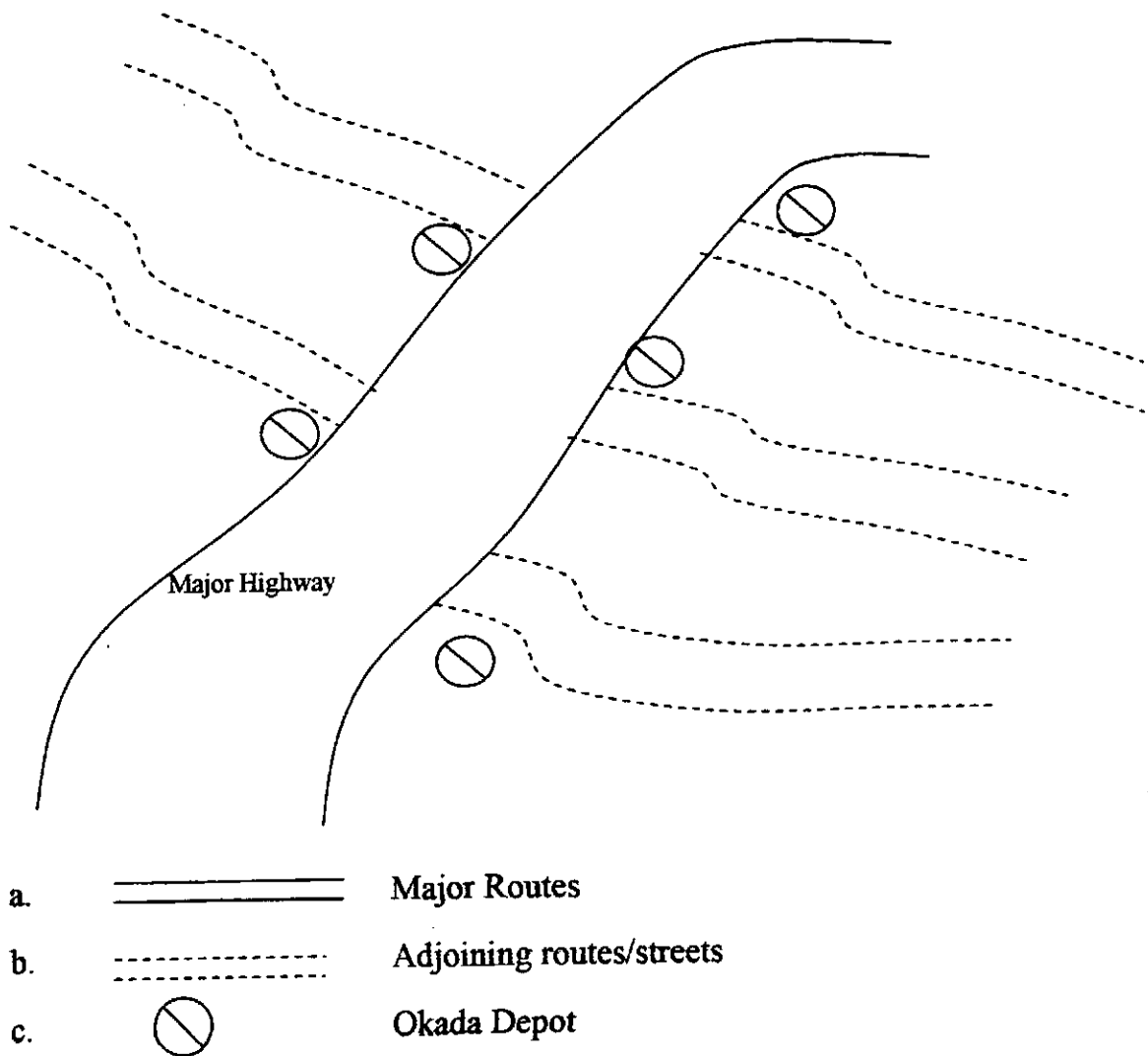


Figure 4.3: Sample of Location Converted to Okada Points of Operations

4.6.10 Insurance Cover

Most of the operators did not know the importance of insurance cover in their operation. Those who have insurance cover said they did Third Party Insurance to avoid being harassed by law enforcement agents. They do not really understand the rationale or the need for having insurance cover. About 60% of them did Third party though without knowing the implication while about 35% do not have insurance paper at all. The less than 2% that have Comprehensive Insurance said their owners did it.

4.6.11 Problems

On their problems, they generally claimed to be facing problem with the law enforcement agents i.e. Police, Local Government Officials, V.I.O. and Touts who constantly harass and exhort money from them. Armed robbers also attack some of them.

In addition, they complained of bad roads, fuel scarcity and high maintenance cost. Weather is also a major problem because they are always exposed to excessive heat during sunshine while rainfall makes it almost impossible for them to operate during the raining season. Consequently their income is always very low during raining season.

4.6.12 Support for Use

The number of operators who supported the continuation of the operation of Okada were over 90% since it is their major source of income. They only want government assistance in the areas of providing good roads, importation of motorcycles and spare parts at reduced prices, easing fuel scarcity, as well as cautioning/curbing the law enforcement agents. They also want government to

provide good parks for them and training /enlightenment as well as enabling laws to back up their operation.

4.7 Socio-Economic Profile of Okada Users in Metropolitan Lagos

The use of Okada as a means of public transport in metropolitan Lagos cuts across sexes, age grades, all occupations and educational backgrounds. It is being used for all types of trips and especially for work trips. About 80% of the total interviewed used Okada for public transport. The only difference is however in the degree of usage, which varies within each group of classification and from one local government area to the other.

4.7.1 Gender

The analysis of the question on gender revealed that more men patronize Okada. 68.2% of the total interviewed were men while women were 31.80%...

4.7.2 Age Grade

In terms of age classification, fig 4.4 shows the age distribution in grades of people using Okada for one function or the other.

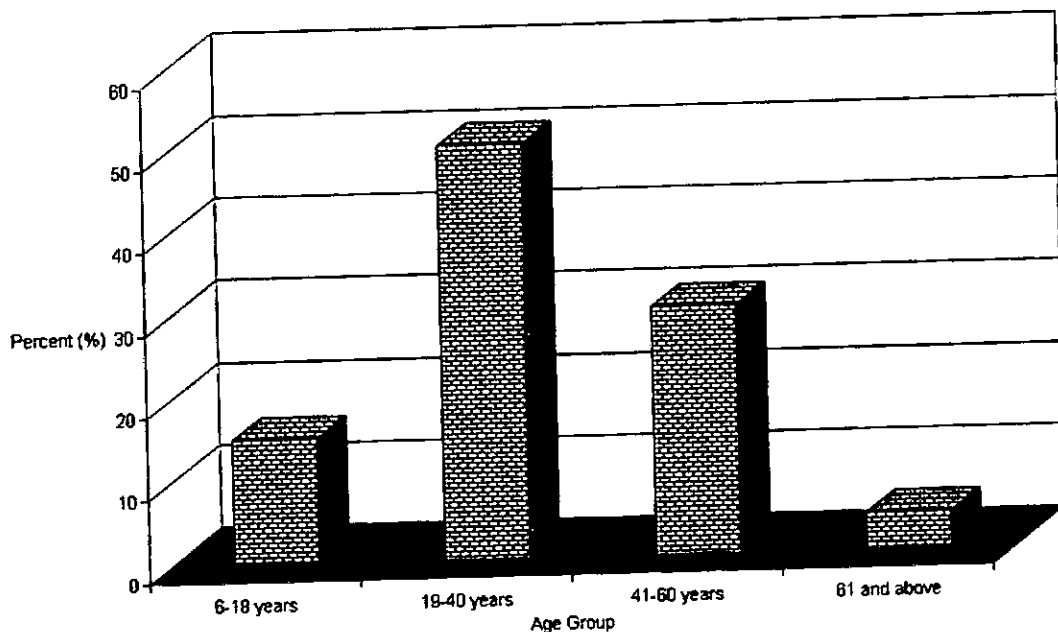


Fig 4.4: Graph showing Age classification of Okada users

Source: Fieldwork 2005

From figure 4.4 above, it is obvious that the majority of the users of Okada are people within 19-40 years age grade, which are 50.4% of the total interviewed. This is followed by people within 41-60 years who are about 30.1%. Commuters within 6-18 years and those above 16 years of age form a lower percentage of 15.2% and 4.4% respectively. This may mean that the most active members of the society who are involved in one work or the other patronize Okada more than the young and very old people in metropolitan Lagos.

4.7.3 Marital status

The marital status of the users shows that 62% are single while about 38% are married. This may be because married people are likely to be more careful than singles that mostly do not have much at stake hence can afford to take risk.

4.7.4 Educational Status of Okada Users

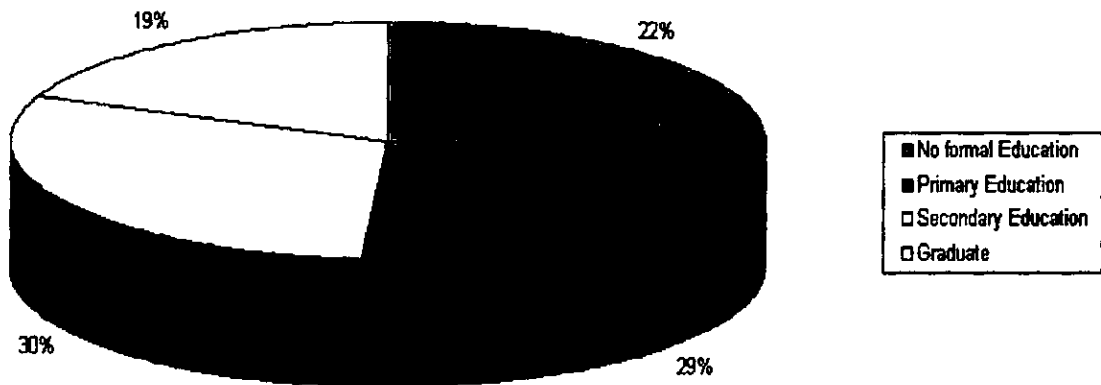


Figure 4.5: Educational Status of Okada Users

Source: Fieldwork 2005

From figure 4.5 above, it is obvious that graduates form the lowest percentage of Okada users, which is about 19.5% of total interviewed. People with secondary education which is 30% of total interviewed mostly use it. People with primary education constitute 28.8% followed by those with no formal education (22.2%).

4.7.5 Occupational Status

Okada is mostly used by people involved in Trading/Business (37.3%), followed by Civil Servants (23.5%) as shown in the occupational status of users Table 4.12

Table 4.12: The Occupational Status of Okada Users in Metropolitan Lagos

Serial Nos.	Users	Percentage
1)	Civil Servants	23.5%
2)	Trading/Business	37.3%
3)	Retired person	10%
4)	Unemployed	11.2%

Source: Fieldwork 2005.

4.7.6 Income

The income analysis of Okada users reveals that the middle and low-income earners use Okada more than the high-income earners. They are about 92.5% of the total interviewed while the high-income earners that patronize Okada were less than 8% of the total interviewed.

4.7.7 Type of Trips

In terms of the type of trip Okada is being used for, about 54.2% of the total interviewed said they use Okada for work/business trips while those who use it for school trips form 25% and that of social or recreation trip is less than 20% as shown in figure 4.6

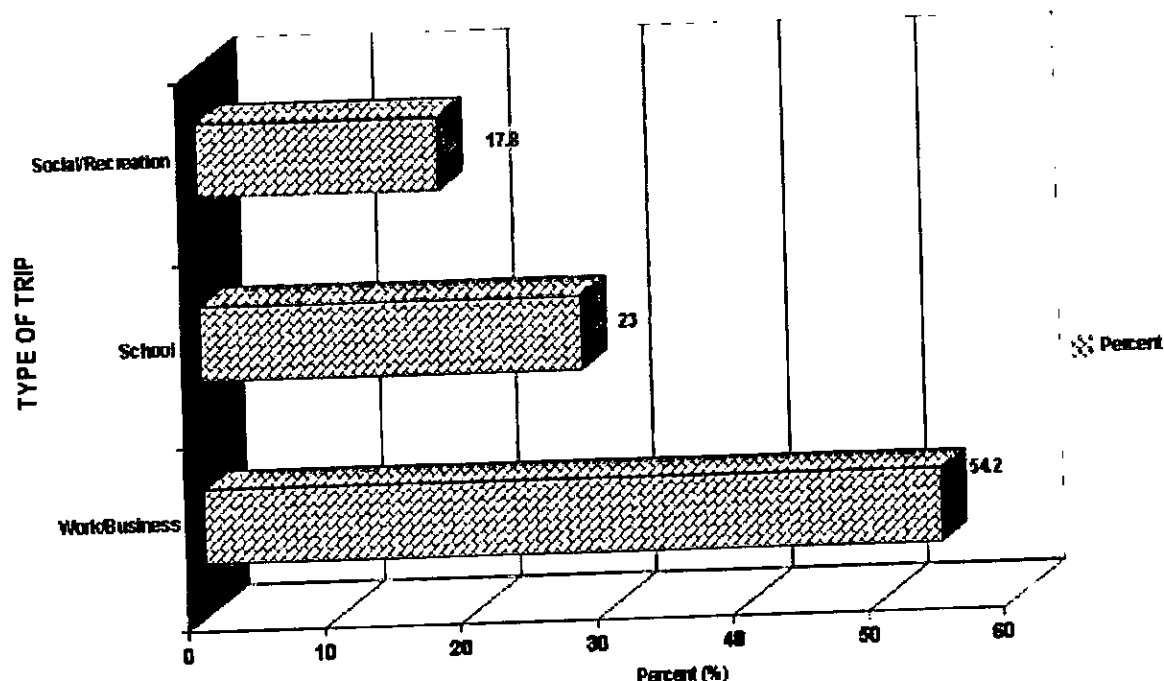


Figure 4.6: Type of Trip Okada is used for

Source: Fieldwork 2005

4.7.8 Frequency of Use

The result of how often Okada is patronized by users shows that about 35% use it once in a day while those who use it at least 2 times form 40%. Even during the raining season, about 68% of the total interviewed still use Okada as compared to over 90% who use Okada during the dry season.

4.7.9 Involvement in Accident

About 20% of the respondents have been involved in one form of accident or the other on Okada but despite this, they still patronize it.

4.7.10 Reason for Patronising Okada

The reasons given for the use of Okada are because it is fast, convenient and readily available. Consequently users believe that Okada has advantages over the use of buses and other means of public transport in metropolitan Lagos.

4.7.11 Support for Use

62% of the respondents supported the use of Okada for commercial purpose but 80% suggested that their routes should be limited to the service routes and rural roads.

4.7.12 Suggestions by Users

The suggestions of the users for the improvement of Okada operation include repair of roads, adequate training of operators and full recognition of its usefulness by the government.

CHAPTER FIVE

IMPLICATIONS OF TWO-WHEELED TRANSPORT IN METROPOLITAN LAGOS

5.1 Significance of Two-Wheeled Commercial Transport in Metropolitan Lagos

From the previous chapters, it is obvious that the important role of motorcycle (Okada) in public transport provision in metropolitan Lagos is enormous and cannot be over-emphasized. An attempt is made in this chapter to really access the implications (both positive and negative) on public transport and the society at large.

5.1.1 Modal Access to Bus Stops

As earlier stated, Okada is mainly used in pre-journey and after-journey trips between homes and bus stops. It is the second major means of providing this service after walking which was mainly in use before the emergence of Okada as a means of public transport. Table 5.1 explains the scenario.

Table 5.1: Modal Access to Bus Stops in Metropolitan Lagos

Modal Access	Passenger	%
Walk	864	54%
Motorcycle	512	32%
Bus	156	9.75%
Others (Taxi, ferry, train etc.)	68	4.25%
Total	1600	100

Source: Fieldwork Analysis 2005.

This survey identifies three main forms of access to and from bus stops within metropolitan Lagos. The fourth type was classified as others that involve access by train, ferry and taxi. It was observed that walking is the major form of access. This was the mode used by 1728 passengers which is 54% of the total interviewed, followed by motorcycle (Okada) with 1024 passengers i.e. 32%. That of bus was 312 (9.75%) and other means was 136 (4.25%).

The use of these modal accesses varies from one local government to the other. However, walking to bus stops is predominant in all the local government areas but the use of Okada is more pronounced in more densely populated places like Agege, Oshodi/Isolo, Somolu, Mushin, Alimosho, Ifako/Ijaye, Ajeromi Ifelodun etc. The use of taxis or cars is predominant in a place like Eti-Osa Local Government Area. It should also be noted that most people do not use this means to access bus stops only but for the entirety of their journey. Those who use train are in areas that fall within the main railway corridors like Ifako/Ijaye, Mainland, Oshodi/Isolo etc. While the use of ferry is common in places like Lagos Island, Eti-osa, Ojo, etc where there are jetties from where these ferries take off.

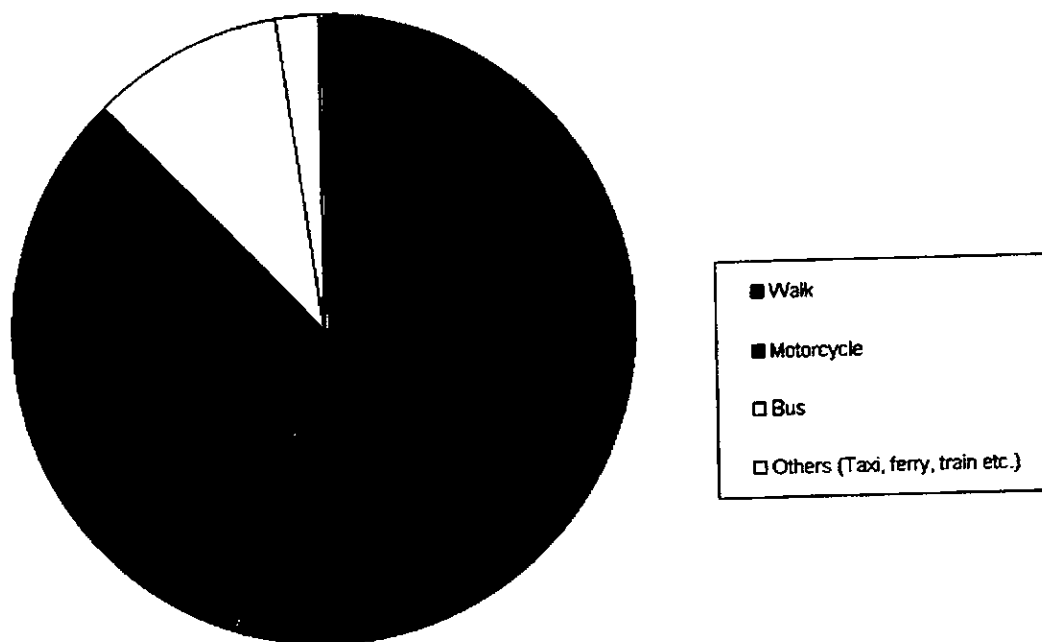


Figure 5.1: Modal Access to Bustops

Source: Fieldwork 2005

5.1.2 Average Number of Passengers Carried Per Day

A major significance of Okada operation is in the number of passengers carried per day at the different local government areas in the study area. This is analysed in table 5.2.

Table 5.2: Average Number of passenger Carried per day per Local Government Area

LGA	Mean	Average Daily Trip per Okada	Average Daily Passenger Per LGA		
				Lower Bound	Upper Bound
Mainland	830.2	36.5	30302.2	23415.11	37189.48
Oshodi	1165.2	48	55929.6	40042.56	71816.64
Eti-Osa	373.6	30	11208	7080.3	15335.7
Amuwo-Odofin	762.8	38.6	29444.08	22726.908	36161.242
Ikeja	1108.4	31.5	34914.6	23545.62	46283.58
Ajeromi Ifelodun	1546.2	42	64940.4	57480.36	72400.44
Surulere	996.2	30	29886	18161.4	41610.6
Somolu	1482.2	36	53359.2	40367.88	66350.52
Mushin	1184.4	45.5	53890.2	22579.375	85201.025
Kosofe	582	33	19206	17672.82	20739.18
Ojo	1534.4	39	59841.6	57907.98	61775.33
Apapa	1155.8	37.5	43342.5	4143.5	45247.5
Lagos Island	931.8	27.5	25624.5	19771.8	31477.05
Agege	550.8	41.6	22913.28	16097.12	29729.44
Ifako-Ijaye	889.4	35	31129	17725.75	44532.25
Alimoso	1554	42	65268	48124.86	82411.14
Average Total	15817.2	37.1	586810.7	410239.833	721910.597

Source: Fieldwork Analysis 2005

Table 5.2 shows that an average total of Five Hundred and Eighty Six Thousand, Eight Hundred and Ten (586,810) passengers are carried per day in the areas where the survey was carried out hence, Commercial Motorcycles will probably be carrying over 1million passengers per day if the whole of metropolitan Lagos is surveyed. This also varies from one local government area to the other. It is lowest in Eti-Osa (11,208). Alimoso has the highest (65,268) followed by Ajeromi Ifelodun (64,940.4). This is probably because there are more routes which are not served by buses in these local government areas. The mobility problems in metropolitan Lagos would have definitely been more chaotic without commercial motorcycles.

The large volume of passengers transported on daily basis is also evident with the number of motorcycles and activities at the various major Okada terminals and casual look at them at major junctions within metropolitan Lagos. This is evident in plates 5.1 and 5.2.

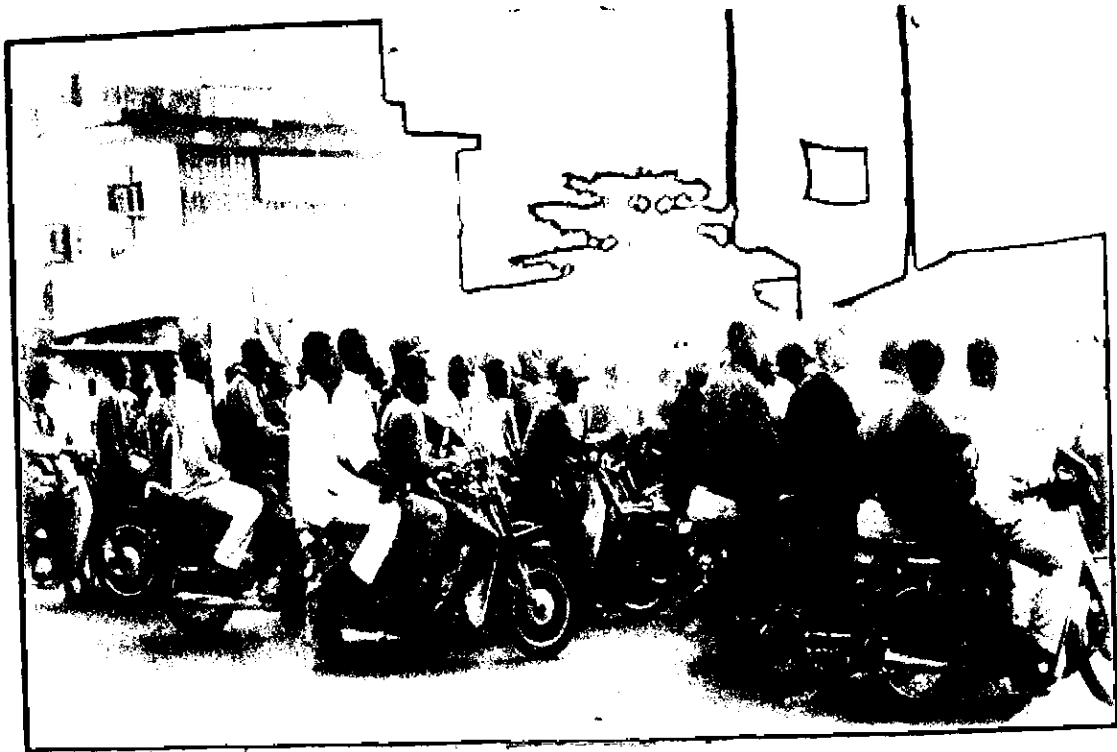


Plate 5.1: Mass movement of people on Okada



Plate 5.2: A typical Okada terminal

5.1.3 Reasons for Choosing Okada for Public Transport

Furthermore, the use of Okada is very significant to some users who feel it is easily accessible and faster than motor vehicles. This however depends on the trip purpose. For instance in Ikeja area, some respondents claimed to use Okada because of its fastness and ability to meander through traffic to their destinations. This is particularly important for those hurrying to meet appointments. Infact some have even alighted from private cars or hired taxis to join Okada in order to catch up with their scheduled flights at the Airport. This is within Ikeja Local Government. In a Local Government Area like Eti-Osa, people corporately dressed sometimes join Okada to get to important meetings when there are traffic hold-ups that can keep them on the same spot for at times more than 2 hours.

In addition, motorcycles are more flexible than vehicles hence they can penetrate some areas that are not accessible to commercial vehicles. Areas like these are places that four-wheeled vehicles cannot get to either due to very poor condition of the roads or where they have not been properly opened up.

5.1.4. Source of Income

Furthermore, Okada operation is economically significant to the operators. About 65.3% of the total interviewed use Okada operation as their major and only source of income i.e. they operate on full time basis while about 27.7% still operate part time. Even some people buy and hire them out to operators either as a major source of income or additional to whatever job they do. In terms of revenue accruing to the operators/owners on monthly basis, table 5.3 provides relevant information on this.

Table 5.3: Analysis of Okada as a major source of Income Generation

Average Cost of Maintenance (monthly)	Average Monthly Expenditure on fuel	Average monthly Return	Average monthly Delivery to owner	Average monthly Income Operators
₦2,315	₦13,125	₦37,875	₦15,375	₦22,500

Source: Fieldwork 2005.

Table 5.3 shows that on monthly basis, an average income of ₦15,375 accrue to the owner while that of the cyclists is ₦22,500. Bearing in mind that the minimum wage of a federal civil servant is ₦7,500 hence, Okada operation is a good source of income to both the owners and the operators. A graduate at the federal civil service earns about ₦21,000 while it is about ₦17,000 in Lagos state. Hence an average Okada rider earns more than a graduate at either the Lagos State or Federal Public Service. In Okada business, an average investor will break even within Six months of investing in it. Some co-operative societies and banks now give loans to individuals interested in investing in the business.

5.1.5 Employment Generation

With the average number of motorcycles counted at the various survey points, personnel records from motorcycle assembly plants like Boulus and Honda; Dealers of imported motorcycles like Jincheng, Symbal, Lifan, etc and "Tokunbo" as well as information from ACOMORAN and MOALS, it is obvious that it is a major source of employment to people. For instance, in the 16 local governments visited, a total average of 15817.2 motorcycles were in operation, however the total registered at the Federal Road Safety (Lagos State Command) was 135,275 between 2000-2005 alone while the records of ACOMORAN and MOALS shows a membership strength of over 90,000. Consequently, Okada operation would have actively employed well over 70,000 people as cyclists, mechanics, factory

workers/staff, clerks, etc. This figure is far higher than the total workforce of the entire Lagos State Civil Service which is about 48,000. It is also almost half of the entire Federal Public Service with about 160,000 workforce. It is therefore a way of eradicating poverty which is a major challenge to government at both national and local level.

5.2 Assessment of Two-Wheeled Commercial Transport in Meeting Commuters' Needs in Metropolitan Lagos

In assessing the extent of which Okada operation meets commuters' need in metropolitan Lagos, the four elements of journey suggested by Adden-Brooke (1981) were applied. These elements include:

- (a) Access time at point of origin
- (b) Waiting time
- (c) Travelling time
- (d) Access time at point of destination

5.2.1 Access Time at Point Of Origin

People embark on journeys for various reasons. The journey must however have an origin, which can be from home, from work, from play/recreation etc. The time a commuter spends in moving or walking from the point of origin of the expected journey to the bus stop or the boarding point is referred to as Access Time at Point of Origin. In measuring this access time, it can be done in terms of physical distance (i.e. metres or kilometres) as well as hours or minutes because access time is expected to be the time it takes to cover the short distance from point of origin to the bus stop. In metropolitan Lagos, it has earlier been stated that walking

dominates the pre-journey and after-journey trips with 54% of the total interviewed while that of Okada is 32% and other means is about 14%.

This access time now depends on the location of houses to bus stops but it is obvious that the journeys are faster with Okada than walking. For instance a pre-journey distance of 400 metres is usually covered with Okada in less than 2 minutes whereas it takes up to 10 minutes while walking hence Okada can be said to be more efficient in meeting commuters' needs in terms of access time.

5.2.2 Waiting Time

Waiting Time refers to the duration of time a commuter needs to wait at a designated bus stop before boarding a bus/Okada. According to Fourare (1978) waiting time is one of the major ordeals generally faced by public transport passengers. Waiting Time also includes interchange time where more than one vehicle is involved. It depends on frequency and reliability of the service. The wider the frequency and the more unreliable the service, the greater is the waiting time. The Transport and Road Research Laboratory (TRRL) 1980 indicated that passengers value waiting time more highly than the riding time. Since physical movement by the bus commuter is not involved at this stage, the waiting Time is measured in minutes depending on how long the passenger waits at the bus stop.

In metropolitan Lagos two types of waiting time were identified. Firstly is the single waiting time, which refers to the time a passenger waits at a bus stop before boarding a bus/motorcycle. This is the most common as regards Okada operation in all the Local government areas visited. The second one is multiple waiting times, which involves the passenger breaking the journey in order to take another bus/Okada before getting to the final destination. This is however not very

common with the operation of Okada in metropolitan Lagos as it is not mostly used for long distance journeys unless on very few occasions in which case the Okada operator may not be willing to cross from their zone/local government to another one where they will be asked to pay another union dues and where they may not be too familiar with the terrain as well as the law enforcement agents and touts.

The waiting time for Okada passengers is more or less zero because these motorcycles are readily available at the various designated bus stops. The only areas where waiting time are recorded are in front of passengers' houses where they have to wait for cyclists to drop passengers or those without passengers to come before they can board. Even at this, it is usually less than 2 minutes. This scenario is however applicable to the densely populated areas like Mushin, Oshodi Isolo, Surulere, Somolu etc. Whereas in certain remote areas of some local governments like Ifako/Ijaye, Alimoso, Ojo etc. where some cyclists carry more than 1 passenger, they may have to wait until their passengers are complete before they move. This also takes less than 2 minutes in most times at the bus stops. However, if it is from their houses to the bus stops, waiting time is usually less than 5 minutes at the remotest areas.

From whatever angle it is observed, the waiting time for motorcycle is still all right as compared to that for buses which is an average of 15.9 minutes in metropolitan Lagos while the range for Okada is between 0-4.8 minutes. Consequently in terms of waiting time, Okada can be said to be efficient in meeting commuters' needs.

5.2.3 Traveling Time

Traveling Time refers to the actual time spent in a vehicle/Okada by the passenger before getting to his/her destination. This is usually measured in minutes and it depends on the destination. As regards motorcycles, the travelling time is usually short (less than ten minutes in most cases) since they mostly embark on short distance journeys (usually less than one Kilometre) in metropolitans Lagos. Even when they embark on long distance journey where there is congestion or traffic hold-up, they have the ability to meander through traffic and get to their destination on time. Also, since they don't have to be stopping and packing or competing for passengers, the travelling time is usually very small. This however varies from one local government to the other as time spent depends on the type and condition of motorcycles, the condition of the roads as well as the number of passengers carried. The travelling time of passengers in the rural areas like Ayobo in Alimosho local government and Agbelekale in Ifako- Ijaye where the roads are bad and they carry more than one passengers are higher than those of Pako Bus Stop, (Somolu), Sabo (Mainland) and Eko Hotel Roundabout (Eti-Osa) where the motorcycles are good and the roads are also good.

5.2.4 Access Time at Point of Destination

The time spent from bus stop to the final destination of a journey is referred to as Access Time at The Point of Destination. This is usually measured in minutes or physical distance. This is the after-journey trip to which Okada serves as a major means of meeting. If a journey is to be completed with Okada after alighting from buses, the access time to final destination is usually small since it is of short distance. If the journey was done mainly with motorcycles the access time is

usually zero since Okada renders "door to door" service hence the passengers would just alight at the final destination and walk into their houses.

The total of the above four gives the overall journey time by motorcycles. Above assessment could further be illustrated thus:

Table 5.4: Elements of Journey by Public Transport

Origin of Journey	Access Time	Waiting Time	Journey Time	Alighting Point	Access Time	Destination Point
		Bus Stop	Vehicle (Okada)	Bus Stop		Home, Work, Play, Recreation, etc

5.2.5 Space Economy

On the environment, there is optimal space economy. Either ridden or stationary, the amount of space occupied by motorcycle is very small compared to cars and buses. To a large extent, this has contributed to its flexibility and fastness. Hence higher and better satisfaction is derived on the use of space which is maximized.

It should however be noted that despite all the potentials inherent in the commercialization of Okada, it may not be ideal in a sound economy. But in metropolitan Lagos, it has served as a stop gap in alleviating the general mobility crisis, hence adequate measures should be taken to regulate its operation.

From the above it is obvious that Okada is very important in meeting the needs of commuters especially in the type of trips they are mainly known for i.e. pre-journey and after-journey trips hence their services can be said to be efficient. However, this is not to conclude that they are not without any attendant problems. Such problems have been of concern to both the government and the commuters as discussed in the following section.

5.3 Problems of Two-Wheeled Transport in Metropolitan Lagos

Despite the enormous contribution of commercial motorcycling to public transport provision especially in meeting pre-journey and after-journey trips in metropolitan Lagos, daunting challenges associated with its operation are very obvious. This has, to a large extent, affected their quality of service and consequently led to the call for their total ban from some quarters.

5.3.1. Lack of Dedicated Infrastructures

For instance, the cyclists usually share and compete for the carriageways with other vehicles hence they see car owners and motor vehicle drivers as a great threat to their lives. The lack of cycle ways resulting from the fact that motorcycles were never planned for as a means of commercial transport makes it necessary for them to struggle for space with motorists as well as pedestrians in some cases. The way they crisis-cross and meander through both human and vehicular traffic has led to a lot of congestion as well as accidents thereby raising a lot of questions as regards the safety of commercial motorcycling.

5.3.2 High Accident Rate

An area of major concern is the high rate of accidents involving motorcycles in metropolitan Lagos and in which serious damages are inflicted on both the operators and the users. In most of the hospitals in metropolitan Lagos, people involved in Okada accidents are brought in daily. In fact a ward called "Okada ward" has been specially reserved for Okada accident victims at Igbobi Orthopedic Hospital. The data in table 5.5 reveals the rate of accident for various vehicular modes in metropolitan Lagos between 1995 and 2005.

Table 5.5: Accident rate by Vehicle Type in Metropolitan Lagos

Vehicle Type	Years		
	1991-95	1996-2000	2001-2005
Taxi Cab	1399	953	1186
Private Cars	11369	8936	12303
Bus/Mini	6636	7275	9545
Motorcycle	1542	3353	5189
Pedal Cycle	102	23	174

Source: Federal Road Safety Commission (2006)

From the above, it is obvious that after private cars and buses, with 39.1% and 31% respectively, the next type of vehicle with high accident rate is motorcycle with 12.9%. This is very high considering the number of passengers that motorcycles are supposed to carry i.e. 2 passengers inclusive of the cyclists as compared to cars which are supposed to be 5 and buses between 14-28 passengers depending on the type of bus(es) being considered. Also in considering the fatality rate of these accidents, Okada is seen to have the highest rate because of its configuration, which exposes the riders to high risk of being injured than other vehicles.

A lot of reasons have been adduced as the causes of the high accident rate of Okada in metropolitan Lagos. These include lack of training of the riders who do not undergo any special training before embarking on the trade but just pick it up as soon as they have access to a motorcycle. Also, the operators flagrantly disobey basic traffic rules and regulations like carrying more than one passenger, "beating" traffic lights/wardens, dangerous riding in slow moving traffic and ignorance of basic highway/traffic codes because of their level of education.

In addition, wrong positioning of cyclists on the highway has always been a major cause of accident. Most of the riders do not have control of the road space while in heavy traffic. They also do not take the correct positions to see and be seen, do not signal clearly to allow enough time for motorists to read and they find it difficult to accurately judge the speed of other vehicles thereby leading to accidents.

Other causes of accidents include poor sight, riding under the influence of alcohol, use of rickety motorcycles and show-off on the part of the riders. All these have led to serious accidents leading to permanent damage to the body and even death in some cases.

5.3.3 Congestion

Another major problem of two-wheeled transport in metropolitan Lagos is lack of designated parking space. They convert any available space at bus stops or major junctions as their parking lot thereby leading to congestion at these parks. Even on the highways, the way they mingle with traffic and meander through them has brought both vehicular and pedestrian traffic to a "standstill" in some cases.

5.3.4 Pollution

Furthermore, in terms of pollution, the amount of pollutant emitted in terms of carbon dioxide, noise from the engines of these motorcycles, music, as well as blaring of horns by the cyclists to scare both motorists and pedestrians to a large extent contributes to the level of pollution in metropolitan Lagos. Table 5.6 shows the comparison of noise pollution in areas with motorcycle and areas without or low patronage of motorcycles within about 200m in the same neighborhood.

Table 5.6: Measurement of Noise Pollution

Location	High no of Motorcycles	Without/Low no of Motorcycles
Agege Bus stop	87-99db	68-75db
Oshodi	92-102db	72-90db
Yaba	78-96db	62-70db
Iyana Ipaja	89-95db	77-85db
Ikeja	81-92db	65-78db
Jibowu	86-94db	62-68db
Maryland	80-93db	60-64db

Source: Fieldwork, 2005

Above shows that the level of noise in all the survey points with high number of motorcycles is higher than other areas with lower number of motorcycles within a radius of 200 metres. However, the level of pollution varies from one location to the other. It should however be noted that Okada is not the only source of pollution (either noise or air) but they contribute to it in a large extent.

5.3.5 No Clear-cut Government Policy

Another major problem of two-wheeled transport is the fact that there is no clear-cut government policy and requisite institutional framework on commercial motorcycles' adaptability, upsurge and usage in metropolitan Lagos. The only area that government has come out to issue a policy statement or policy guidelines is in the area of the edict on the wearing of crash helmets and insurance policy. It is however, pertinent to state that the edict was enforced for only a few months when the state government started the issuance of crash helmets to the cyclists. It has gone the way of other government policies that usually goes with the government that initiated them. Even the law enforcement agents that are supposed to

implement them will only ask for "settlement" while allowing the cyclist to operate with flagrant disobedience of the edict.

Other problems of Okada operation in metropolitan Lagos include their exposure to bad weather (either too cold or too hot), bad roads, and poor attitude of motorists to them etc all of which have negative effects on their performance.

CHAPTER SIX

PLANNING AND POLICY ISSUES

6.1 Government Policy, Guidelines and Planning Issues on Two-Wheeled Commercial Transport

Despite the relevance and importance of Two-Wheeled Transport to commercial transport in Nigeria as a whole, and metropolitan Lagos in particular, it is surprising to observe that there is no major policy statement on its usage or adaptability in the general urban transport system of Nigeria.

The only area where government policy has affected motorcycle usage is in the importation of completely knocked down parts for assemblage in Nigeria and the importation of used motorcycles popularly referred to as "Tokunboh". This initially affected the purchase of new motorcycles. The kind of government policy that allows manufacturers to import only completely knocked down parts which they assemble here has made the final cost of production to be too high for commercial motorcycle operators to afford hence they prefer the "Tokunboh" brand that is cheaper.

The scenario in the late 80s to early 90s was a situation where the price of a brand new motorcycle of any brand (Honda, Suzuki, Yamaha, Kawasaki, etc.) was an average of about N120, 000 while a "Tokunboh" brand was about N60, 000 on the average. Consequently, it was only the government ministries and multi-national corporations that could afford new motorcycles. With this type of situation, the local manufacturers contended that their major headache was the economic policy

of government which did not favour them hence they were all performing at a very low capacity. They therefore embarked on various campaigns to discourage the use of 'Tokumboh' motorcycles and encourage people to patronise new ones, which they sell.

The campaign has paid off. New motorcycles are now being imported from Asian countries thereby reducing the cost to between N60,000 and N70,000 depending on the brand. This has however raised a lot of questions on the quality of motorcycles being used, which affect the safety level, as well as the durability of the motorcycles.

In addition, observations and the results of questionnaires administered for this study show that motorcycling in general is not even receiving secondary consideration to motor traffic. All the special needs of cyclists have been neglected and nobody or government department has really felt concerned about this aspect of commercial transport.

In metropolitan Lagos, the situation remains the same in that the operation of Okada on commercial basis has not been thoroughly assessed despite the enormous attention being accorded the general public transport by successive governments in the state. The basic infrastructures needed to enhance their operation are not provided hence they now create very serious problems in the general traffic and safety situation of the state.

Until 1994, there was no written guideline on the operation of motorcycle on commercial basis, the existing laws then were just on the private use of motorcycle. However, due to the upsurge in the commercialisation of motorcycle, the Lagos State government came up with an edict (Appendix V). This has been

the only official pronouncement/policy of the Lagos State government to formally endorse and regulate the use of motorcycle on commercial basis. The then commissioner for public transport Dr. Olusegun Ogundimu made it known that government's endorsement of the mode as a means of public transport was to solve part of transport problems in Lagos. He added that the economic recession in the country had made it difficult to maintain the old vehicles used for public transport while new ones could not be acquired. The effectiveness and relevance of this edict is however to be questioned notwithstanding the awareness it created when it was first promulgated that it eventually led to an increase in the commercialisation of Okada.

Under section 36A (1) of the edict, it was clearly stated that the wearing of protective helmet is mandatory for both the rider and passenger. The helmets are to be provided by the owner. This is to protect head injury which Okada riders are more susceptible to in case of accident as it has led to a lot of deaths. At inception, cyclist complained of high cost of the crash helmet, which was between N700 to N2, 000 depending on the quality. The plastic ones with little protection inside were sold for N700. While those made of fiberglass and well padded inside with goggles or screens attached to them to protect the eyes were sold for as high as N2,000.

This made the state government to import crash helmets in very large quantity, which they gave out at cheaper rates. The helmets were issued during the registration of the motorcycles. When the stock of the state government was exhausted, the cyclists had to rely on the supply from private businessmen.

Apart from the cost, they also complained of its impeding their hearing such that they could not hear the sound/horn of vehicles coming behind them while some complained that it is too heavy and it gives them headache. Also most owners want to push the responsibility of providing the crash helmet to their cyclists despite the fact that they still want their complete "daily delivery".

On the part of the passengers, most of them opined that sharing of crash helmet with other passengers is highly unhygienic, as they believe that diseases can easily be transferred in this way. Some few female passengers also complained of it making their hairdo untidy hence they are not interested in wearing it. Due to the above problems, most of the operators do not have protection helmets. Even when they have, they hang it on their motorcycles as if it is for fashion show. When they wear it they do not fasten the belt to make it firm on their heads and in case of accidents, the helmet will be the first to fly off hence it is as good as not wearing it. Majority of those who have it do not provide for their passengers.

On Insurance Cover i.e. section 36A (3), it was stated that nobody should operate or patronise motorcycles unless it has been insured. In the data gathered from this study some of the cyclists were not insured. Those insured were only on 3rd party insurance just to show the law enforcement agents in case they are asked. The data shows that 60% have third party Insurance while 35% have no Insurance cover at all and only less than 2% are comprehensively covered.

Most of them do not even know the importance of insurance hence they believe it is not important to them.

In addition to this, is the issue of Offences and Penalties under section 36A (4) of the edict. Here, those who contravene any of the regulations will be charged, if

found guilty are liable on conviction to fines or a jail term. For instance contravening any of the regulations attracts a fine of N500 or 3 months imprisonment while on second conviction, offender will pay a fine of N1, 000 or six months imprisonment. The fine (N500-1000) in lieu of imprisonment terms is very low that offenders can easily pay. For this particular provision to be effective therefore, the amount to be paid as fine should be increased that an average operator paying it would really feel the effect on their savings.

The edict appears very good but it is more or less no longer operational as both operators and users flagrantly disobey the regulations without being arrested by the law enforcement agents. It was when it was first promulgated that it was effective. It has almost gone with the government that enacted it. Even when it was in force a few token of bribe got the offenders off the hook of the law enforcement agents.

Other regulations published in the Punch Newspaper of Monday, October 16, 2006 which riders are expected to comply with include:

- The use of crash Helmet by Riders and Passengers;
- not to ride motorcycle on prohibited roads;
- not to ride against the flow of traffic (ONE WAY);
- not to ride unregistered motorcycles;
- not to affix any horn other than that of a motorcycle;
- not to affix musical gadgets;
- not to carry more than one passenger at a time;

- not to disobey traffic light or personnel; and
- to obey traffic rules and regulations.

All these are however being flouted without any penalty.

In addition, with the apparent use of commercial motorcycles for armed robbery and other heinous crimes in the state, its usage after 7:00pm was prohibited in the notice published in The Punch of Monday, October 16, 2006. This has now been extended to 10:00pm.

Despite the above, government has not really acknowledged and state the right position of motorcycle as a means of public transport in metropolitan Lagos. Only the safety and not the convenience of its provision have been addressed. Issues yet to be addressed include:

- infrastructural provision;
- identification and limitation of route plied;
- level of training for riders;
- condition of motorcycles; and
- issuance of riders' license and criteria/guidelines for operating motorcycles for commercial purpose.

All these still constitute major and daunting challenges in the operation of Okada for commercial purpose in metropolitan Lagos. They should therefore be addressed before it could be said that government has really recognized Okada provision and operation for commercial purpose. More importantly, the enormous

potentials inherent in the use of two-wheeled transport should be thoroughly examined for government to take a firm decision in policy formulation and implementation.

A concerted effort is therefore required from the three tiers of government to develop concrete guidelines and framework on the use of two-wheeled transport for commercial purpose. This will assist in terms of planning and infrastructural development preparatory to its integration into the total transport planning and management in metropolitan Lagos.

6.2 Potentials of Two-Wheeled Transport as a Complimentary Mode of Urban Public Transport Provision in Metropolitan Lagos

It is obvious that the place of two-wheeled public transport provision in metropolitan Lagos is more of a complimentary than competitive role. This manifests in the fact that the pre-journey and after journey trips not covered by buses are where the strength of a motorcycle lies. This offer of door-to door service is a major reason for the use of Okada by passengers. Consequently, a mode that is really important in completing journeys and with rising profile that is seen to be contributing immensely to the general public transport provision cannot and should not be neglected by the government. However, an effective government policy on this should be based on a thorough analysis of the basic potentials inherent in the use of the mode as means of public transport.

As earlier stated in this study, from data gathered and other empirical studies, the advent of two-wheeled transport for commercial purpose was a result of depression experienced in the Nigerian economy. Buses used for public transport

could not be replaced due to high cost, private car owners could not replace them with new ones and prices of spare parts were becoming too high and unaffordable. Consequently, a functional and practical alternative was discovered in the use of motorcycles to complement the services of the other means.

This is obvious in the cost of acquiring motorcycles, which is far less than that of cars/buses. With about ₦60,000, a brand new motorcycle could be purchased while that of a 'Tokunboh' car or bus is between ₦500- ₦800,000. Also the average maintenance cost for a motorcycle is about ₦2,127 per month which is still affordable by the owners/operators. Consequently, the use of motorcycle for commercial purpose could be said to be a more functional and practical approach used in arresting the crisis in the public transport sector in metropolitan Lagos.

Another potential in the commercialization of two-wheeled transport is its provision of employment for the operators. From the analysis of the data collected for this study, it was discovered that 65.3% of the operators interviewed use Okada as their major source of income. From available figure of total vehicles registered, over 135,000 motorcycles were registered between 2000 and 2005 alone and over 70,000 people have been gainfully employed (directly as operators or indirectly as factory workers at assembly plants, mechanics, vulcanizers, spare part dealers as well as clerks and/or other staff in union offices) through the commercialization of Okada.

Moreover, the management, supervision and control of commercial motorcycle is easier when compared to other means of public transport like cars and buses. This is because not too many people are involved which may be between only the owner and the operator and only one person may be involved in the case of an

owner-operator. Decisions can be taken easily on issues and there is better understanding between the parties involved.

Also, two-wheeled transport has the advantage of avoiding hold-up, bottlenecks and traffic congestion. Observation shows that people use Okada because it can meander through traffic and get passengers to their destinations on time. Hence, Okada is said to be very fast and convenient when people are in a hurry.

In addition, Okada renders personalized services to the users since ideally only one person is supposed to be carried per trip and their privacy is guaranteed. Hence it offers the passenger better convenience and comfort.

Also, the waiting time before boarding an Okada is very low. In most places during the course of this study, the waiting time is less than one minute because the service of the cyclists is easily accessible, regular and readily available.

In addition, the level of fuel consumption is relatively low consequently, the level of pollutants emitted from the exhaust is lower than that from cars and buses. Consequently, the contribution of two-wheeled transport to environmental pollution is minimal and hence ideal for public transport.

It should however be noted that despite all the potentials inherent in the commercialization of Okada, it is not ideal in a sound economy. But in a depressed economy like metropolitan Lagos it has served as a stop gap in alleviating the general mobility crisis, hence adequate measures should be taken to regulate its operation since it cannot yet be eradicated from our general public transport provision.

6.3 Future of Public Transport Provision and the Place of Two-Wheeled Transport in Metropolitan Lagos

The importance of mobility in any society cannot be over-emphasized. It is the life wire of an urban environment like metropolitan Lagos. It is being met through motorised (motorcycle, taxi, private cars, public transport buses and trucks) and non- motorised (foot and bicycle) modes of transport. About 95% of the mobility needs in metropolitan Lagos is being met by road transport, which is mainly dominated by the private sector providers. This is despite the fact that there are abundant potentials in the waterways and the railways that are waiting to be tapped. This neglect of other modes and inadequate planning and coordination of road transport has led to a lot of problems that has made mobility a nightmare in an urban centre like metropolitan Lagos with rapid population growth.

6.3.1 Issues of Urbanisation

The population of metropolitan Lagos has grown from less than Two Million in 1976, through Four Million in 1984 to an estimated over Seven Million in 2000 and over Nine Million in the 2006 population census figure. Reflecting the concomitant aerial expansion and sprawling of the city, the peak urban commuting distance has grown from 20km in the 1980s to over 35km in 1995 and more by 2000. This population growth in metropolitan Lagos far exceeds any other urban centre in Nigeria, such that the traffic in Lagos is characterised by heavy traffic congestion, pollution, accident, breakdown of transport infrastructures and other negatives.

The existing situation of public transport provision in metropolitan Lagos depicts that of a depressed economy where acquisition of vehicles for public transport is

difficult and car owners are finding it difficult to maintain and replace their old cars. Consequently the number of cars and buses are decreasing whereas the population is increasing thereby leading to the initial upsurge in the use of Okada for commercial transport in the mid 90s.

In addition, the mobility problem has to large extent retarded industrialization and hampered its level of development. When goods and services cannot be accessed as at when due the industries cannot expand unless only in the area they are already saturated. Effective transportation is one of the key factors in establishing industries, where this is not available; industrialists will be discouraged and consequently prefer the sitting of their firms in other areas where mobility is easier. This will also create inaccessibility to employment opportunities for the ever-increasing population of job seekers.

Furthermore, due to congestion and pollution caused by poor traffic situation there is a lot of deterioration in the health of people in metropolitan Lagos. This accounts for the high rate of stress and hypertension and a resultant high death rate in metropolitan Lagos. The aforementioned situation status of urban transport in metropolitan Lagos can be summarized as follows:

- i. Acute shortage of Public and Transport supplies relative to transport and traffic demand.
- ii. Poor Road Infrastructural facilities
- iii. Usage of Over-crowded and unsafe vehicles for Public Transport.
- iv. Road congestion and Environmental Pollution together with lack of any serious and effective Traffic Management System.

- v. Unexploited use of Urban Rail and water services and absence of modal integration.
- vi. Increased immobility of urban poor in the face of escalating public transport fare.
- vii. Absence of any coordinated and institutional framework for Urban Transport Policy Actions.

The only saving grace for the above scenario is:

- (a) imported but very old minibuses and cars from Western Europe and subsequent conversion to Para-transit.
- (b) widespread use of motorcycles for unconventional transit service.

The question at hand now is “what is the way forward and the place of two-wheeled transport in the expected arrangement”?

In order to achieve a meaningful result in the various efforts of government in solving the mobility crisis in Lagos, a more pragmatic and well-focused approach should be adapted. This is obvious in the National Transport Policy drafted by the defunct Federal Urban Mass Transit Agency in 1996. This can perfectly take care of the situation in metropolitan Lagos. The overall goals of the Urban Transport Policy are: *Adequacy, Equity, Safety, Efficiency, Reliability, Convenience, Self-Reliance, Affordability, Comfortability and Availability.*

The transport provision in metropolitan Lagos is grossly inadequate hence adequate measure should be taken to increase it.

There are also the potentials of developing other modes like water, rail and non-motorized modes like walking. Effort should be geared towards developing these

modes by giving them equal opportunities and attention. They should then be effectively co-coordinated. In terms of efficiency and reliability, their abundant provision and efficient management, will to a large extent, assist. Their provision and management should however be made affordable, comfortable and readily available.

6.4 The Place of Two-Wheeled Transport

The role of a Two-wheeled transport system in any economy should be more complementary than competitive. While buses and cars are to concentrate on long journeys and higher number of passengers, the two-wheeled transport would cater more adequately for short distance journeys.

In the survey carried out for this study, over 80% of Okada operators interviewed operate within their Local Government Area i.e. they localize their service to areas where they are more comfortable and their operations more cost effective. Journeys that are not as far as the routes they ply can be taken care of by bicycles that are also being used for physical exercises.

In a motor vehicle congested environment like metropolitan Lagos, the economies of short distance transportation should be harnessed so that the value of travel time might be appreciated and realized.

Since road transport provides more than 90% of mobility in metropolitan Lagos, even if other modes of transport are encouraged and developed, road will still be the dominant mode hence a comprehensive link like a "transport chain" should be established within the mode to cater for any missing or omitted link. This is where the importance of meeting pre-journey and after journey trips through the use of

motorcycle is more relevant and its importance cannot be over-emphasized with the level of its patronage in metropolitan Lagos.

The two-wheeled Transport came in as a more functional and practical approach to urban transport problem in a depressed economy. Aggregately it would take care of the pedestrians and under-served areas in terms of good road network. An effective and well organized two-wheeled transport properly integrated into the urban system will bring about a reduction in private car ownership as commuters demands are better satisfied by the various modes in combination.

CHAPTER SEVEN

SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

7.1 Summary of Study

In Nigeria, the challenge of providing a well organised and effective transport system is very enormous especially with the depression in the economy, which has led to a large decrease in transport provision whereas the cities continue to witness increased population and urbanization. Also the inadequate planning and co-ordination of the transport sector, decay of transport infrastructures, congestion and other related problems have plunged major cities of Nigeria like Lagos into a major crisis situation as far as mobility is concerned.

In recent times, there have been expressions of high level dissatisfaction in the public transport service in Nigeria such that people now adopt a variety of other modes to supplement the existing ones.

This has been evident in the following developments:

- (a) converting hitherto private buses/cars to commercial purpose referred to as 'kabu-kabu'
- (b) walking is becoming popular
- (c) the Two-Wheeled Transport (especially the motorcycle) has become a significance mode of public transport in almost every major city of the country.

In metropolitan Lagos, being the commercial centre of Nigeria, the demand for transport is very high. This is being met mainly by road transport through cars and buses which provide over 90% of the total supply for commuting. The rail and water modes cater for less than 5%, despite the fact that a major proportion of metropolitan Lagos is made up of water.

The public transport provision in metropolitan Lagos is being be-devilled with a lot of problems like:

- i) Demand that fast exceeds supply.
- ii) Over-reliance on road transport thereby leading to serious traffic congestion.
- iii) Decay in existing transport infrastructures
- iv) Lack of good and constant institutional framework for public transport.
- v) Lack of effective co-ordination among the existing units in charge of transport management
- vi) Inadequate research and technology
- vii) Non-consideration of socio-cultural, economic and citizens' participation.
- viii) Reactive rather than pro-active policy plans

The above problems especially in the areas of not being able to meet transport demand has led to the operation of 'kabu-kabu' in many areas while people also choose to walk in some cases. A major incursion into public transport provision in metropolitan Lagos was the use of motorcycles popularly known as Okada which

became very popular in 1994 and has finally invaded the transport sector like locust bees. Its impact and attendant problems in the total transport sector in Lagos State even prompted the former military government of Colonel Buba Marwa to introduce tricycle in order to ease Okada out.

7.2 Research Findings

Some salient features in the operation of okada in metropolitan Lagos have been revealed by this research.

Firstly, the emergence of Okada for commercial purpose in metropolitan Lagos was as a result of the gross inadequacy in the general public transport provision. Originally, they started with roads where public transports facilities were not available or inadequate like in Alakuko area in Agege Local Government and gradually spread to other tertiary roads. People who used their motorcycles after coming back from their regular daily work hitherto operated it on part-time basis. The depression in the economy with the attendant lack of employment opportunities also prompted some people into using okada either as hired-operators or as owner operators. They operate full time as their major source of income while others operate on part time. Out of those interviewed 65.3% operate it as their major source of income while 27.6% operate it on part time.

Factors found to influence the operators going into Okada business include Marital Status, Occupation, Average Monthly Income, Ownership of Okada, Cost of Purchase, Membership of Union, Benefit from Union and Average Monthly Maintenance Expenditure. They also perceive their operation as a venture that would be legalized by government, cheaper than other means and that it could not be banned.

On the part of users, their choice of Okada as a means of public transport is influenced by their Occupation, Type of trip they want to embark on and its efficiency. They perceive Okada as a means that has advantage over other available means of transport, they don't see it as a nuisance and a major source of accident. They also support its continued usage for public transport.

Through tested hypotheses, it was discovered that there is significant variation in the number of Okada and in the level of income generated amongst the different local government areas. Also, the patronage of Okada cuts across all income earners but the low income earners use it more.

Okada is being operated mainly by the male sex but its patronage is by both the male and female sexes. The specific percentage of patronage is 68.2% by men and 31.8% by women.

Okada has also provided employment for over 70,000 people as cyclists, factory workers, clerks, mechanics, spare part and motorcycle dealers, etc. This is significant when compared with the total workforce of Lagos State Civil Service (48,000) and that of Federal Government (160,000).

It was discovered to be a veritable source of income for both the cyclists and the owners. An average Okada rider earns an average of ₦22,500 per month which is higher than what an average graduate earns in the Lagos State Public service (₦17,000) and the Federal public service (₦21,000). The owner of the Okada makes an income of about ₦15,375 in a month and he breaks even within six months of investing in the business.

One major factor that really favours and popularized the increased use of motorcycle for public transport is its relatively cheap price when compared to other means of public transport. For instance a brand new motorcycle costs between ₦60 – ₦70,000 depending on the type while "Tokunboh" cars used for

taxi cost between ₦350 – ₦500,000 and buses cost between ₦500,000 – ₦850,000 depending on the type

The day of an average Okada operator in metropolitan Lagos extends from 6:00 a.m. to 4:00 p.m. or 11:00p.m depending on the type of operation whether it is on part time or full time. It also depends on the location and the attendant economic activities.

A major significant observation is the characteristics of their operations, which differ from one Local government Area to the other. In the rural local government areas, operators usually carry more than 2 passengers. At a time they carry as many as four passengers! This is common in areas such as Ojo, Alimoso, Ifako-Ijaye, Agege Local Government Areas e.t.c. whereas in the urban local government areas like Eti-Osa, Lagos Island, Surulere, Ikeja etc. They carry mostly one passenger and in a few cases up to 2.

Their number and intensity of operation varies from one local government area to another. There are also remarkable increase/changes between the data collected and analysed in 2000 and that of 2005. For instance, in 2000 the average Okada traffic count in Ojo was 648.0, Oshodi-Isolo 646 and Ajeromi-Ifelodun 576.8 while Eti-Osa was 186.8, Ifako-Ijaiye 234.2 and Lagos Island with 337.2 have the lowest. In 2005, the number increased to Ojo 1534, Oshodi-Isolo 1165.2, Ajeromi-Ifelodun 1546.2, Eti-Osa 337.2, Ifako-Ijaiye 889.4 and Lagos Island 931.8.

As regards average number of passengers per day in 2000, Oshodi-Isolo (36.5) Kosofe (33.0) and Ojo (32.5) had the highest while Lagos Island (22.0) Eti Osa (23.0) and Ikeja (24.0) were the lowest. This however increased to Oshodi-Isolo (48.0), Ojo (37.40), Lagos Island (27.5), Eti-osa (30.0), Ikeja (31.5) while only that of Kosofe (33.0) remained constant in 2005

The variation in Okada operation over time and the spatio-temporal distribution shows that Okada operation is not evenly distributed in the metropolis. This is evident in figure 7.1 below:

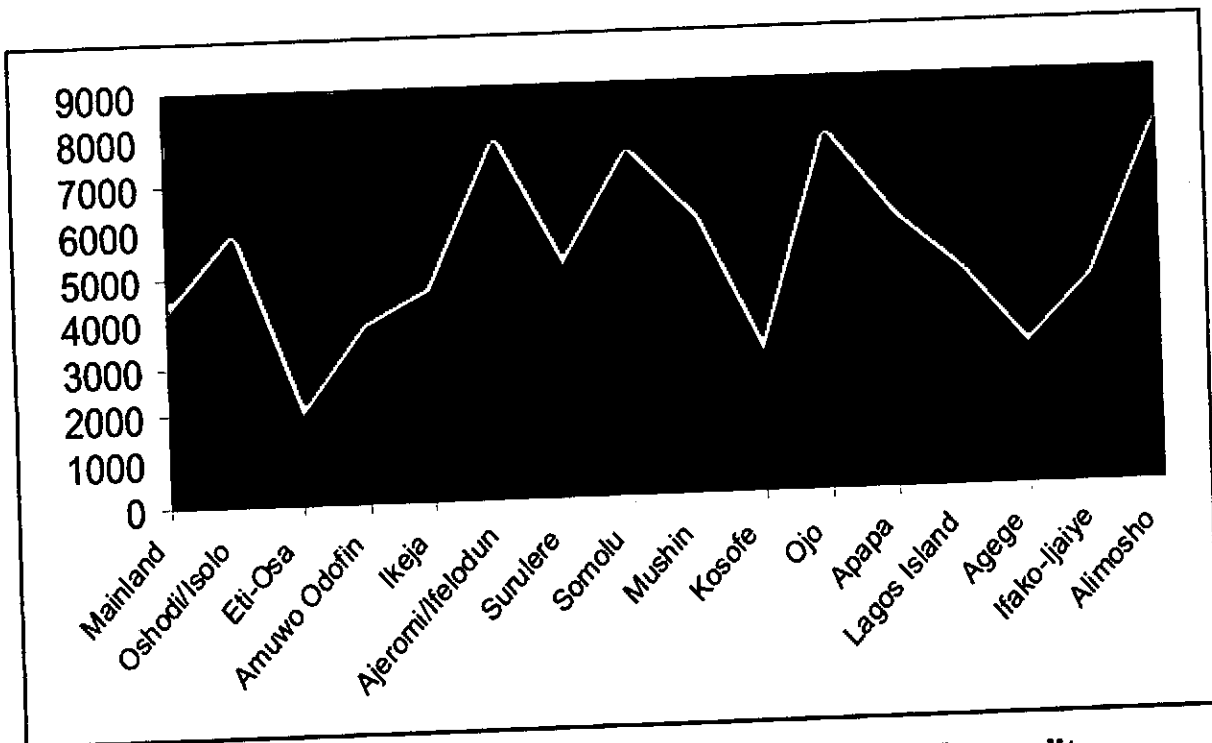


Figure 7.1: Spatial Distribution of Okada Traffic Count in Metropolitan Lagos

Source: Fieldwork Analysis (2006)

Figure 7.1 shows the local government areas with low presence and operation of Okada which include Eti-Osa with the lowest. This is followed by Kosofe and Ifako-Ijaiye. Those with the highest are Alimoso, Ojo, Somolu, Ajeromi-Ifelodun. The remaining local government areas fall within the middle range.

The spatio-temporal distribution witnessed about 73.61% increment between 2000 and 2005. This however varies from one local government to another. For instance Apapa had 100%, Ojo 97.50%, Agege 92.29% while Kosofe and Eti-Osa had 64.39 and 62.68 respectively. This percentage increase for each local government area is presented in the chart below.

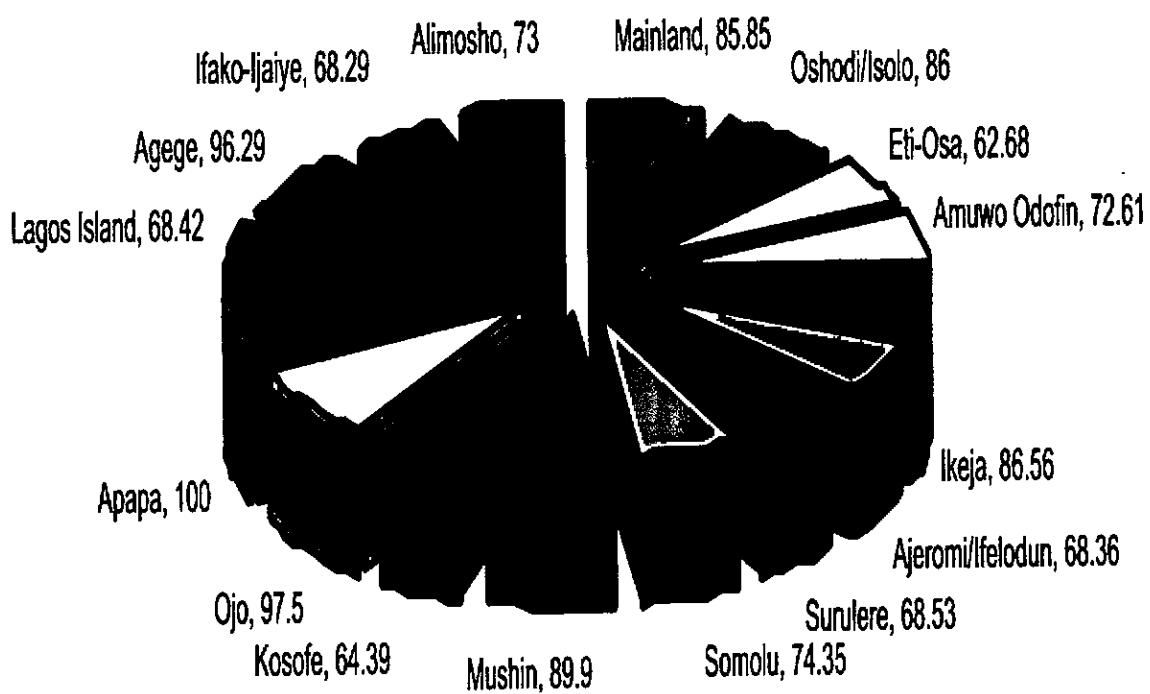


Figure 7.2: Percentage Increment on the Distribution of Okada at different Local Government Areas (2000 & 2005)

Source: Fieldwork Analysis (2006)

The map in figure 7.3 shows the variation on local government basis between 2000 and 2005 when numbers of Okada were counted at the survey points within the different local government areas.

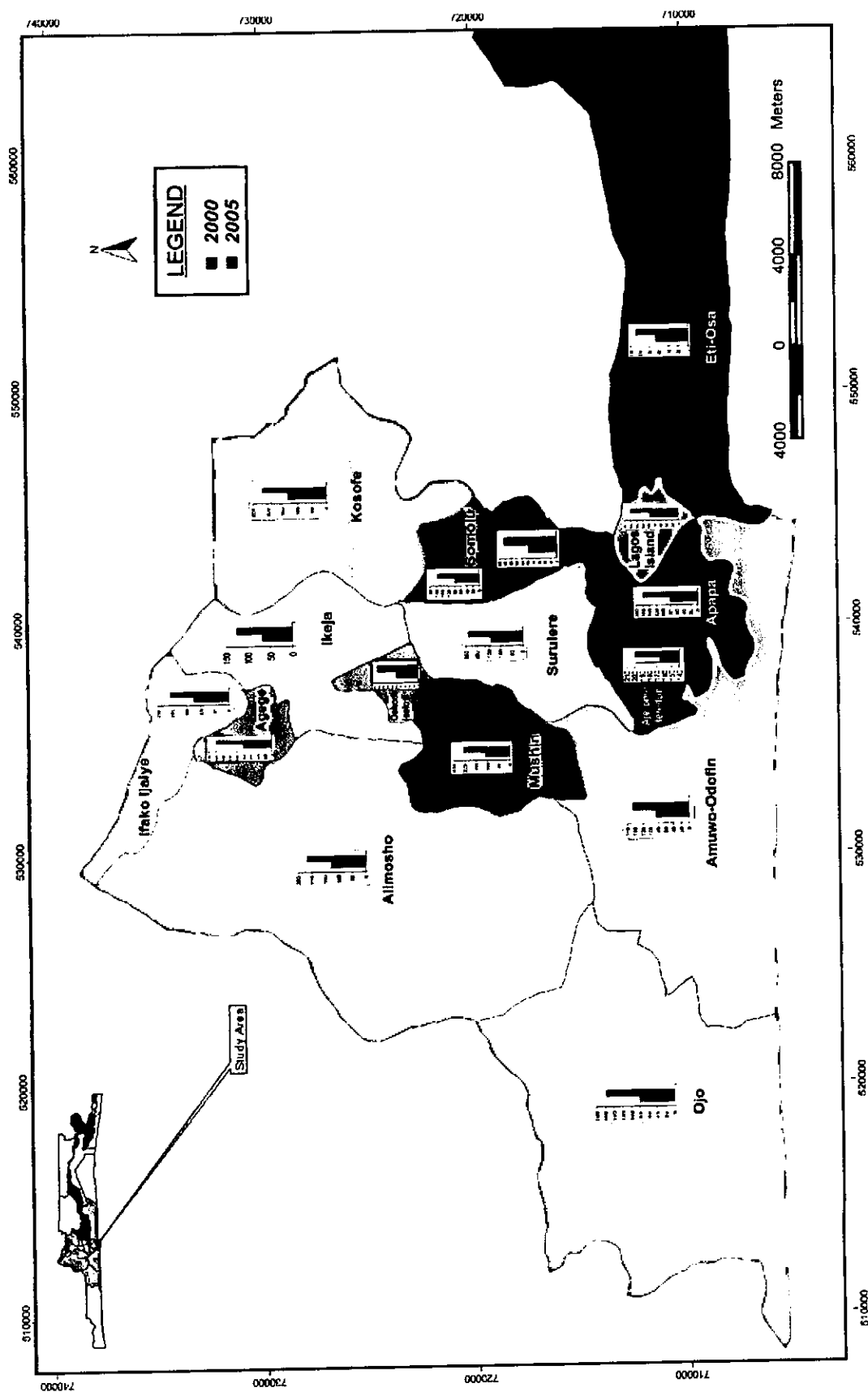


Figure 7.3: Spatio-Temporal Distribution of Okada on Local Government Basis

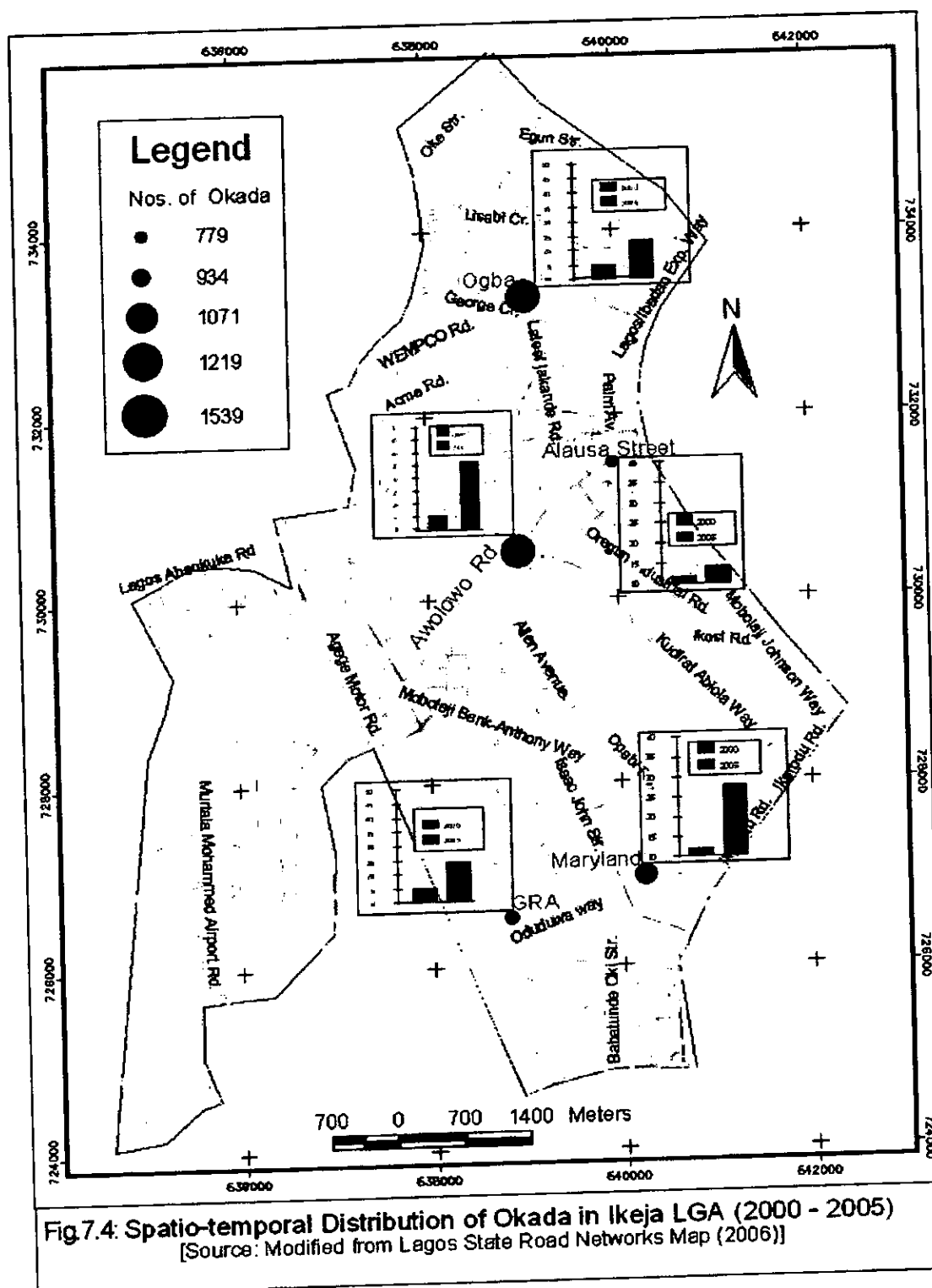
In addition, the spatio-temporal distribution was observed at each of the survey points within the local government areas. In narrowing it down to the survey points, Ikeja local government where the state capital is located and a mixture of high class as well as middle and low class commuters is presented as sample.

Table 7.1: Spatio-temporal distribution of Okada in Ikeja Local Government Area

LGA	Survey Points	2000	2005	% Increase	Traffic Count	
					2000	2005
5. Ikeja	1. Awolowo Rd.	15	36	140	405	1539
	2. Alausa Street	12	14	16.66	205	779
	3. GRA	15	24	60	346	934
	4. Maryland	12	28	133.33	282	1071
	5. Ogba	13	23	76.92	321	1219
	Total	67	125	86.56	1559	4542

Source: Fieldwork Analysis (2006)

Table 7.1 shows that within Ikeja local government area the number of Okada in operation at the survey locations increased by 86.56% between 2000 and 2005. They are more concentrated at Awolowo road (Ikeja Round about), a major terminal where many business activities are located. They are lowest at Alausa, the seat of government. This may be due to the fact that the operators may be afraid of government officials who may effect their arrest. Also, other means of road transportation are readily available here.



Source Fieldwork Analysis (2006)

The graphs in the map in figure 7.4 show the spatio-temporal distribution at the survey points in Ikeja Local Government Area between 2000 and 2005 while the dots show the traffic count in 2005.

Furthermore, the average fares charged per trip in all local government areas also changed as it increased from what it was in 2000 when it was ₦15.00 in Alimoso, ₦18.00 in Ajeromi-Ifelodun, ₦20 in Somolu and ₦22.00 in Ikeja while Eti-osa was ₦25.00. In 2005 it rose to ₦30.00 per drop in Alimoso Local Government to ₦20.00 in Ajeromi-Ifelodun to ₦25.00 in Somolu and up to an average of ₦28.00 in Ikeja. It was as high as ₦40.00 in Eti-osa, which is the Local Government Area with the highest fare. This is however suspected to be because of the calibre of people who work and live there.

On the average, the total daily delivery was about ₦380.20 in Oshodi-Isolo, Alimosho and Mushin while it is about ₦300 in Surulere, Somolu, Apapa etc. The lowest was recorded at Amuwo-Odofin with ₦250.00 in 2000. The average daily delivery increased to about ₦500.00 in most of the local government areas in 2005.

In terms of cost of maintenance, a total average of ₦1,317.07 was recorded per month for the whole metropolitan area. This, like other variables, also varies from one local government area to the other depending on the intensity of use, the type of motorcycle as well as the condition of roads. For instance, the average monthly maintenance cost is as high as ₦1,747.37 per month in Oshodi-Isolo local government area while that of Eti-Osa and Lagos Island were as low as ₦1,100.03 and ₦1,271.30 respectively. The average in metropolitan Lagos in 2005 was about ₦2,380.20 with Oshodi-Isolo having about ₦2,708.42, Eti-Osa ₦1,705.05 and Lagos Island ₦1,970.52.

Also, it was observed that people between the ages of 21-30 years, which are about 51%, mainly operate Okada. This is closely followed by people between ages 31-40 years which are about 40%. Hence it could be said that men of between

21-40 years are the main operators of Okada because they make up to 91% of the respondents. This variable still remained valid even with the 2005 data. Out of this number 59.1% are married while 37.1% are single.

One important revelation is the number of people carried per day, which is about Five Hundred and Eighty Six Thousand, Eight Hundred and Ten (586,810) passengers. This also varies from one local government area to another. It is highest in Alimoso (65,268) followed by Ajeromi-Ifelodun (64,940), Ojo (59,841.6), Oshodi-Isolo (55,929.6), and lowest at Eti-osa (11,208). The operators limit themselves to routes within their localities

The operators do not take the issue of safety seriously especially with the non usage of crash helmets and the way they drive recklessly and meander through traffic. Insurance is also not taken seriously.

The major problems indicated by those interviewed relate to the activity of law enforcement agents who constantly harass and collect money from them. Also they are exposed to excess heat during hot season and rain drastically affects their operation and income during the raining season. Others include bad roads, high costs of motorcycles, fuel and spare parts.

Over 90% of the operators however support the continuation of their operation but only requested government assistance in providing requisite infrastructures, improving road conditions, reduction in prices of new motorcycles and spare parts as well as cautioning law enforcement agents.

On the part of the users, the major features discovered are outlined below:

Firstly, the use of Okada for public transport cuts across genders, age grades, all occupational and educational backgrounds. Over 80% of those interviewed claimed to use Okada for public transport in the study area. However, the level of patronage varies. For instance, more men (68.2%) use Okada while women

* account for about 31.8%. Majority of the users are people between the ages of 19 – 40 years which are about 50.4% of the total interviewed.

On marital status, 62% of those who patronise Okada are single while 38% are married. On the educational standard, people with secondary education patronise Okada more than others. Their percentage is 30% while the lowest patronage is by graduates (19.5%)

Data on the occupational status show that Okada is mostly used by people who are into trading business (37.3%) followed by civil servants (23.5%) while the lowest (10%) is recorded for retired persons.

The low and medium income earners use Okada more than others. They are about 92.5% of the total interviewed while the high-income earners are less than 8%. On the intensity of use, 35% of the total interviewed use it once in a day while those who use it more than 2 times form 40%.

Out of the total interviewed, about 20% have been involved in one form of accident or the other yet they still patronise Okada.

The reasons given for using Okada is because it is fast, convenient and readily available. About 62% of the total interviewed support the use of Okada for public transport but 80% suggested limiting their operation to tertiary routes.

Problems encountered by users include weather, bad roads and high cost per drop as compared to buses. They suggested that government should not pretend about the reality of the usage of Okada but that effort should be geared towards its modernization and sustainability.

In measuring the modal access to bus stops for pre-journey and after journey trips between homes, offices and bus stops, motorcycle was discovered to be the second major provider of this service after walking. The data revealed 54% for walking and 32% for motorcycle while the percentage for buses, cars etc. was less than 15%. This however, varies from one local government to another. For instance the use of Okada is more predominant in densely populated local government areas like Somolu, Oshodi/Isolo, Agege, Mushin, Alimoso etc. while the use of taxis is mostly in a place like Eti-osa local government.

Also, in assessing the extent of meeting commuters' needs, the entire four variables applied favoured Okada. For instance the access time at points of origin and destinations for the pre-journey and after-journey trips is lower than other modes except walking. Waiting time at designated Okada points is as low as zero in some areas; and travelling time is also low as they mainly ply short routes.

From the above, a lot of salient features manifest and it is obvious that two-wheeled public transport is very important in metropolitan Lagos. The low and the mighty in the society patronise Okada.

The next line of action therefore will be to encourage and develop the necessary infrastructures that will aid its workability as stated in the recommendations.

7.3 Recommendations

From the foregoing, it is obvious that two-wheeled transport especially motorcycle has contributed, is contributing and will definitely continue to play important roles in the total transport situation of metropolitan Lagos. However its condition of

operation in terms of the human and environment angles have not been too favourable. Consequently, many problems are inherent in its operation and this to a large extent has its own negative effect on the society. The necessary input needed for its effective operation depends on the government (in terms of definite policy and guidelines) as well as on the public that is, the operators and users, in terms of their attitudes towards it. Efforts should be geared towards effective planning, integration, accommodation, management and monitoring of its operation. Consequently, this section is mainly devoted to suggestions for a better "Two-Wheeled Transport in Metropolitan Lagos".

Firstly, the Lagos State Government should recognize and accept the fact that Two-wheeled Transport has come to stay in Lagos State. Hence, it is strongly recommended that a bold step should be taken towards legalising its operation not only on paper but practically. Measures to be taken can be classified into short-term approach and the long-term approach.

The short-term approach will be to arrest the present chaotic situation and it will not be capital intensive. These include the following:

1. The state government should make appropriate legislation in order to regulate the operations of Okada riders. Issues to be legislated upon include the following:
 - i) Minimum standard for the type of Okada to be used for commercial purpose.
 - ii) Number of passengers to be carried

iii) Type of routes to be plied. Motorcycles are not supposed to be ridden on expressways with fast moving vehicles. Their operations are to be restricted to feeder roads.

iv) Also the age of riders, marital status, documents to be possessed, type of clothing etc. should be stated categorically.

2. Few things can be adopted from the guidelines used for improving motorcycle traffic in places like the Netherlands, India and some Asiatic countries. These include:

- Improving the protection of cyclists through encouraging cyclist to wear crash helmets.
- Developing and implementing standards on cycling policy.
- Enforcing and ensuring that the set-out rules and regulations are complied with.

3. Basic routine training should be organized for the riders through various law enforcement agents like the Police, Federal Road Safety Commission, Local Government Officials, Motorcycle Riders Associations, etc. At the training, they should be taught the basic rudiments of motorcycle riding, the inherent dangers, safety precautions, first aid etc. This to a large extent will enhance their operation.

4. Massive enlightenment campaign should be carried out on Radio and Television through the Riders' Associations and law enforcement agencies on the revised standard/mode of operation. This will create awareness in the people. It will also show that they have been recognized by the appropriate government agencies;

hence it is no longer what anyone can just jump into without the basic requirements.

5. The associations should be strengthened at various local government levels in order to have a firm control over their members' operation and strict adherence to the laid down procedures/guidelines.

On the long-term measures, Howe (1993) suggested the followings which have been used in China, India and Netherlands:

- i. Development of a comprehensive cycling safety control plans. The main implementing agency should be the law enforcement agencies.
- ii. Preparation of a handbook on cycling facilities, know-how on good and safe motorcycle infrastructures.
- iii. Developing criteria for the separation and integration of motorcycles and cars.
- iv. Giving more attention to cycling and cyclists in the existing traffic and transport education.
- v. Adopting infrastructural measures which will separate the different types of traffic (cycle tracks and motorcycle bridges).
- vi. Construction of high quality motorcycle routes, networks and shelter parks.

Other recommendations include that:

1. Government should specifically have a policy on and an organization in charge of motorcycles being imported for use. A stipulated standard as stated by the government must be strictly adhered to. The basic safety components like lights, mirrors, transparent windshield, and padded seats with back holders, protector for tyres and exhaust pipe and speed limit must thoroughly be inspected. Also there should be a support bar for passengers to hold instead of grabbing the cyclists.
2. Regular checks should be carried out on spare parts in order to prevent the importation and use of fake spare parts that will endanger people's life. Government should also encourage the local motorcycle assembly plants in the areas of tariff exemption on imported motorcycle components/spare parts and this will in turn reduce the price for operators and subsequently the users.
3. Loans can also be given to would be operators through an organization established for such purpose. The defunct Federal Urban Mass Transit Agency that used to give out buses to operators on loan basis for instalmental re-payment can serve as an example. An agency may be established in Lagos State to import and allocate motorcycles to interested operators on installmental payment.

The people assisted with the loans will be gainfully employed thereby reducing the number of social miscreants and jobless adults in the streets. This will definitely assist the government in the area of poverty alleviation which is a global developmental issue.

4. A model training school should be established for Okada riders. The situation at present is that anybody who has access to a motorcycle can mount it and continue to ride on commercial basis. This should be discouraged by establishing a training school with a comprehensive syllabus that an intending rider has to go through and pass both theoretically and practically before he can be issued with the necessary permit to operate on commercial basis.
5. In terms of engineering, both the state and local government authorities should look beyond revenue generation from these operators. The area of safety in their operation should be adequately addressed. The basic infrastructure needed on the roads e.g. cycling signs, traffic lights, highway codes etc. should be provided and well maintained. The conditions of the roads are very bad now; hence they should be repaired and adequately mapped for cyclists and motorists.
6. A well coordinated transport network should be developed. Here government should ensure the required improvement in the co-ordination of inter-modal modes of transportation. Mainly motorcycles are to be restricted to feeder roads and pre-journey and after-journey trips that may not be accomplished through the use of cars and buses. While buses/taxis are to be used on main roads/expressways as well as feed the rail system, ferry jetties and the Airports. In essence there should be a very good co-ordination of all transport modes (roads, rail, water and air) whereby every means will have a limitation, which under no circumstance should be violated.

7. The telecommunication system in metropolitan Lagos should be developed to be effective and efficient hence, unnecessary trips that put pressure on the existing means of transport that led to the emergence of two wheeled commercial transport will be reduced. By this, effective traffic calming can be achieved and this will even reduce congestion, pollution, accident etc. promote a better quality of life.
8. It is a common knowledge that the major problem with most government policies in metropolitan Lagos has been that of implementation. No matter how good and robust a policy is, if it is not strictly implemented, there will still continue to be problems. Consequently, firm and strict implementation of whatever policy guidelines are adopted for inculcating two-wheeled transport into the total transport system in metropolitan Lagos must be taken seriously. Those to implement are to be adequately monitored and remunerated to discourage the "settlement syndrome" that has been the bane of most government policies.

7.4 Contributions to Knowledge

This study has revealed the hitherto ambiguity in the development and impact of two-wheeled commercial transport in public transport provision in metropolitan Lagos. Specifically the following have been established:

- i) Factors responsible for the upsurge and the usage of Two-wheeled transport for commercial purpose
- ii) An in-depth analysis of the trend and spatio-temporal distribution of Okada in metropolitan Lagos

- iii) Evaluation of the structure, socio-economic and operational characteristics thereby establishing the level of its contribution to the total transport; level of employment generation, and level of income to both the operators and the owners amongst others.

Also, the study has revealed the salient opportunities and potentials inherent in the institutionalization of this mode especially as regards its complementary role at solving transportation problems in metropolitan Lagos. The result of this study will definitely encourage the development of this mode in the interest of all users as regards transport derived demands, needs and satisfaction.

The study can also serve as a good reference point with a unique insight into this complementary means of transport to assist researchers and planners in enhancing efficient, coordinated and integrated transport system in metropolitan Lagos.

It has also proffered short-term, medium-term and long-term measures that could assist in improving motorcycle traffic in metropolitan Lagos.

It has brought out the need for appropriate legislation and policy framework to guide the operation and integration of 'Two-wheeled Transport' into the total public transport planning for metropolitan Lagos

In addition, if the findings and recommendations in this study are thoroughly examined and utilized, it will to a large extent enhance efficient and coordinated transportation system in metropolitan Lagos.

7.5 Issues of Future Academic Research Work

This study is a major step at breaking new ground in the study of an unconventional means of transport in metropolitan Lagos. It has therefore opened up opportunity of embarking on further studies in the area of:

7.5.1 Safety

A major problem that be-devils the operation of two-wheeled transport in metropolitan Lagos is that of lack of good safety measures which usually leads to high rate of accidents and the resultant loss of properties and damaged parts of the body (head, legs, arms, etc.) and in some cases death. This had led to the call for its eradication in some quarters. This will however compound the existing chaotic transport situation. Consequently, an in-depth study of the causes of these accidents, safety measures that can be introduced either in terms of operation or configuration should be thoroughly examined. The manufacturers should be involved in this in order to know where and when appropriate corrections are to be made.

7.5.2 Continuous Research

Research in this area of means of transport should be a continuous and consistent one. With this there will be progressive improvement in its operation and usage. Academic recommendations are to be taken into serious consideration as consistencies in various follow-up studies will reveal current situation that will, to a large extent, assist in policy and planning issues.

7.6 Conclusion

In many cities of the developing world, public transport demand is generally met through the mixture of a good range of public transport system like buses, trains, ferry and recently two-wheeled transport. The situation is also the same in Metropolitan Lagos. However, public transport provision has declined tremendously whereas the demand for it continues to increase on a daily basis. An

attempt at satisfying this ever increasing demand has led to the emergence of various unconventional modes of transport out of which the most prominent now is the 'Two-wheeled transport' (motorcycles) for commercial purpose especially for short and medium size journeys.

This study has examined the use of two-wheeled transport as a mode of public passenger transport through the study of its evolution, operators, users, efficiency level and other attributes. The result shows that the present economic downturn in Nigeria and insufficient public transport provision has forced both the operators and users into providing and patronizing the motorcycle as a complimentary mode of transport. Commercial motorcycling serves as a major source of income for the operators, owners, mechanics etc. It employs over 70, 000 people in metropolitan Lagos on a daily basis either directly or indirectly. People of both sexes are patronizing it. Okada is also more flexible than other vehicles and therefore able to penetrate areas that commercial vehicles do not ply.

However, it is being be-deviled with a lot of problems ranging from the safety aspect to its non-recognition by government or its agencies responsible for urban mobility issues in metropolitan Lagos.

The study has therefore given a better understanding of the underlying factors for commercial motorcycling as well as its operations and adaptability. This has been done with a view to contributing towards the basics of efficient planning for a mode that has generally been accepted by the populace. Two-wheeled transport is and will remain an important element of public transport provision in metropolitan Lagos.

The study has made specific recommendations in respect of policy and planning issues. All efforts must be put in place to plan, integrate, legitimize, institutionalize, co-ordinate as well as effectively manage this mode that is able to provide reliable and regular services to the entire populace.

References

- Abubakar, A. A. (1993): Ferry Services in Urban Mass Transit in Nigeria. In Ikya, S.G. (Ed) *Urban Passenger Transport in Nigeria*. Heinemann Educational Books, Ibadan Pp 252-263.
- Adegnika, F. (2001): Emergence of Commercial Motorcycles and Pollution of the City of Cotonou, Benin. *A Paper Presented at Africa Regional Congress on Mobility Framework* held on 12th-15th, February, 2001 in Addis Ababa, Ethiopia.
- Adeniji-Adele, A. and Davies A. E.(1993): Local Government Involvement in Mass Transit Service in Nigeria. In Ikya, S.G. (Ed) *Urban Passenger Transport in Nigeria*. Heinemann Educational Books, Ibadan. Pp 223 254.
- Adeniyi, P.O. (1978): *A Remote Sensing Approach to the Monitoring of Urban Growth (with Particular Reference to Lagos, Nigeria)*. An Unpublished Ph.D. Thesis, University of Waterloo, Waterloo, Ontario, Canada.
- Adesanya, A. (1998): The Use of Motorcycles for Public Transport: The Situation in Ibadan. *NISER Monograph Series*, No 6, NISER Ibadan. Pp 57
- Adeshina, F. (1994): "Coups: Okada Takes Over". *Weekend Concord*, January 8, 1984. Vol. 19, No. 800. Pp 12
- Ajayi, D .O. (1998): *Spatial Pattern of Production Sub-Contracting in Nigeria: A Case Study of Lagos*. An Unpublished Ph.D. Thesis, University of Ibadan, Ibadan, Nigeria.
- Alekhoje, M (1994): Origin of Okada. *Weekend Concord*, Saturday March 10, 1994.

- Armstrong-Wright, A. (1987): Urban Transport. In Heraty. M.J. (Ed.) *Developing World Transport*. Governor Press International, London. Pp 302-305
- Ayeni, B. (1983): The Development of Urban Land Use Transportation Model for Lagos, Nigeria, *Nigeria Geographical Journal*, Vol. 26, No 1 & 2. Pp 59-87.
- Bolade, A.A. (1993): The Lagos Urban Transport System, *Urban Age*, Washington, DC 2(1). Pp 7-8
- Cynecki, I. Perry, Y. and Frangos, L. (1993): Study of "Bicyclist Characteristic in Phoenix, Arisona, *Transport Research Record*, No. 1405. Pp 28-34
- Daniels, P.W. and Warnes, A.M. (1983): Movement in Cities: Spatial Perspectives on Urban Transport and Travels, Methuen, London
- Dixon-Ogbechi, B N (2002): Research Methods and Elementary Statistics in Practice Philgland Nig Ltd, Somolu, Lagos.
- Edundson, M.S. (1961): Neolithic Diffusion Rates Current Anthropology 2. Pp 71-102
- Ekong, B.U. (1977): The Issues of Transport Co-ordination in Nigeria's Planning System. In Onakomaya, S.O. and Ekanem E. (Ed) *Transport in Nigeria Development*, NISER, Ibadan.
- Fasakin, J.O. (1990): Structural Adjustment Programme and the 'Kabu-Kabu' challenge to Nigeria's Transport Policy, *Research and Technical Journal*, OSPO, 2(1). Pp 1-5.
- (2000): Some Factors Affecting Daily Profits of Commercial Motorcycles in Akure, Nigeria. *Transport Policy Journal of the World Conference on Transport Research Society*, Vol 8. No 1. Pp 63-69
- Federal Ministry of Transport (1993): National Transport Policy for Nigeria, Federal Government Press, Lagos.

- (2003): National Transport Policy for Nigeria.
Federal Government Press, Lagos.
- Federal Road Safety Commission (2005): Vehicle Registration Data (1999-2005).
Planning Research and Statistics Department, Lagos.
- Ferguson, E. and Montgomery, D.I. (1993): Statewide Bicycle Planning in the
States, *Transport Research Record*, No. 1396. Pp 37-43.
- Filani, M.O. (1988): Mobility and Nation's Survival: A Nation's Dilemma.
Inaugural Lecture, University of Ibadan, Ibadan.
- FUMTA and Oni, S.I. (1994): Two-wheel Transport in Nigeria. In-House Study
for FUMTA, Lagos, Nigeria.
- FUMTA and Oni, S. I. (1995): Prospect for the Use of Motorcycle as a
Complimentary Mode of Public Transport in Lagos. In-House Study for
FUMTA, Lagos, Nigeria.
- FUMTP (1992): Report of In-House Study carried out by the FUMTP on the
Structure of Kabu-Kabu (Mini Buses) Bus Operation in Lagos Metropolitan
Area, Lagos.
- Gilg, A.W. (1973): A Study in Agricultural Disease Diffusion. *Institute of British
Geographers Publications* No 59. Pp 77-97.
- Godard, X. (1991): Consideration on the Roles of NMT in Urban Transport
Systems in Developing Countries (case of Sub-Saharan Africa) *Transport
Research Meeting*, Washington D.C.
- Gregory, D. (1994): Diffusion. In *The Dictionary of Human Geography*, Johnston,
R.J., D. Gregory and D.M. Smith (3rd Ed). Pp 132-135.

- Guillen, M.V. and Ishida, H. (2003): Motorcycle- Propelled Public Transport and Local Policy Development –The Case of Tricycles and Haba-habal in Davou City, Philippines, Current Research Topics on Transportation and Traffic Safety in Asian Countries. IATSS, 119 Journal of IATSS.
- Haget, P. Clifford, A.D and Fred, A. (1977): Location Analysis in Human Geography (2nd Ed). Edward Arnold, London.
- Hagerstrand, T. (1952): The Population of Innovation Waves, Lund Studies in Geography, Chicago University Press, Chicago. Pp 3-19.
- Howe, J. and Dennis, R. (1993): The Bicycle in Africa: Luxury or Necessity? *Velocity Conference*. The Civilized City: Responses to New Transport Priorities, 6th – 10th September 1993, Nottingham, U.K.
- Ikya, S.G. (1996): Motorcycling as a means of Commercial Transport in Nigeria. In Ikya S.G. (Ed) *Urban Passenger Transport in Nigeria*. Heinemann Educational Books Ibadan, Nigeria. Pp 396-411.
- Jacob, G.D. (1989): Public Transport Operations in Third World Cities. In Heraty, M.J. (Ed.) *Developing World Transport*. Grosvenor Press International, London. Pp 401-406.
- Janelle, D. (1969): Spatial Re-Organization: A Model and Concept. *Annals of Association of Geographers*, Vol. 59. Pp 348-364.
- Lagos Metropolitan Area Transport Authority (2005): Information Handbook, Lagos.
- Layode, M.I. (1998): Managing the Urban Transport Problem- The Introduction of Public Motorcycle in Lagos Metropolis, B. Technical Essay, Federal University of Technology, Akure.

- Lugard, F.D. (1992): In Filani, M.O. (1988) *Mobility and Nation's Survival: A Nation's Dilemma*. Inaugural Lecture, University of Ibadan., Ibadan
- Xiaoming L, L.David Shen and Futian Plen (1993): *Operational Analysis of Bicycle Inter-Changes in Beijing China*, *Transportation Research Record*, No. 1396. Pp 1-3.
- Maryland Motor Vehicle Administration (2005): *Motorcycle Operator Manual*, Baltimore, U.S.A.
- McNulty, M. and Adalemo, A. (1988): *Lagos in the Metropolis Era*. In Matter Dogan and John D. Kasarda (Ed.) *Mega-cities* Sage Publications, Beverly Hills. Pp 212-234.
- Meakin, R.T. (1989): *The Development and Regulation of Hong Kong's Public Transport System*. In Heraty, M.J. (Ed.) *Developing World Transport*. London. Grosvenor Press International. Pp 156-159.
- Mumby, G. (1964): In Filani, M.O. (1988). *Mobility and Nation's Survival: A Nation's Dilemma*. Inaugural Lecture, University of Ibadan., Ibadan.
- National Planning Commission (1985): *National Development Plans*, Abuja, Nigeria.
- Nigeria Police Force (1995): *Vehicle Registration Data*, Lagos, Nigeria.
- Ogunsanya, A.A. and Galtima, M. (1993): *Motorcycle in Public Passengers Transport Service in Nigeria: Case Study of Yola Town*. In Ikya, S.G. (Ed) *Urban Passenger Transport in Nigeria*. Heinemann Educational Books, Ibadan. Pp 109-206.
- Olamigoke, F. (1993): *Sharing the Road with Bikers: The Nigerian Experience*, *Transportation Research Record*, No. 1396. Pp 34-36.

- Oni, S.I. (1992): Car Park Provision and Planning in Metropolitan Lagos. Unpublished Ph D Thesis, Department of Geography, University of Lagos.
- Obijiofor, E. E. (1985): Business Statistics vol 2, Lagos Management Centre B1-B15
- Osagie, A. (1994): "Okada in other lands" *The Punch*, September 12, 1944. Vol. 42, No. 900. Pp 8
- Oyatoye, E.O. (2002): Measures of Location and Variation. In Dixon-Ogbechi, B N (2002). *Research Methods and Elementary Statistics in Practice* Philgland Nig Ltd, Somolu, Lagos.
- Onyemelukwe, J.O.C. and Filani, M.O. (1983): Economic Geography of West Africa Longman Inc, New York. Pp 101-120.
- Owen, W. (1964): Distance and Development, Transport Research Programme. The Brookings Institution, Washington D.C.
- Pharaoh, T. (1992): "Less Traffic, Better Towns." *Friends of the Earth's Illustrated Guide to Traffic Reduction*. Pp 22-39
- Reinking, H. and Osten, V. (2001): Strategies for Successful Writing, A Network Research Guide, (6th Ed). Pearson Education Inc, Upper Saddle River. Pp 377- 419.
- Ren, N. and Koike, H. (1993): A Vital Transportation Means in Tiajin, China, *Transportation Research Record*, No. 1396. Pp 13-15.
- Rogers, M. (1962): In Ajayi D.D. (1998). Spatial Pattern of Production Sub-Contracting in Nigeria: A Case Study of Lagos. An Unpublished Ph.D. Thesis, University of Ibadan, Ibadan, Nigeria.

Taaffe, E.J. Morrill, T.L. & Gould, P.R. (1963): Transport Expansion in Under-Developed Countries: In Onyemelukwe, J.O.C. and Filani, M.O *Economic Geography of West Africa* Longman Inc, New York. Pp 101-120.

Tinline, R.R. (1972): A Simulation Study of the 1967-68 Foot and Mouth Epizootic in Great Britain, University of Bristol. Unpublished PhD Thesis.

Walter, B. (1980): Time-Space Patterns of Second-Wave Irish immigration into British Towns, *Institute of British Geographers*, Transactions Vol.5. Pp 297-317.

World Bank (2002): Report on the establishment of Lagos Metropolitan Area Transport Authority, Lagos Nigeria.

Wikipedia (2007): [http:// www.en.wikipedia.org/wiki/metropolitan area](http://www.en.wikipedia.org/wiki/metropolitan_area).

APPENDIX I

UNIVERSITY OF LAGOS

DEPARTMENT OF GEOGRAPHY

QUESTIONNAIRE FOR TWO-WHEELED PUBLIC TRANSPORT

OPERATIONS

QUESTIONNAIRE FOR OPERATORS

This questionnaire is designed for collecting relevant information for a Doctoral Thesis Titled “An Assessment of Spatio-Temporal Impact of Two-Wheeled Public Transport Operations in Metropolitan Lagos” from operators.

Information supplied will be used mainly for academic purpose and shall be treated as highly confidential.

- i. Survey Point/Zone: _____
- ii. Date: _____
- iii. Time: _____
- iv. Weather condition: _____

1. Sex of Respondent: (a) Male (b) Female

2. Age of Respondent:
- (a) 15 – 20 years
 - (b) 21 – 25 years
 - (c) 26 – 30 years
 - (d) 31 – 35 years
 - (e) 36 -40 years
 - (f) 41 – 45 years and above

3. Marital Status: (a) Single
(b) Married

(c) Divorced

(d) Widowed

4. Do you operate on part-time? (a) Yes (b) No

5. What is your major occupation? (a) Civil Servant
(b) Privately Employed

(c) Trading/Business

(d) Retired Person

(e) Student

(f) Unemployed

6. What is your average monthly income? _____

7. Why do you operate Okada on a commercial basis? _____

8. Do you own a commercial Motorcycle? (a) Yes (b) No

9. If yes, how many Motorcycles do you have? _____

10. What is the average daily delivery per trip? _____

11. How many passengers do you carry per trip? _____

12. What are the average daily passengers you carry? _____

13. What route do you fly? _____ (And how much do
you charge per

trip)? _____

14. Do you have or follow a particular route? _____

15. What is the average daily total revenue per Okada? _____

16. How much do you spend on fuel per day? _____

17. How much do you spend on Okada maintenance per month? _____

18. How much does one need to purchase an Okada?

- _____ (a) Fairly used
(b) Brand new

19. Do you have Insurance cover? Yes _____ No _____

20. If yes, what type of Insurance cover?

- (a) Comprehensive
(b) Third party
(c) None

21. Do you operate shifts (a) Yes (b) No

22. How many hours do you operate a day? _____

23. Are you a member of any transport Union? (a) Yes (b) No

24. What benefits do you derive from the Union? _____

25. What problems do you encounter in your daily operations? _____

26. What solutions would you suggest to solve these problems?

Section B (Attitudinal rating of operators towards Okada Operation)

In answering questions 27 – 31, Please tick the appropriate response.

Note:

SA = Strongly Agree

A = Agree

CS = Cannot Say

DA = Disagree

SD = Strongly Agree

		SA	A	CS	DA	SD
27	Okada is your main source of income					
28	Okada operation should be fully legalized and incorporated to total public transport provision in metropolitan Lagos					
29	Okada operation should be banned					
30	If you have another choice you will not operate Okada					
31	Okada operation and maintenance is cheaper than other means of transport					

APPENDIX II

UNIVERSITY OF LAGOS

DEPARTMENT OF GEOGRAPHY

QUESTIONNAIRE FOR TWO-WHEELED PUBLIC TRANSPORT

OPERATIONS

QUESTIONNAIRE FOR USERS

This questionnaire is designed for collecting relevant information for a Doctoral Thesis Titled "An Assessment of Spatio-Temporal Impact of Two-Wheeled Public Transport Operations in Metropolitan Lagos" from users.

Information supplied will be used mainly for academic purpose and shall be treated as highly confidential.

- i. Survey Point/Zone _____
- ii. Date: _____
- iii. Time: _____
- iv. Weather condition: _____

1. Sex of Respondent: (a) Male (b) Female

2. Age: (a) 6 – 18 years
(b) 19 – 40 years
(c) 41-60 years
(d) 61 and above

3. Marital Status: (a) Single
(b) Married
(c) Divorced
(d) Widowed

4. Educational Qualification: (a) No formal Education
(b) Primary Education

(c) Secondary Education
(d) Graduate
(e) Others (Please
specify) _____

5. Occupation

- (a) Civil Servant
- (b) Privately Employed
- (c) Trading/Business
- (d) Retired Person
- (e) Student
- (f) Unemployed

6. What is your average monthly income? _____

7. Do you patronize two-wheeled commercial transport (Okada)? YES/NO

8. If yes, what type of trip do you use them for? (a) Work Trip

(b) Shopping Trip

(c) Social Trip

(d) Recreational Trip

(e) All of the Above

9. How often do you use them? _____

10. Do you use them during the raining season? _____

11. Have you had accident on an Okada before? _____

12. If yes, how many times? (a) Once

(b) Twice

(c) Thrice

(d) Four Time

(e) Five Times

13. (a) Despite the accident, do you still wish to continue the patronage of Okada?

Yes/No

(b) Give reason for your answers _____

14. Why do you use Okada as a means of Transport?

- (a) Efficiency
- (b) Fastness
- (c) Cheapness
- (d) Flexibility
- (e) Safety
- (f) Availability
- (g) All of the above

15. Do you think 'Okada' has any advantage over other modes of transport in Lagos?

(a) Yes (b) No

16. If yes, what are the advantages? _____

17. What type of route do you think "Okada" should operate?

- (a) Major Roads/Highways
- (b) Service Routes
- (c) Rural Roads
- (d) All of the above

18. Suggest ways of improving the operation of "Okada" in the metropolitan Lagos?

Section B (Attitudinal rating of Okada Users on the Viability of Okada)

In answering questions 19-23 tick the appropriate response

Note:

SA = Strongly Agree

A = Agree

CS = Cannot Say

DA = Disagree

SD = Strongly Agree

		SA	A	CS	DA	SD
19	Okada is a nuisance to the total public transport in metropolitan					
20	Okada riders are absolutely reckless and this has become a major cause of accident in metropolitan Lagos					
21	Okada operation is very efficient					
22	You use Okada because there are no better modes to met your needs					
23	You support the use of Okada for commercial purpose in metropolitan Lagos					

APPENDIX III
UNIVERSITY OF LAGOS
DEPARTMENT OF GEOGRAPHY

**SURVEY SHEET FOR A STUDY ON AN "ASSESSMENT OF SPATIO-
 TEMPORAL IMPACT OF TWO-WHEELED PUBLIC TRANSPORT
 OPERATIONS IN METROPOLITAN LAGOS"**

LOCATION:

DATE:

ARRIVAL TIME:

DEPARTURE:

WEATHER CONDITION:

TYPE OF MOTORCYCLES

TIME	LADIES	OTHERS
7:00 AM -8:00AM		
8:01AM - 9:00AM		
9:01AM- 10:00AM		
10:01AM-11:00AM		
11:01 AM -12:00AM		
12:01 AM – 1:00PM		
1:01 PM –2:00 PM		
2:01 PM – 3:00 PM		
3:01 PM – 4:00 PM		
4:01 PM – 5:00 PM		
5:01 PM – 6:00 PM		
6:01 PM – 7:00 PM		

APPENDIX IV

Number of Okada at selected points in the Study Area

S/No	Local Govt. Area	Locations	Number of Okada		% Increase	Okada Traffic Count	
			2000	2005		2000	2005
1.	Mainland	1. Brewery	12	26		232	812
		2. Iddo	23	42		236	826
		3. Oyingbo	32	54		262	917
		4. Kano Street	12	27		286	1001
		5. Makoko Rd.	20	35		170	595
		Total	99	184	85.85	1189	4151
2.	Oshodi/Isolo	1. Oshodi	30	66		630	1260
		2. Daleko	17	21		657	1314
		3. Bayo Oyewole	16	36		633	1266
		4. Ajao Estate	12	21		662	690
		5. Ladipo	25	42		648	1296
		Total	100	186	86	3230	5826
3.	Eti-Osa	1. Bar Beach	13	24		242	484
		2. Sandfill	14	33		242	468
		3. Adeola Odeku	12	12		127	254
		4. Idejo	12	12		130	260
		5. Eko Hotel	16	28		216	402
		Total	67	109	62.68	934	1868
4.	Amuwo Odofin	1. Mile 2	31	43		584	934
		2. Navy Town Gate	12	24		481	769
		3. Satellite Town	12	31		476	545
		4. Gate	16	24		482	761
		5. First Gate	13	23		535	805
		Total	84	145	72.61	2560	3814

S/No	Local Govt. Area	Locations	Number of Okada		% Increase	Okada Traffic Count	
			2000	2005		2000	2005
5.	Ikeja	1. Awolowo Rd.	15	36		405	1539
		2. Alausa Street	12	14		205	779
		3. GRA	15	24		346	934
		4. Maryland	12	28		282	1071
		5. Ogba	13	23		321	1219
		Total	67	125	86.56	1559	4542
6.	Ajeromi/ Ifelodun	1. Ogbomolu	25	48		560	1512
		2. Wilmer	19	36		622	1679
		3. Okoya	15	21		515	1390
		4. Mosafejo	18	24		553	1439
		5. Boundary	21	36		634	1711
		Total	98	165	68.36	2884	7731
7.	Surulere	1. Ijesatedo	17	35		387	851
		2. Lawanson	27	49		407	888
		3. Masha	24	43		284	624
		4. Yaba	35	52		650	1430
		5. Ojuelegba	40	62		540	1188
		Total	143	241	68.53	2268	4981
8.	Somolu	1. Jagunmolu	13	29		338	1960
		2. Onipanu B/Stop	17	27		267	1548
		3. Palmgrove B/Stop	12	23		225	1305
		4. Ile-Epo	14	26		214	1241
		5. Bariga B/Stop	24	31		234	1357
		Total	78	136	74.35	1278	7411

S/No	Local Govt. Area	Locations	Number of Okada		% Increase	Okada Traffic Count	
			2000	2005		2000	2005
9.	Mushin	1. Mushin B/Stop	25	42		685	1762
		2. Sadiku	23	42		436	1090
		3. Atewolara	28	52		228	570
		4. Palm Avenue	15	29		300	750
		5. Iyana Isolo	18	42		700	1750
		Total	109	207	89.90	2349	5922
10.	Kosofe	1. Ogudu	27	39		277	544
		2. Ketu B/Stop	29	51		298	596
		3. Demurin	30	31		306	612
		4. Alapere	19	41		309	618
		5. Mile 12	27	55		279	540
		Total	132	217	64.39	1469	2910
11.	Ojo	1. Alaba Int'l	21	45		636	1526
		2. Okokomaiko	17	32		648	1555
		3. Ago Hausa Junction	15	28		638	1531
		4. Volkswagen	12	25		660	1584
		5. Ajangbadi	17	28		660	1476
		Total	80	158	97.5	3240	7672
12.	Apapa	1. Wharf	17	30		497	1143
		2. Ijora	24	46		483	1110
		3. Water Side	14	30		494	1136
		4. Agbomalu	12	20		510	1173
		5. Roundabout	13	34		553	1217
		Total	80	160	100	2537	5833
13.	Lagos Island	1. Idumota	13	22		317	1109
		2. Marina	23	36		317	1102
		3. Tinubu	17	27		221	891

S/No	Local Govt. Area	Locations	Number of Okada		% Increase	Okada Traffic Count	
			2000	2005		2000	2005
		4. Apongbon	23	38		234	819
		5. Obalende P&T	19	37		209	731
		Total	95	160	68.42	1298	4659
14.	Agege	1. Pen Cinema	20	46		245	410
		2. Agbotikuyo	13	22		218	603
		3. Oniwaya Road	18	41		220	659
		4. Iyana Ipaja	17	25		200	640
		5. Orile-Agege	13	25		219	642
		Total	81	159	96.29	1102	2954
15.	Ifako- Ijaiye	1. Jankara	28	46		278	1056
		2. Powerline	30	48		302	1147
		3. Iju	23	35		234	889
		4. Station	26	42		261	991
		5. Oyemekun B/Stop	16	36		96	364
		Total	123	207	68.29	1171	4447
16.	Alimosho	1. Moshalasi	23	36		344	1754
		2. Council	33	55		336	1713
		3. Ojo Koro	36	43		306	1560
		4. Agbelekale	19	51		193	984
		5. Igando/Egan Rd	15	33		45	1759
		Total	126	218	73	1524	7770
		Sum Total	1556	2776	73.61	30592	82491

Source: Fieldwork 2005

APPENDIX V

Lagos State government Edict on Okada Operation

Supplement to Lagos State of Nigeria Official Gazette Extraordinary No. 33, Vol. 27 of L.S.I.N. No. 6 of 1994.

ROAD TRAFFIC LAW (CAP. 124) 1973

LAWS OF LAGOS STATE

Road Traffic (Amendment) Regulations 1994

Commencement: 8th July 1994

In exercise of the powers conferred by Section 46 of the Road Traffic Law (CAP. 124) and by virtue of all other powers enabling him in that behalf, the Commissioner for Public Transportation makes the following Regulations:

1. The Road Traffic Regulations 1973 are further amended by deleting Regulation 36A and inserting the following-
Driver of Motorcycle to wear protective helmet
Insurance.
Offences and Penalties
Amendment to Regulation 36A of traffic regulations Cap. 124
36A – (1) No person shall drive or ride on a motorcycle without wearing a protective helmet.
(2) In case of a passenger on a commercial motorcycle the owner or the driver of such motorcycle shall provide a protective helmet for the use of the passenger.
(3) No person shall drive or ride or carry a passenger on a motorcycle unless the motorcycle is insured under the prescribed insurance policy.
(4) Any person who contravenes any of the provisions in these Regulations is guilty of an offence and is liable on conviction to:
(a) a fine of N500 or 3 months imprisonment in contravention of

sub-regulations (1)-(3) of these Regulations.

(b) a fine of N1,000 or 6 months imprisonment or both in case of a second or subsequent conviction.

2. The Road Traffic (Amendment) Regulations 1975 is revoked. Revolution of L.S.L.N. No.17 of 1975.
3. These Regulations may be cited as the Road Traffic (Amendment) Regulations 1994 and shall come into force on the 8th day of July 1994. Citation and commencement
- MADE at Ikeja, this 8th day of July 1994.

DR SEGUN OGUNDIMU
*Commissioner for Public Transport
Lagos State.*

Source: Lagos State Government official gazette (1994)

From the above, it is obvious that the Edict was grouped under 3 main sub headings viz.:

- (a) Driver/Passenger of Motorcycle to wear protective helmet (section 36A – 1 & 2)
- (b) Insurance (Section 36A – 3)
- (c) Offences and Penalties 36A – 4)

APPENDIX VI

Multiple Comparison of Okada Operators' Income at the Different Local Government Areas

Multiple Comparisons Dependent Variable: monthly income							
	(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Agege	Ajeromi	24192.9705(*)	6387.17739	.000	11652.8042	36733.1369
		Alimoso	20079.7980(*)	6558.60924	.002	7203.0536	32956.5424
		Apapa	21181.1966(*)	6298.35719	.001	8815.4140	33546.9791
		Lagos Island	14069.9700(*)	6865.13616	.041	591.4106	27548.5293
		Mushin	15407.8078(*)	6865.13616	.025	1929.2485	28886.3671
		Somolu	6667.4603	6637.09559	.315	-6363.3791	19698.2997
		Mainland	11376.6440	6387.17739	.075	-1163.5223	23916.8103
		Ikeja	7560.3175	6637.09559	.255	-5470.5219	20591.1568
		Ifako ijaye	14020.8038(*)	6451.90666	.030	1353.5522	26688.0553
		Ojo	20021.4976(*)	6486.11839	.002	7287.0770	32755.9182
		kosofe	32381.6548(*)	6451.90666	.000	19714.4033	45048.9064
		Osodi isolu	22020.6974(*)	6451.90666	.001	9353.4458	34687.9490
		Eti osa	19268.6489(*)	6356.52694	.003	6788.6597	31748.6381
		Amuwo odofin	28095.2719(*)	6451.90666	.000	15428.0203	40762.5234
Ajeromi	Agege	Surulere	7488.8889	6722.37226	.266	-5709.3771	20687.1549
		Agege	-24192.9705(*)	6387.17739	.000	36733.1369	11652.8042
		Alimoso	-4113.1725	6424.90106	.522	-16727.4031	8501.0580
		Apapa	-3011.7739	6159.00169	.625	-15103.9550	9080.4071
		Lagos Island	-10123.0006	6737.51386	.133	-23350.9946	3104.9935
		Mushin	-8785.1627	6737.51386	.193	-22013.1568	4442.8313

Multiple Comparisons
Dependent Variable: monthly income

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS				Lower Bound	Upper Bound
	Somolu	-17525.5102(*)	6505.00087	.007	-30297.0035	-4754.0170
	Mainland	-12816.3265(*)	6249.80268	.041	-25086.7803	-545.8727
	Ikeja	-16632.6531(*)	6505.00087	.011	-29404.1463	-3861.1598
	Ifako-Ijaye	-10172.1667	6315.94000	.108	-22572.4702	2228.1368
	Ojo	-4171.4729	6350.88421	.512	-16640.3836	8297.4377
	Kosofe	8188.6843	6315.94000	.195	-4211.6192	20588.9878
	Osodi-Isolo	-2172.2731	6315.94000	.731	-14572.5766	10228.0304
	Eti-Osa	-4924.3216	6218.47515	.429	-17133.2690	7284.6258
	Amuwo- Odofin	3902.3013	6315.94000	.537	-8498.0022	16302.6048
	Surulere	-16704.0816(*)	6591.98660	.011	-29646.3570	-3761.8063
	Agege	-20079.7980(*)	6558.60924	.002	-32956.5424	-7203.0536
	Ajeromi	4113.1725	6424.90106	.522	-8501.0580	16727.4031
	Apapa	1101.3986	6336.60965	.862	-11339.4863	13542.2835
	Lagos Island	-6009.8280	6900.24732	.384	-19557.3223	7537.6663
Alimoso	Mushin	-4671.9902	6900.24732	.499	-18219.4845	8875.5041
	Somolu	-13412.3377(*)	6673.40666	.045	-26514.4678	-310.2075
	Mainland	-8703.1540	6424.90106	.176	-21317.3845	3911.0765
	Ikeja	-12519.4805	6673.40666	.061	-25621.6107	582.6496
	Ifako ijaye	-6058.9942	6489.25406	.351	-18799.5712	6681.5828
	Ojo	-58.3004	6523.26992	.993	-12865.6619	12749.0611
	kosofe	12301.8569	6489.25406	.058	-438.7201	25042.4338
	Osodi-Isolo	1940.8994	6489.25406	.765	-10799.6776	14681.4764
	Eti-Osa	-811.1491	6394.43143	.899	-13365.5575	11743.2593
	Amuwo- Odofin	8015.4739	6489.25406	.217	-4725.1031	20756.0509
	Surulere	-12590.9091	6758.22517	.063	-25859.5664	677.7482

Multiple Comparisons
Dependent Variable: monthly income

(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Apapa	Agege	-21181.1966(*)	6298.35719	.001	-33546.9791	-8815.4140
	Ajeromi	3011.7739	6159.00169	.625	-9080.4071	15103.9550
	Alimosho	-1101.3986	6336.60965	.862	-13542.2835	11339.4863
	Lagos Island	-7111.2266	6653.37218	.286	-20174.0224	5951.5692
	Mushin	-5773.3888	6653.37218	.386	-18836.1845	7289.4070
	Somolu	-14513.7363(*)	6417.81151	.024	-27114.0476	-1913.4249
	Mainland	-9804.5526	6159.00169	.112	-21896.7337	2287.6285
	Ikeja	-13620.8791(*)	6417.81151	.034	-26221.1905	-1020.5678
	Ifako-Ijaye	-7160.3928	6226.10363	.251	-19384.3174	5063.5318
	Ojo	-1159.6990	6261.54921	.853	-13453.2152	11133.8172
	Kosofe	11200.4583	6226.10363	.072	-1023.4664	23424.3829
	Osodi-Isolo	839.5008	6226.10363	.893	-11384.4238	13063.4255
	Eti-osa	-1912.5477	6127.20993	.755	-13942.3109	10117.2155
Lagos Island	Amuwo-Odofin	6914.0753	6226.10363	.267	-5309.8494	19137.9999
	Surulere	-13692.3077(*)	6505.96308	.036	-26465.6901	-918.9253
	Agege	-14069.9700(*)	6865.13616	.041	-27548.5293	-591.4106
	Ajeromi	10123.0006	6737.51386	.133	-3104.9935	23350.9946
	Alimoso	6009.8280	6900.24732	.384	-7537.6663	19557.3223
	Apapa	7111.2266	6653.37218	.286	-5951.5692	20174.0224
	Mushin	1337.8378	7192.22862	.852	-12782.9134	15458.5891
	Somolu	-7402.5097	6974.89038	.289	-21096.5532	6291.5339
	Mainland	-2693.3260	6737.51386	.689	-15921.3200	10534.6681
	Ikeja	-6509.6525	6974.89038	.351	-20203.6961	7184.3911
	Ifako-Ijaye	-49.1662	6798.90856	.994	-13397.6986	13299.3662
	Ojo	5951.5276	6831.38272	.384	-7460.7624	19363.8176

Multiple Comparisons
Dependent Variable: monthly income

(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Mushin	Kosofe	18311.6849(*)	6798.90856	.007	4963.1525	31660.2173
	Osodi-Isolo	7950.7274	6798.90856	.243	-5397.8049	21299.2598
	Eti-Osa	5198.6789	6708.46426	.439	-7972.2810	18369.6389
	Amuwo-Odofin	14025.3019(*)	6798.90856	.039	676.7695	27373.8343
	surulere	-6581.0811	7056.08580	.351	-20434.5384	7272.3763
	Agege	-15407.8078(*)	6865.13616	.025	-28886.3671	-1929.2485
	Ajeromi	8785.1627	6737.51386	.193	-4442.8313	22013.1568
	Alimosho	4671.9902	6900.24732	.499	-8875.5041	18219.4845
	Apapa	5773.3888	6653.37218	.386	-7289.4070	18836.1845
	Lagos Island	-1337.8378	7192.22862	.852	-15458.5891	12782.9134
	Somolu	-8740.3475	6974.89038	.211	-22434.3911	4953.6961
	Mainland	-4031.1638	6737.51386	.550	-17259.1579	9196.8302
	Ikeja	-7847.4903	6974.89038	.261	-21541.5339	5846.5532
	Ifako-Ijaye	-1387.0040	6798.90856	.838	-14735.5364	11961.5284
	Ojo	4613.6898	6831.38272	.500	-8798.6002	18025.9798
Somolu	Kosofe	16973.8470(*)	6798.90856	.013	3625.3147	30322.3794
	Osodi-Isolo	6612.8896	6798.90856	.331	-6735.6428	19961.4220
	Eti-osa	3860.8411	6708.46426	.565	-9310.1189	17031.8010
	Amuwo-Odofin	12687.4641	6798.90856	.062	-661.0683	26035.9964
	Surulere	-7918.9189	7056.08580	.262	-21772.3763	5934.5384
	Agege	-6667.4603	6637.09559	.315	-19698.2997	6363.3791
	Ajeromi	17525.5102(*)	6505.00087	.007	4754.0170	30297.0035
	Alimoso	13412.3377(*)	6673.40666	.045	310.2075	26514.4678
	Apapa	14513.7363(*)	6417.81151	.024	1913.4249	27114.0476
	Lagos Island	7402.5097	6974.89038	.289	-6291.5339	21096.5532

Multiple Comparisons
Dependent Variable: monthly income

	(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Mushin	8740.3475	6974.89038	.211	-4953.6961	22434.3911
		Mainland	4709.1837	6505.00087	.469	-8062.3096	17480.6769
		Ikeja	892.8571	6750.55843	.895	-12360.7478	14146.4620
		Ifako-Ijaye	7353.3435	6568.56917	.263	-5542.9556	20249.6425
		Ojo	13354.0373(*)	6602.17639	.043	391.7560	26316.3186
		Kosofe	25714.1945(*)	6568.56917	.000	12817.8954	38610.4936
		Osodi-Isolo	15353.2371(*)	6568.56917	.020	2456.9380	28249.5362
		Eti-Osa	12601.1886	6474.90819	.052	-111.2227	25313.5998
		Amuwo-Odofin	21427.8116(*)	6568.56917	.001	8531.5125	34324.1106
		Surulere	821.4286	6834.41952	.904	-12596.8237	14239.6808
Mainland		Agege	-11376.6440	6387.17739	.075	-23916.8103	1163.5223
		Ajeromi	12816.3265(*)	6249.80268	.041	545.8727	25086.7803
		Alimoso	8703.1540	6424.90106	.176	-3911.0765	21317.3845
		Apapa	9804.5526	6159.00169	.112	-2287.6285	21896.7337
		Lagos Island	2693.3260	6737.51386	.689	-10534.6681	15921.3200
		Mushin	4031.1638	6737.51386	.550	-9196.8302	17259.1579
		Somolu	-4709.1837	6505.00087	.469	-17480.6769	8062.3096
		Ikeja	-3816.3265	6505.00087	.558	-16587.8198	8955.1667
		Ifako-Ijaye	2644.1598	6315.94000	.676	-9756.1437	15044.4633
		Ojo	8644.8536	6350.88421	.174	-3824.0571	21113.7643
		Kosofe	21005.0109(*)	6315.94000	.001	8604.7074	33405.3144
		Osodi-Isolo	10644.0534	6315.94000	.092	-1756.2501	23044.3569
		Eti-Osa	7892.0049	6218.47515	.205	-4316.9425	20100.9523
		Amuwo-Odofin	16718.6279(*)	6315.94000	.008	4318.3244	29118.9314
		Surulere	-3887.7551	6591.98660	.556	-16830.0304	9054.5202

Multiple Comparisons
Dependent Variable: monthly income

(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Ikeja	Agege	-7560.3175	6637.09559	.255	-20591.1568	5470.5219
	Ajeromi	16632.6531(*)	6505.00087	.011	3861.1598	29404.1463
	Alimoso	12519.4805	6673.40666	.061	-582.6496	25621.6107
	Apapa	13620.8791(*)	6417.81151	.034	1020.5678	26221.1905
	Lagos Island	6509.6525	6974.89038	.351	-7184.3911	20203.6961
	Mushin	7847.4903	6974.89038	.261	-5846.5532	21541.5339
	Somolu	-892.8571	6750.55843	.895	-14146.4620	12360.7478
	Mainland	3816.3265	6505.00087	.558	-8955.1667	16587.8198
	Ifako-Ijaye	6460.4863	6568.56917	.326	-6435.8128	19356.7854
	Ojo	12461.1801	6602.17639	.060	-501.1012	25423.4614
	Kosofe	24821.3374(*)	6568.56917	.000	11925.0383	37717.6365
	Osodi-Isolo	14460.3799(*)	6568.56917	.028	1564.0809	27356.6790
	Eti-Osa	11708.3314	6474.90819	.071	-1004.0798	24420.7427
Ifako-Ijaye	Amuwo-Odofin	20534.9544(*)	6568.56917	.002	7638.6553	33431.2535
	Surulere	-71.4286	6834.41952	.992	-13489.6808	13346.8237
	Agege	-14020.8038(*)	6451.90666	.030	-26688.0553	-1353.5522
	Ajeromi	10172.1667	6315.94000	.108	-2228.1368	22572.4702
	Alimoso	6058.9942	6489.25406	.351	-6681.5828	18799.5712
	Apapa	7160.3928	6226.10363	.251	-5063.5318	19384.3174
	Lagos Island	49.1662	6798.90856	.994	-13299.3662	13397.6986
	Mushin	1387.0040	6798.90856	.838	-11961.5284	14735.5364
	Somolu	-7353.3435	6568.56917	.263	-20249.6425	5542.9556
	Mainland	-2644.1598	6315.94000	.676	-15044.4633	9756.1437
	Ikeja	-6460.4863	6568.56917	.326	-19356.7854	6435.8128
	Ojo	6000.6938	6415.97965	.350	-6596.0210	18597.4086

Multiple Comparisons
Dependent Variable: monthly income

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS				Lower Bound	Upper Bound
	kosofe	18360.8511(*)	6381.39191	.004	5832.0436	30889.6586
	Osodi-Isolo	7999.8936	6381.39191	.210	-4528.9139	20528.7011
	Eti-Osa	5247.8451	6284.94215	.404	-7091.5992	17587.2894
	Amuwo- Odofin	14074.4681(*)	6381.39191	.028	1545.6606	26603.2756
	Surulere	-6531.9149	6654.72403	.327	-19597.3648	6533.5350
	Agege	-20021.4976(*)	6486.11839	.002	-32755.9182	-7287.0770
Ojo	Ajeromi	4171.4729	6350.88421	.512	-8297.4377	16640.3836
	Alimoso	58.3004	6523.26992	.993	-12749.0611	12865.6619
	Apapa	1159.6990	6261.54921	.853	-11133.8172	13453.2152
	Lagos Island	-5951.5276	6831.38272	.384	-19363.8176	7460.7624
	Mushin	-4613.6898	6831.38272	.500	-18025.9798	8798.6002
	Somolu	-13354.0373(*)	6602.17639	.043	-26316.3186	-391.7560
	Mainland	-8644.8536	6350.88421	.174	-21113.7643	3824.0571
	Ikeja	-12461.1801	6602.17639	.060	-25423.4614	501.1012
	Ifako-Ijaye	-6000.6938	6415.97965	.350	-18597.4086	6596.0210
	Kosofe	12360.1573	6415.97965	.054	-236.5575	24956.8721
	Osodi-Isolo	1999.1998	6415.97965	.755	-10597.5150	14595.9146
	Eti-Osa	-752.8487	6320.05775	.905	-13161.2367	11655.5393
	Amuwo- Odofin	8073.7743	6415.97965	.209	-4522.9405	20670.4891
	Surulere	-12532.6087	6687.89833	.061	-25663.1909	597.9735
Kosofe	Agege	-32381.6548(*)	6451.90666	.000	-45048.9064	19714.4033
	Ajeromi	-8188.6843	6315.94000	.195	-20588.9878	4211.6192
	Alimoso	-12301.8569	6489.25406	.058	-25042.4338	438.7201
	Apapa	-11200.4583	6226.10363	.072	-23424.3829	1023.4664

Multiple Comparisons
Dependent Variable: monthly income

(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	Lagos Island	-18311.6849(*)	6798.90856	.007	-31660.2173	-4963.1525
	Mushin	-16973.8470(*)	6798.90856	.013	-30322.3794	-3625.3147
	Somolu	-25714.1945(*)	6568.56917	.000	-38610.4936	12817.8954
	Mainland	-21005.0109(*)	6315.94000	.001	-33405.3144	-8604.7074
	Ikeja	-24821.3374(*)	6568.56917	.000	-37717.6365	11925.0383
	Ifako ijaye	-18360.8511(*)	6381.39191	.004	-30889.6586	-5832.0436
	Ojo	-12360.1573	6415.97965	.054	-24956.8721	236.5575
	Osodi-isolo	-10360.9574	6381.39191	.105	-22889.7649	2167.8500
	Eti osa	-13113.0060(*)	6284.94215	.037	-25452.4503	-773.5616
	Amuwo odofin	-4286.3830	6381.39191	.502	-16815.1905	8242.4245
	Surulere	-24892.7660(*)	6654.72403	.000	-37958.2159	11827.3161
	Agege	-22020.6974(*)	6451.90666	.001	-34687.9490	-9353.4458
Osodi-Isolo	Ajeromi	2172.2731	6315.94000	.731	-10228.0304	14572.5766
	Alimoso	-1940.8994	6489.25406	.765	-14681.4764	10799.6776
	Apapa	-839.5008	6226.10363	.893	-13063.4255	11384.4238
	Lagos Island	-7950.7274	6798.90856	.243	-21299.2598	5397.8049
	Mushin	-6612.8896	6798.90856	.331	-19961.4220	6735.6428
	Somolu	-15353.2371(*)	6568.56917	.020	-28249.5362	-2456.9380
	Mainland	-10644.0534	6315.94000	.092	-23044.3569	1756.2501
	Ikeja	-14460.3799(*)	6568.56917	.028	-27356.6790	-1564.0809
	Ifako ijaye	-7999.8936	6381.39191	.210	-20528.7011	4528.9139
	Ojo	-1999.1998	6415.97965	.755	-14595.9146	10597.5150
	Kosofe	10360.9574	6381.39191	.105	-2167.8500	22889.7649
	Eti-osa	-2752.0485	6284.94215	.662	-15091.4928	9587.3958

Multiple Comparisons
Dependent Variable: monthly income

(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Eti-Osa	Amuwo-Odofin	6074.5745	6381.39191	.341	-6454.2330	18603.3820
	Surulere	-14531.8085(*)	6654.72403	.029	-27597.2584	-1466.3586
	Agege	-19268.6489(*)	6356.52694	.003	-31748.6381	-6788.6597
	Ajeromi	4924.3216	6218.47515	.429	-7284.6258	17133.2690
	Alimoso	811.1491	6394.43143	.899	-11743.2593	13365.5575
	Apapa	1912.5477	6127.20993	.755	-10117.2155	13942.3109
	Lagos Island	-5198.6789	6708.46426	.439	-18369.6389	7972.2810
	Mushin	-3860.8411	6708.46426	.565	-17031.8010	9310.1189
	Somolu	-12601.1886	6474.90819	.052	-25313.5998	111.2227
	Mainland	-7892.0049	6218.47515	.205	-20100.9523	4316.9425
	Ikeja	-11708.3314	6474.90819	.071	-24420.7427	1004.0798
	Ifako ijaye	-5247.8451	6284.94215	.404	-17587.2894	7091.5992
	Ojo	752.8487	6320.05775	.905	-11655.5393	13161.2367
	kosofo	13113.0060(*)	6284.94215	.037	773.5616	25452.4503
	Osodi-Isolo	2752.0485	6284.94215	.662	-9587.3958	15091.4928
	Amuwo-Odofin	8826.6230	6284.94215	.161	-3512.8214	21166.0673
Amuwo-Odofin	Surulere	-11779.7600	6562.29282	.073	-24663.7365	1104.2165
	Agege	-28095.2719(*)	6451.90666	.000	-40762.5234	15428.0203
	Ajeromi	-3902.3013	6315.94000	.537	-16302.6048	8498.0022
	Alimoso	-8015.4739	6489.25406	.217	-20756.0509	4725.1031
	Apapa	-6914.0753	6226.10363	.267	-19137.9999	5309.8494
	Lagos Island	-14025.3019(*)	6798.90856	.039	-27373.8343	-676.7695
	Mushin	-12687.4641	6798.90856	.062	-26035.9964	661.0683
	Somolu	-21427.8116(*)	6568.56917	.001	-34324.1106	-8531.5125

Multiple Comparisons
Dependent Variable: monthly income

(I) LOCAL GOVT AREAS	(J) LOCAL GOVT AREAS	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Surulere	Mainland	-16718.6279(*)	6315.94000	.008	-29118.9314	-4318.3244
	Ikeja	-20534.9544(*)	6568.56917	.002	-33431.2535	-7638.6553
	Ifako ijaye	-14074.4681(*)	6381.39191	.028	-26603.2756	-1545.6606
	Ojo	-8073.7743	6415.97965	.209	-20670.4891	4522.9405
	kosofe	4286.3830	6381.39191	.502	-8242.4245	16815.1905
	Osodi-Isolo	-6074.5745	6381.39191	.341	-18603.3820	6454.2330
	Eti-Osa	-8826.6230	6284.94215	.161	-21166.0673	3512.8214
	Surulere	-20606.3830(*)	6654.72403	.002	-33671.8329	-7540.9331
	Agege	-7488.8889	6722.37226	.266	-20687.1549	5709.3771
	Ajeromi	16704.0816(*)	6591.98660	.011	3761.8063	29646.3570
	Alimoso	12590.9091	6758.22517	.063	-677.7482	25859.5664
	Apapa	13692.3077(*)	6505.96308	.036	918.9253	26465.6901
	Lagos Island	6581.0811	7056.08580	.351	-7272.3763	20434.5384
	Mushin	7918.9189	7056.08580	.262	-5934.5384	21772.3763
	Somolu	-821.4286	6834.41952	.904	-14239.6808	12596.8237
	Mainland	3887.7551	6591.98660	.556	-9054.5202	16830.0304
	Ikeja	71.4286	6834.41952	.992	-13346.8237	13489.6808
	Ifako ijaye	6531.9149	6654.72403	.327	-6533.5350	19597.3648
	Ojo	12532.6087	6687.89833	.061	-597.9735	25663.1909
	kosofe	24892.7660(*)	6654.72403	.000	11827.3161	37958.2159
	Osodi isolo	14531.8085(*)	6654.72403	.029	1466.3586	27597.2584
	Eti-Osa	11779.7600	6562.29282	.073	-1104.2165	24663.7365
	Amuwo-Odofin	20606.3830(*)	6654.72403	.002	7540.9331	33671.8329

* The mean difference is significant at the .05 level.