

**AN ASSESSMENT OF THE EFFECTS OF THE 'NEW' ROAD SAFETY
REGULATIONS ON PASSENGER SERVICE VEHICLE OPERATIONS IN
NAIROBI, KENYA**

**BY
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DECLARATION

This thesis is my original work and has not been presented for a degree or any other award in any other University or organization.

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DEDICATION

This thesis is dedicated to my grandparents, Mr. and Mrs. Kiprono Koitaba arap Sitienei and the entire Kapcherekweny (Kapturgat) family for their blessings.

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ACRONYMS AND ABBREVIATIONS

GDP - Gross Domestic Product

KBS - Kenya Bus Service

LoG – Local Government

MOA - Matatu Owners Association

MoT – Ministry of Transport

MVOA - Matatu Vehicle Owners Association

MWA - Matatu Welfare Association

PSV - Passenger Service Vehicle

POWAK- Public Service Vehicle Owners Welfare Association of Kenya

ROK – Republic of Kenya

TLB - Transport Licensing Board

DEFINITION OF KEY TERMS AND CONCEPTS

Public Service Vehicles – refers to any vehicles, which are licensed to carry passengers for hire or reward. In this study, it includes the 14-seater ‘Nissan’ matatus, mini buses and buses. The term *matatu* refers to small-scale public transport vehicles in Kenya. The term is derived from the Kikuyu word “mang`otore matatu”, which means thirty cents the then standard charges for fare by these vehicle operators when they were licensed to operate (Aduwo, 1990).

PSV Operators - refers to the driver, conductor and the owner of the PSV.

PSV Operations – refers to the process of running and providing means of transport to the public at a fee.

Input Costs – refers to a composite of services needed to facilitate the delivery of a transport service. In this study, input costs are computed for the following elements: cost of service and repair, amount of fuel, wages, inspection fee, route expenses, TLB fee, PSV license, parking fee, and car wash.

Output – refers to PSV productivity elements computed in terms of vehicle trips per day, duration of movement per trip, bus fare, number of passengers transported and average amount of daily collection.

The ‘New’ Road Safety Regulations - regulations gazetted by the government of Kenya in October 2003 (Government Legal Notice No.161 of 2003) and were implemented since February 2004. The aim was to improve the safety of commuters, PSV crew and the general public and bring sanity among the PSV operators. Most of the regulations were already in existence, but due to poor enforcement and implementation they had been ignored and neglected hence seemed new when the government enforced them in 2004.

Time Period – The study focuses two periods: three years (2001-2003) before and three years (2004- 2006) after the implementation of the enforced regulations.

Working Conditions - refers to terms of service of the drivers and conductors of PSV. These include; salary levels, house allowance, medical care, NSSF, promotion, working days and hours, formal day-offs or leaves, insurance cover and job security.

Quality of Service – refers to the level to which the services of the system are considered desirable and therefore usable from the users' point of view. In most cases the best assessor of the quality of service are the users whose assessment also varies due to differences in tastes and perceptions (Aduwo, 1990). This study considers the changes in attributes of the quality of service of PSV in relation to time. These attributes include; comfort, frequency of service, time taken, speed, reliability and regularity, cost/fare, safety etc.

ABSTRACT

The study examines the effects of the ‘new’ road safety regulations on the operations of PSVs in Nairobi. Specifically, the study sought to a) examine changes in the input and output of PSV in Nairobi, b) establish changes in the working conditions of PSV drivers and conductors, c) assess changes in the quality of service of public transport, and finally, d) examine the challenges and opportunities in implementing and enforcing the ‘new’ regulations. The study was descriptive, comparative and cross sectional in nature whereby only a section of the PSV operators were sampled to participate in the study.

Data for this study was collected using structured and un-structured questionnaires, which targeted the PSV owners, drivers/conductors and commuters. Key informants were drawn from Traffic Police, TLB, Ministry of Transport, Local Authority and Matatu welfare associations. A sample size of 120 PSVs was considered. The Statistical Package for Social Sciences (SPSS) was used for data processing and analysis. The data was mainly analyzed using descriptive statistics and the hypotheses were tested using the student t-test. The data was presented using simple tabular comparison of means, graphs, charts and text.

The findings indicated that there was a significant change in terms of input cost and output of PSVs ($P \leq 0.05$), minimal changes were observed on the working conditions of the PSV drivers and conductors, the quality of transport service improved after the regulations were implemented and that the key enforcers of the regulations face a lot of challenges in enforcing these regulations. The two null hypotheses (HO) were rejected at $P \leq 0.05$. In general, it can be concluded that the ‘new’ regulations were generally good, however poor implementation and enforcement has hindered its success. Therefore, it is recommended that for these regulations to be sustainable, a strict and consistent implementation and enforcement is needed.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Globally, it is estimated that 1.2 million people die and between 20 and 50 million others are injured and disabled annually through road accidents (WHO, 2005). This constitutes about 2.1 percent of all the deaths reported globally. Despite the fact that Africa has low levels of motorization, it still accounts for higher percentage of global deaths with Sub-Saharan Africa reporting between 82,000 and 200,000 deaths per year from road accidents. In Kenya, Public Service Vehicles (PSVs) play an important role in meeting the daily transport needs of her citizens and in the economy; they are responsible for ferrying 12 million commuters to and from work every day. The sector contributes Ksh. 41 billion to the Kenyan economy annually, which amounts to 4.5 per cent of the Gross Domestic Product (GDP). However, the road safety situation has been a major problem. It is estimated that 3,000 persons die and tens of thousands of injuries occur on these roads every year (Ibid). The cost of such road accidents to the economy is estimated at Ksh. 14 billion per year (Republic of Kenya, 2005).

The PSVs have been accused of over speeding, carrying passengers beyond capacity, playing very loud music, reckless and careless driving, being rude to passengers and driving un-roadworthy vehicles, among others (Khayesi, 2004). The problem has not been due to lack of road safety regulations but their poor enforcement (Odero et al., 2003; Chitere and Kibua, 2004). There is a Traffic Act, which provides the legislative framework to guide the standards required to ensure safety on Kenyan roads (Laws of Kenya, Chapters 403, 404, 405, and 406). However, there has been a lack of strong

political will, concern and priority to address the problem of road traffic accidents (Khayesi 2004; Nantulya and Muli-Musiime, 2001). The response has often been piecemeal and ad hoc and characterised by high vigilance following a major road crash that gradually tails off with the passing of time (Odero et al., 2003).

However, there has been an important turn of events since 1st February 2004, with the government implementation of strict road safety regulations for public transport. The regulations were gazetted by the Government in October 2003 and came into force on 1st February, 2004 (ROK 2003a; ROK 2003b). The aim was to improve the safety of commuters, PSV crew and the general public and bring sanity among the PSV operators.

The regulations' requirements were:

- Compulsory fitting of speed governors in all PSV and commercial vehicles whose tare weight exceed 3,048 kg in order to limit speed to 80 kph
- Fitting of safety belts and use of the same on all vehicles (public, commercial and private)
- Employment of drivers and conductors on permanent basis and they must be security vetted
- Compulsory wearing of uniforms and badges by all PSV drivers and conductors
- Reduction of carrying capacity in all PSVs and outlawing transportation of standing passengers
- Painting of a yellow band, indication of route details and writing of owner's details in all PSVs to facilitate PSV identification
- Compulsory retesting of all PSV drivers after every 2 years
- Every driver prominently displaying his or her photograph

Although the implementation of the regulations was received with mixed reactions from the PSV operators and users, they appear to have had significant implications on the

operations of PSVs. The speed governors ensured that the vehicles, which previously drove at life threatening speed did not go beyond the speed limit of 80 kph, therefore reducing the distance and number of trips covered by each PSV vehicle. The regulations reduced the passenger loads of PSVs. Before these regulations were implemented, it was usual to find the current 14-seater matatu carrying more than 18 passengers, while a 62-seater bus would carry more than 80 passengers both seated and standing. Now, the load of these vehicles may not exceed their official seating capacity. The Matatu Welfare Association (MWA) officials argued that the regulations had detrimental effects on the public transport industry by reducing earnings. The enforcement of these regulations led to a transport crisis. The PSV drivers and conductors hiked fares to compensate for the loss of passengers while the government through the traffic department warned of fare regulation if the problem persisted.

The effects of the ‘new’ road safety regulations in Kenya have been inadequately assessed, yet they have far-reaching implications to the public transport industry. Therefore, there was need to examine the effects of the ‘new’ regulations on PSV operations.

1.2 Statement of the Problem

In the past, the basic measures to address road traffic accidents (RTAs) in Kenya have been characterised by a lack of strong political will, concern and priority. Usually the responses experienced have been characterised by high vigilance following a major road accident, which gradually dies off with the passing of time (Khayesi, 2004). Significant

changes, however, have been realised since 1st February 2004 with the government enforcing implementation of strict road safety regulations for public service vehicles (Chitere and Kibua, 2004).

An initial assessment of the process leading to the implementation of these regulations revealed gaps in partnership and dialogue between the different agencies and stakeholders (Khayesi, 2004). The result was a conflict between the government and the PSV operators. Also, there was a lot of acrimony in the implementation and enforcement of these regulations, which have had far reaching implications on the operations of public transport. This study therefore, set out to examine the effects of the ‘new’ road safety regulations on the operations of PSVs in Nairobi.

1.3 Research Questions

Specifically, the study attempts to answer the following research questions:

1. What are the changes in the input costs and output of PSVs in Nairobi before and after implementing the ‘new’ road safety regulations?
2. What are the changes in the working conditions of PSV operators in Nairobi before and after implementing the ‘new’ road safety regulations?
3. What are the changes in the quality of service of public transport in Nairobi before and after implementing the ‘new’ road safety regulations?
4. What are the challenges and opportunities in implementing and enforcing the ‘new’ road safety regulations in Nairobi?

1.4 Objectives of the Study

The aim of this study was to determine the effects of the enforced road safety regulations on the operations of PSV in Nairobi. Specifically the study sought to:

1. Examine changes in the input and output of PSV in Nairobi before and after implementing the 'new' road safety regulations.
2. Establish changes in the working conditions of PSV operators in Nairobi before and after implementing the 'new' road safety regulations.
3. Assess changes in the quality of service of public transport in Nairobi before and after implementing the 'new' road safety regulations.
4. Examine the challenges and opportunities in implementing and enforcing the enforced road safety regulations in Nairobi.

1.5 Research Hypotheses

The following are the guiding hypotheses/assumptions of the study:

H₀₁: There is no significant difference in input and output of PSV in Nairobi before and after implementing the 'new' road safety regulations.

H₀₂: There are no significant differences in the working conditions of PSV operators in Nairobi before and after implementing the 'new' road safety regulations.

1.6 Justification and Significance of the Study

A change in road safety measures, implementation and enforcement affects the operation of any transport system. The regulations are usually meant to lay a guideline on how the system operates. This can be through regulating the carrying capacity, speed limits,

licensing, terms and condition of work among others. The road safety initiative by the government was a positive and timely step to address the deteriorating road safety situation that the country experiences. A comprehensive assessment of these effects is currently lacking in literature. Some of the public transport related studies carried out after the implementation of the enforced regulations have focused on institutional and organizational structure of public road transport (Asingo, 2004), role of matatu industry (Kimani et al 2004, Chitere 2004) and public service vehicle drivers (Chitere, 2006). There was therefore need for further analysis of the effects of the ‘new’ regulations on PSV operations. This study is a contribution towards filling this gap in literature.

The public transport industry plays a vital role in the Kenya economy. The industry serves other sectors and hence affects their growth and performance. Its importance in this regard is perhaps felt more when the operators go on strike. Whenever this happens, the movement of people and goods as well as operations in other sectors of the economy are adversely affected. The matatu industry alone contributes more than Kshs.2.9 billion to petrol stations per month in form of fuel consumption (Republic of Kenya, 2003a). It is further estimated that the industry contributes significantly to employment creation by offering both direct and indirect jobs to many Kenyans. Currently the industry has approximately 40,000 registered matatu and each vehicle employs at least two people (driver and conductor). This implies that the industry employs 80,000 people directly. Indirectly, the industry employs more people who include stage workers, those in motor vehicle manufacturing, body builders, vehicle assemblers, garage mechanics, petrol

stations attendants, painters and sign writers. The study therefore, is very important given the crucial role the public transport plays in Kenya.

In its Economic Recovery Strategy for Wealth and Employment Creation Programme (2003-2007), the Kenya government marked the transport sector as the third pillar of the economic recovery effort set to achieve an increase in the GDP growth rate. According to this strategy, Kenya expects the transport sector to contribute to the reduction of poverty levels by the year 2015. This is based on the fact that, a well managed transport system will support national economic growth because it will generate trade and commerce in the country and hence create access to the day to day needs and facilities by the citizens. A badly managed transport system on the other hand will compromise safety and security and will not meet changing needs of the people. All these will then add up to a slowed-growth in all sectors of the national economy.

The city of Nairobi being the capital city was preferred over other urban centres. The city has the highest number of registered PSV and 60% of all traffic accidents in the country occurred on its roads before the enforced regulations were put in place (Kayi, 2004). However, Nairobi being an urban centre, the 'new' road safety regulations seem to be more adhered to than rural areas. The latter is usually characterized by roads of poor condition and mainly plied by old and un-roadworthy vehicles. Also the Traffic Police in Nairobi seems to be relatively more alert than those in other places and therefore making the PSV operators adhere to these regulations.

1.7 Scope and Limitation of the Study

This study focused on the effects of the ‘new’ road safety regulations on PSV operations in Nairobi. The analysis particularly examined the changes in the operations of PSV over two periods: the period before and the period after the implementation of the ‘new’ regulations. Specifically, the analysis was based on changes in: PSV input and output, working conditions of PSV drivers and conductors, quality of public transport service and challenges and opportunities in enforcing and implementing these regulations. The study narrowed down to only four stakeholders who derive a direct livelihood and or service from the public transport industry and hence were greatly affected by the regulations. These include PSV owners, drivers/conductors, the law enforcers and passengers. Other stakeholders who indirectly depend on the public transport were deliberately left out so as to make the study more focused and detailed. These included those in motor vehicle manufacturing, body builders, vehicle assemblers, garage mechanics, petrol stations attendants, bus/matatu stage workers, painters and sign writers. The enforced regulations targeted the PSV and other vehicles including freight transport and private vehicles in the whole country. However, due to limited resources and time, the study only examined PSVs in Nairobi. The study considered both the internal and external routes of PSVs, where the internal routes are confined within Nairobi boundaries, while external routes extend to the surrounding urban centres.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

A review of both empirical and theoretical literature is presented in this chapter. The empirical review gives first an over view of trends in transport studies in Kenya. This is followed by detailed discussions on the following sub themes; road safety measures in Kenya, public transport costs and productivity, working conditions of the public transport operators, quality of service of public transport and finally challenges and opportunities in enforcing road safety regulations. The review of empirical studies locates this study in the growing body of literature on transport in Kenya, where knowledge gaps were identified and therefore need to fill them. The Economic Institutional theory was found relevant to the study. A conceptual framework has been utilized to discuss the effects of the road safety regulations on public transport.

2.2 Empirical Literature

2.2.1 Trends in Transport Studies in Kenya

Transport studies in Kenya have examined a wide range of themes. The studies reviewed in this section are not comprehensive but rather representative of the trends in transport studies. Among the widely examined themes in transport are summarized in Table 2.1.

Table 2.1: Summary of Empirical Studies Reviewed

Theme	Author	Main Objective	Findings
(a). Road Traffic Accidents	Kayi (2007)	An analysis of road traffic accidents using Geographical Information Systems (GIS)	1. The methods used by the traffic police to record, process and manage road traffic accidents data are not sufficient to meet the needs of both the state and other interested agencies. 2. The road safety intervention that came into force in 2004 had a strong positive impact on road crash trends.
	Ndwigah (2003)	To determine the knowledge and practices of accident victims and drivers regarding road traffic accidents.	Main causes of road accidents include careless driving, vehicle defects, road defects, overloading, among others.
	Khayesi (1999)	An analysis of the pattern of road traffic accidents in relation to selected socio-economic dynamics and intervention measures.	1. Road traffic accidents imply both qualitative and quantitative costs to the victims. 2. Factors leading to RTAs are; road user behavior, road environment and physical environment.
	Odero (1997)	Road traffic injuries and alcohol.	1. Road crashes are leading causes of trauma-related hospital admissions. 2. Alcohol related injuries predominantly involve men with greater frequency on weekends and at night.
	Other authors include; Said (1990) Maranga (1989) and Agoki (1988)		
(b).Matatu Mode of Public Transport	Chitere (2006)	The characteristics of PSV drivers that affect their compliance with traffic regulations.	There was high non-compliance of drivers with the regulations despite various enforcements.
	Kimani et al (2004)	The role of the matatu industry in Kenya.	1. The initial capital required to invest in the matatu industry is huge, and difficult to raise hence most operators purchase second hand vehicles. 2. The industry pays Kshs.1.09 billion p.a in government taxes and creates approximately 160 000 jobs.

	Asingo (2004)	The institutional and organizational structure of public road transport in Kenya	That lack of coherent road transport policy resulted into weak institutions incapable of facilitating efficient road transport.
	Other authors include; Chitere (2004), Muyia (2001), Howe and Bryceson (2000), Awino (1998), Khayesi (1997), and Aduwo (1990).		
(c). Rural and urban Transport	Mbuthia (2003)	Analyzed farming related transport needs and provision in Mwea Tebere Irrigation Scheme.	That, main constraints of transport in the rural include: muddy routes, high transport charges, insecurity and scarcity of vehicles. These leads to delay in on-time performance of farm activities and hence low production.
	Other authors include; Bundi (2003), Kariga (2000), Khayesi (1990), Irandu (1982), Berege (1976) and Ogonda (1976)		
(d) Road Transport-Environment Relationship	Kayi (2002)	Effects of the 1997/1998 El-Nino rainfall on input costs and productivity of road freight operators.	1. That the mean input cost was higher during El-Niño rainfall than before and after the rains. 2. The El-Niño rainfall intensified the already existing transport constraints.
	Shisanya and Khayesi (1999)	Awareness and perception of climate change among respondents in Nairobi.	That the El-Niño rainfall found a neglected and dilapidated road transport infrastructure and therefore could not be held fully as the main factor responsible for the deplorable state of roads after the El-Niño rains in Kenya.

Source: Prepared by author, through review of literature

2.2.2 Road Safety Measures in Kenya

Road safety situation in Kenya is a matter of concern to the government and the people of Kenya. RTAs constitute a serious problem throughout the country in social, economic and health terms. In the last decade 28,000 Kenyans have died in RTAs while 330,000 have been injured (WHO, 2005). Up to late 1970s, there were no programmed, coordinated and countrywide road safety programmes. A few programmes were

implemented during the early 1970s but were disjointed and sporadic, lacking a systematic approach. In 1979, the government of Kenya and Finland started a joint road safety project within their development co-operation programme (Ministry of Transport and Communication, Kenya and Ministry for Foreign Affairs, Finland, 1985). The programme progressed and in the period 1984-1993, an overall national target in the long term road safety programme aimed at reducing the number of persons killed in road accident to not more than 1,000 persons in 1993 (Republic of Kenya, 1984).

Currently, there are several institutions through which road transport is regulated and coordinated. These include the Transport Licensing Board (TLB), the Motor Vehicle inspection Unit, the Registrar of Motor Vehicles, the Driving Test Centre, the Traffic Police and the Local Authorities. The Transport Licensing Board (TLB) has been created by the Transport Licensing Act, and it is the chief motor vehicle licensing authority whose responsibility is to license all PSV after technical inspection, and assign them routes. The Registrar of Motor Vehicles is appointed by the Ministry for Transport, and work under the TLB, with express mandate to register and license all motor vehicles and drivers, and keep records of the same. It also determines and fixes passenger and luggage capacity for all categories of vehicles. The Registrar registers and licenses motor vehicles and drivers largely as a revenue raising mechanism for the government. The Local Government Act and the Traffic Act gives a wide range of responsibilities to local authorities with respect to urban public transport. Section 72 of the Traffic Act for instance, empowers the local authorities to designate parking places for vehicles including matatu terminus and stages. The Traffic Police is the most crucial road

transport policy implementation agent in Kenya. They are required to enforce traffic rules, examine PSV drivers and issue certificate of good conduct to the PSV crew.

However, traffic rules continue to be violated right under the nose of the traffic police and the traffic police have been accused of massive corruption in their operations. The above institutions are irrespectively distributed among the Ministry of Transport, Roads and Public Works, Finance, Local Government and Office of the President hence creating conflicts in administration of traffic rules. The Ministry of Transport however, is the overall institution in charge of formulating and implementing policies on road safety.

Asingo (2004) examined the structure, capacity and performance of the institutions responsible for public road transport in Kenya with regard to matatu mode of transport. In its findings, the study established that lack of coherent road transport policy has resulted into weak institutions incapable of facilitating effective road transportation.

The Government of Kenya (GoK) has also drawn up policy guidelines that are in form of legislation, directives and decrees on road safety. Penalties for various types of road traffic offences are spelled out in the laws of Kenya under Traffic Act (Laws of Kenya, Cap.403, 404, 405 and 406). There are also directives, decrees and notices on road safety contained in the Kenya Gazette, National Development Plans, Ministry documents and media reports. Although the past development plans have recognized the need for road safety, there is a general lack of comprehensive statement of how this is to be achieved. In 2004, the Ministry of Transport developed an Integrated National Transport Policy which will guide the operations of all the transport sectors.

2.2.3 Public Transport Costs and Productivity

Kimani et al. (2004) examined the economic costs and benefits of the matatu industry in Kenya. The study divided the daily costs of maintaining a matatu into fuel expenses, salary for the workers, route expenses, inspection fee, insurance, TLB fee, PSV license fee, road license, parking fee and car wash. In terms of daily collections, most of the matatu owners set targets for their employees. This is usually meant to ensure that operators do not take part of the daily earnings and to guarantee a constant income so that they can plan for vehicle operations. However, target setting leads to over speeding and overloading. The study further notes that the amount collected daily is negatively and significantly correlated to the age of the vehicle. Hence, the older the vehicle the higher the maintenance costs because its productivity and performance tends to decline and therefore a fall in the daily earnings and reduction in profit. This study however, was conducted before the implementation of the stated regulations while the current one provides a comparative analysis as it seeks to examine whether there were any significant changes in the input cost and earnings of the PSV before and after implementing the 'new' road safety regulations.

The high number of traffic accidents has been a threat to most insurance companies who incur huge expenses when compensating accident victims. In fact very few insurance companies were willing to provide insurance covers for PSVs. In 1994, a major insurer, Access Insurance Company had to be liquidated by the government since it could not cope with the accident claims. The claims had gone beyond the money contributed in the pool (Munji, 1996). On the other hand, the PSV owners lost faith in insurance companies

because it was not certain to be compensated in case of losses due to rampant road accidents, and were it not mandatory to insure vehicles many would have preferred to operate without it. The proposed study attempts to examine whether there were changes in the cost of insuring PSV vehicles after implementing the 'new' regulations.

2.2.4 Working Conditions of the Operators

Muyia (2001) carried out a study to establish the working conditions of Matatu drivers in Eldoret town and their effect on road traffic accidents. The study found that the majority of drivers are underpaid; work on contract or casual basis and for very long hours. Further, they do not get any employment benefits such as leave allowance, formal and recognized offs, medical allowance, house allowance. They are only paid a fixed salary and provided with lunch allowance; typical characteristics of informal sector. Although drivers are always blamed for being careless in their driving and causing road accidents, the study, however, noted that drivers worked under a lot of pressure from the passengers, traffic policemen and PSV owners. The study found 36 per cent of workers were employed on permanent basis while the remainder were on contract or casual basis. A further 39 per cent of the drivers worked for less than or equal to nine hours and the remainder worked for 10 or more hours on a given day. This study concurs with Khayesi (1997) who analyzed the terms and condition of work in the matatu industry in Nairobi, Thika and Ruiru towns. He found that matatu workers operate under different conditions. The workers are generally on temporary basis and earn wages on daily basis. These two studies are important to the current one which seeks to assess whether the terms and condition of work for drivers and conductors changed with the implementation of the

'new' road safety regulations. The study will further assess the views of the drivers and conductors regarding the implementation of these regulations.

2.2.5 Quality of Service of Public Transport

Although PSVs make important contribution to public transport in Kenya, a number of passengers are dissatisfied with the services provided. For instance, matatu drivers are often accused of over speeding, carrying passengers beyond capacity, playing very loud music, driving recklessly, hooting, touting for passengers, and chaotic stopping to pick passengers. The conductors on the other hand are often accused of harassing and even abusing commuters and other road users. Aduwo (1990) notes that the matatus have been rightly blamed as being a major cause of the most dreadful accidents and their drivers have been accused of abusing traffic rules. Muyia (2001) found that 97 per cent of the matatu drivers had been involved once or severally in accidents. The reasons given for the accidents included driving unroadworthy vehicles, harassment from traffic police, passengers and owners, poor road conditions, obstruction caused by pedestrians, cyclists or animals crossing the road. Fourteen per cent of the drivers admitted to causing accidents due to their own mistakes of over speeding and obstruction.

Aduwo (1990) examined the role, efficiency and quality of service of the matatu mode of public transport in Nairobi. Among other issues, the study specifically looked at the factors which influence public transport modal choice with a view of identifying the positive attributes of the matatus. This was achieved by examining the quality attributes of matatus which attracted commuters to use them *viz a vi* other modes of public

transport. Some of the attributes that were analysed include; safety, comfort, speed, cost/fare charged, reliability/frequency of service, time taken, among others. Aduwo concurs with Campell (1963) that these are the main parameters, which go to make up what we might call people's transportation preference function. These attributes were ranked in order of preference by the sampled commuters and that the most valued quality attribute was comfort followed by frequency of service and least valued was that of cost and safety. Although the proposed study also considers the quality of service attributes in general, it goes further to assess the changes and compare the quality of service of public transport before and after implementing the 'new' road safety regulations across the various types of road public transport.

2.2.6 Challenges and Opportunities in Enforcing Road Safety Regulations

Although there are quite a number of road safety intervention measures in place, a major challenge is the lack of political concern and priority to effect the necessary changes in the road transport system (Khayesi, 1999). Other challenges include contradictions, which may emerge in trying to enforce road safety regulations. For instance, former attempts to have speed governors (nicknamed 'black box') installed in public vehicles in Kenya, through a directive from the Minister for Transport and Communication failed as public vehicle operators did not adhere to it. Instead they complained that the gadgets were costly and by lobbying through the power structures, they managed to have the directive stayed (Munji, 1996; Mwai, 1996). Similar challenges were also experienced in 1999 when Transport Licensing Board Regulations were introduced.

The traffic police play a crucial role in enforcing traffic rules. However, traffic rules continue to be violated right under the nose of the traffic police (Asingo, 2004). In fact, some of the provisions of the Legal Notice No. 161 have always existed as part of the Traffic Act, but the police have not been able to enforce them. Section 42 of the Traffic Act, for instance, limits PSVs speeds to 80km/h, yet the Legal Notice No. 161 provides for speed governors for automatic speed regulation below 80km/h, showing loss of confidence on the ability of the police to regulate speed. Asingo (2004) further explains the inability of the traffic police to enforce traffic rules in two ways. First, there has been massive corruption in the traffic police. Secondly, the traffic police are also ill equipped to enforce some of the traffic rules and work under extremely difficult conditions, characterized by lack of basic facilities such as speed guns for detecting vehicle speeds. They also lack adequate protection against the vagaries of weather like rain. The current study therefore, examines the problems experienced by key stakeholders in enforcing these regulations.

Over speeding is a common contributing factor in the causation of road traffic crashes. In Ghana, the 'speed factor' alone accounted for more than 50 per cent of all Ghanaian road traffic crashes between 1998 and 2000 (Afukaar, 2003). It has been established that if the mean speeds of vehicles can be reduced by 1 km/hr then, on average, injury and crashes will be reduced by about 3 per cent (Finch, 1994). The study findings concur with Taylor (2000) that there is overwhelming evidence that lower speeds results in fewer collisions of lesser severity. This means that the risks increases rapidly when speed is increased and lowers rapidly when speed is reduced.

It should be noted however, that speed policy involves difficult decision on trade-off between benefits and disadvantages and must resolve conflicts between objectives to strike the right balance (Road Safety and Environment Directorate UK, 2003). There is also need for more work and consultation to develop new policies in detail where future changes should be considered, for example in vehicle performance, which might provide better ways of achieving set objectives. Silcock et al. (1999) notes that many drivers and riders often do not regard breaking the speed limit as a criminal act. With the enforced road safety regulations, it is important to further examine other challenges encountered in implementing and enforcing the 'new' regulations.

2.3 Theoretical Framework

The Institutional Economic Theory was found relevant to this study. North (1993) notes that institutions are humanly devised constraints that structure human interaction. The constraints are rules, laws, constitutions, self-imposed conducts and norms of behaviour. Hodgson (2006) broadly defines institutions as durable systems of established and embedded social rules that structure social interactions. Other proponents of this theory include Veblen (1909), Viktor Vanberg (1994), Becker (1962) among others. There is an acknowledgement of the role of institution in social life, which involves the recognition that most of the human interaction and activity is structured in terms of overt and implicit rules. Institutions both constrain and enable behaviour. The existence of rules implies constraints. However, such a constraint can open up possibilities; it may enable choices and actions that otherwise would not exist. For example; traffic rules help traffic to flow more easily and safely.

In Kenya, the public transport industry is an example of institution, which is governed by various rules and regulation (constraints). The rules and regulations guide the interaction of various stakeholders in the industry and help to shape the institutional evolution of the industry in general. It is important to evaluate the ways in which traffic rules are enacted and how they affect the individual behaviour and existence of the operators, commuters and the law enforcers. Rules are associated with both incentives and sanctions. However, there is need to explain why the individual groups might, or might not take the incentives or sanctions seriously. Therefore, the Institutional Economic theory guides the study in this context.

North and Hodgson fully acknowledge that mere rule legislation or proclamation is not enough to make that rule affect social behaviour. It might simply be ignored. For instance, many drivers may over speed or carry excess passengers in spite of the existing regulations. Therefore, Hodgson (2006) prefers a broader conception of institutions that accommodates the informal basis of all structured and durable behaviour. He defines institutions as durable systems of established and embedded social rules that structure social interactions, rather than rules as such.

Rules and regulations can either be self-enforcing or may need some external force to enforce them. Institutions that are not self-organising greatly depend on other institutions to enforce the internal rules, while self-organising institutions rely on internal coordination in implementing the rules. Coordination rules typically provide incentives for everyone to conform to the regulations. Consequently coordination equilibrium can be

self-policing, self-reinforcing and highly stable. In such a case, it is not only the duty of each player to stick to the strategy but the wish of each individual player that other players keep to their strategy as well (Schotter, 1981).

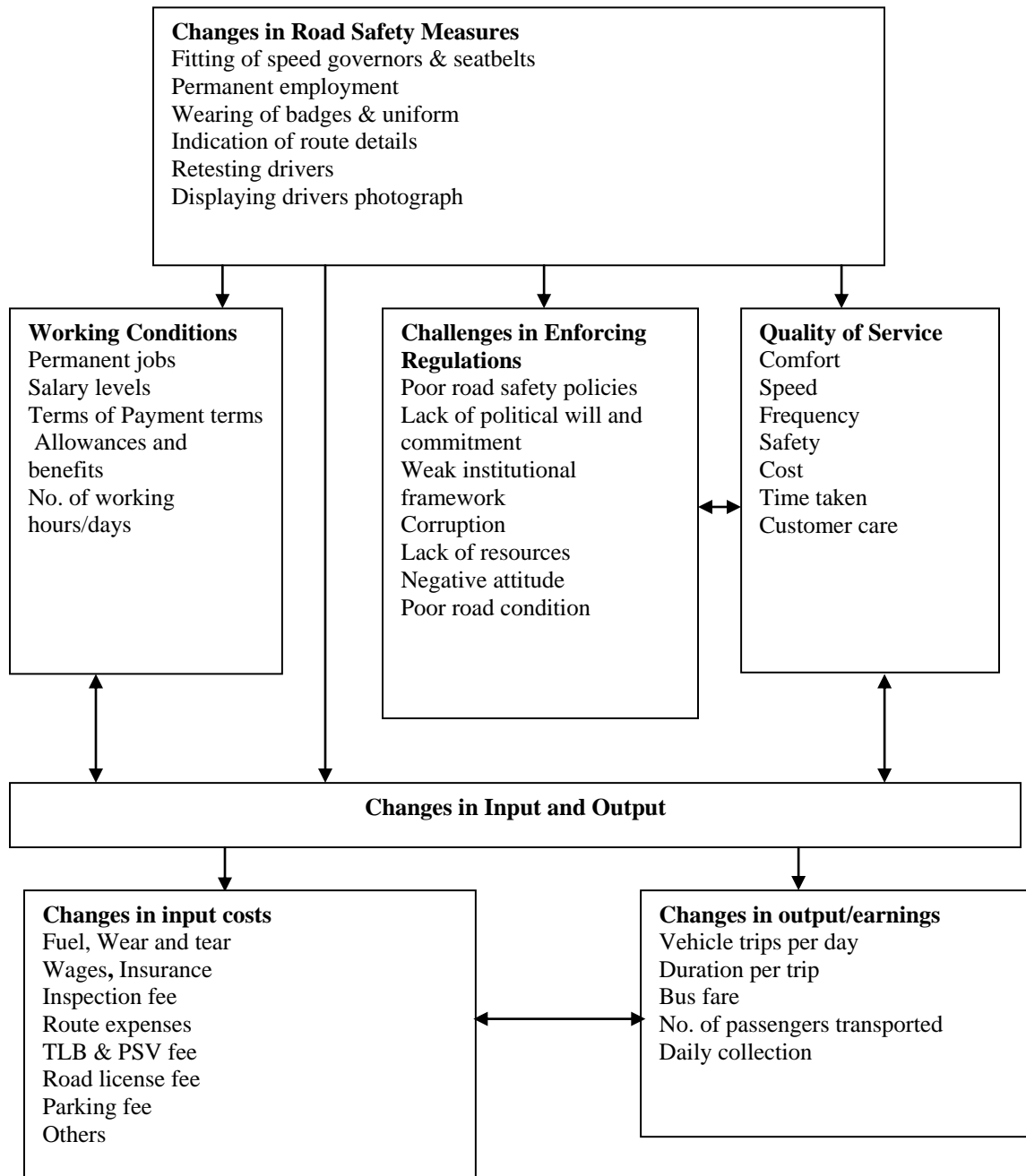
In contrast, however, laws that restrict behaviour where there are substantial perceived net advantages to transgression are the ones that require the most policing. Without some policing activity, the law itself is likely to be infringed and rendered inactive; therefore some external authority to enforce such rules is a must (Lutzer and Schmitz, 2002). In such circumstances, the intervention of the state may be necessary to maintain integrity of the institution. However it remains a question of research and debate as to whether, and if so in what circumstances the state or other powerful organisations can facilitate the emergence and stability of other institution (Menger, 1936).

Other related models have been developed by; Becker (1962), Gode and Sander (1993) and Mirowski (2002). However, they are all insensitive of the target group/s. They do not pay attention to the psychological, cognitive process or computational capacities of the individual groups involved. The existence of hard and insurmountable constraints is common to them. In general, while self-organization is an extremely important phenomenon in both nature and society, it would be a mistake to suggest that all institutions are of this type. It is noted that some institutional rules require other institutions for their enforcement. For instance, some of the 'new' regulations may need to be enforced by the government while some may be self-regulated by the PSV operators.

2.4 Conceptual Framework

The study was guided by a conceptual framework, which explores a basic relationship in terms of the enforced regulations and their effects on the operations of PSVs. The enforced road safety regulations emphasized the following; fitting of speed governors, seat belts, permanent employment for the operators, wearing of badges and uniform, indication of route details, displaying of drivers photograph and retesting of drivers after every 2 years. These regulations affected the working conditions of drivers and conductors in terms of salary levels, job security, allowances, day offs/leave, number of working hours, number of working days and insurance cover. The input and output (productivity) indicators of PSV were affected as follows; First, in terms of input costs elements which include fuel cost, wear and tear, wages, tyre replacement, maintenance cost, route expenses, inspection fee, insurance, TLB fee, PSV license fee, road license, parking fee and car wash charges. Secondly, in terms of output/earnings which include number of vehicle trips, time taken per trip, bus fare and, amount of daily collection. Quality of service of PSV was also affected by the enforced regulations. The perceived changes are in terms of frequency of service, safety, speed, comfort, fare charged and speed among others. Several challenges are experienced in enforcing these regulations. These include lack of resources, poor road safety policies, political will and commitment among others. The conceptual framework that guides this study is shown in Figure 2.1.

Figure 2.1: Conceptual Framework to Show Effects of Changing Road Safety Measures



Source: Author, 2007 using a synthesis from reviewed literature

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used in the research. Central to this is: study design, study area, sampling strategies, sample size, data variables, research instruments, methods of data analysis and presentation of the research findings.

3.2 Research Design

The study is descriptive, cross-sectional and comparative in nature. The study compares the operations of PSVs in Nairobi for the periods before and after implementation of the road safety regulations. The periods are from 2001 to 2003 and 2004 to 2006 respectively. A six-year period was chosen based on the fact that, the study was conducted three years after the regulations were implemented, hence needed a period of similar length (three years) before the regulations were implemented for comparative purposes. It is also important to note that the implementation of the regulations was changing drastically over time hence need for fast assessment. The comparison is meant to ascertain the changes in the operations of PSVs hence effects of the implemented regulations. Both qualitative and quantitative data was collected for this purpose.

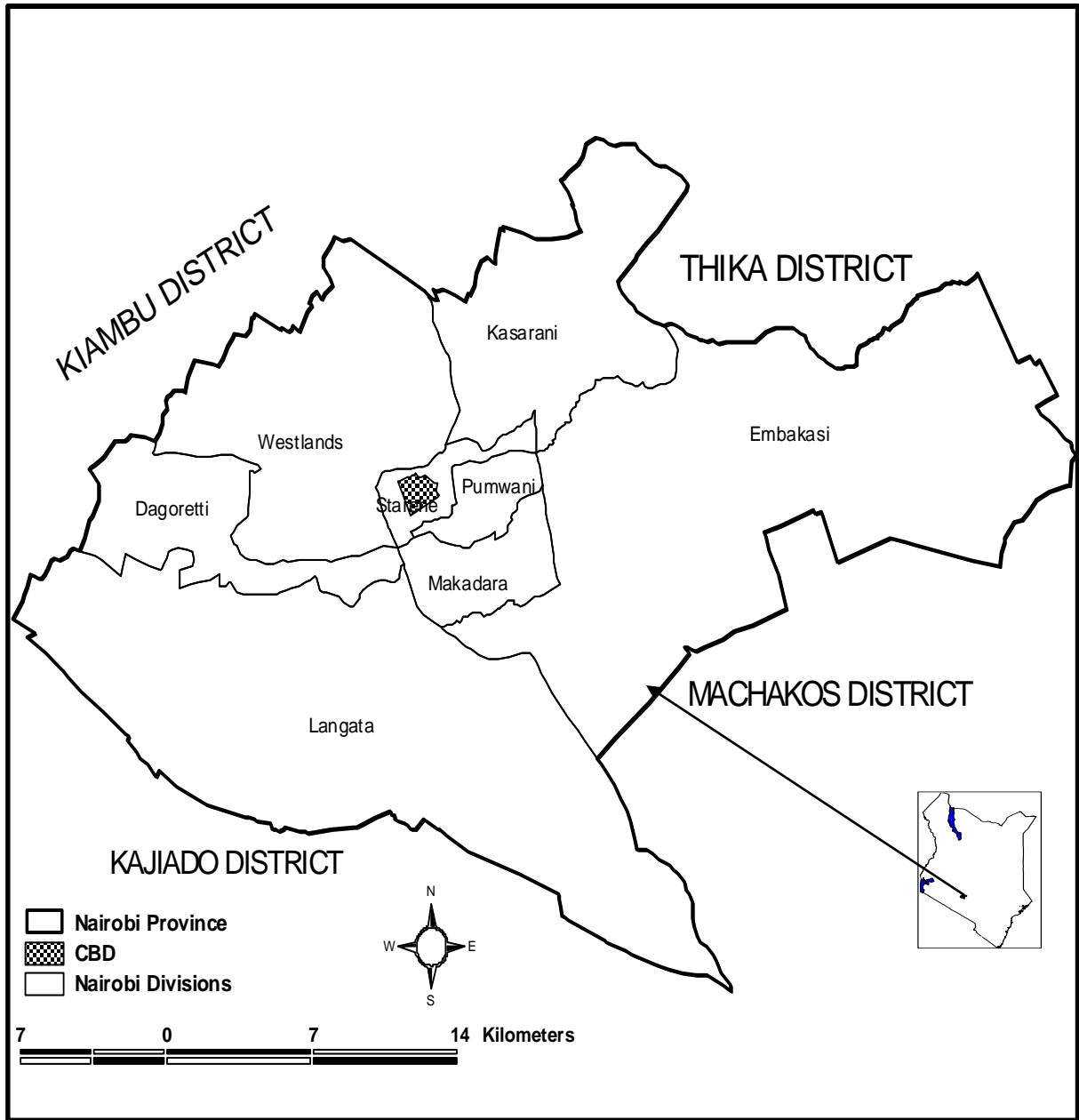
3.3 Study Area

3.3.1 Location and Physical Features of Study Area

The area of study is the City of Nairobi. The city lies at altitude of 1670M above sea level, and longitude 36⁰50' East and latitude 1⁰ 17', just 140 kilometres South of the Equator. The drainage system of the city is mainly eastwards, and has abundant small

streams that confluence to the Athi River. Nairobi city lies on the Athi plains. The plain is wedged between Nairobi hills on the West and the bank of Nairobi River. It also lies on the brink of Rift Valley marked by the Ngong hills. The higher part of Nairobi is composed of volcanic rocks while the lower parts have dark grey phonolites. The area experiences modified tropical weather conditions, usually warm but not torrid. The location of study area is shown in Figure 3.1.

Figure 3.1: Location of Study Area

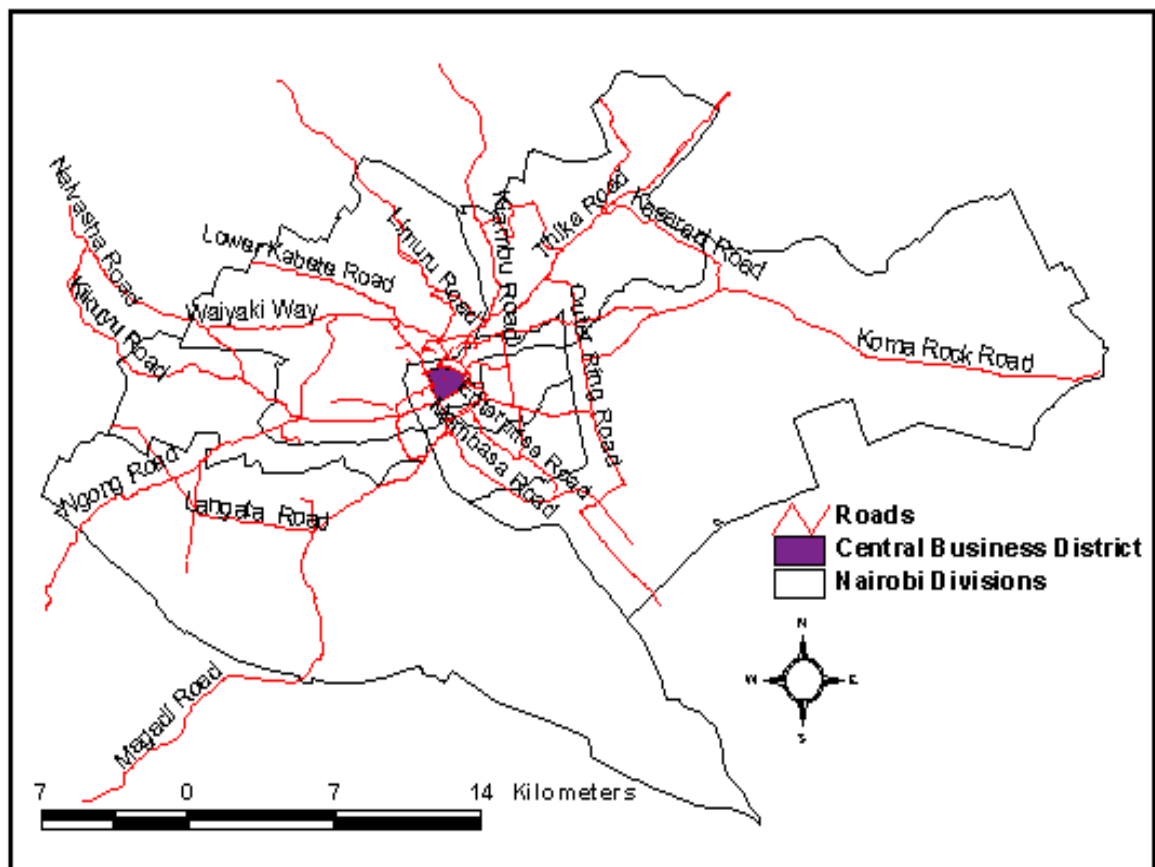


Source: Survey of Kenya 1999

3.3.2 Overview of Public Road Transport in Nairobi

Nairobi has a population size of approximately 3 million inhabitants and it is projected that by 2020 it will be a mega city of 15million inhabitants. The city's population is catered for in three main types of residential areas, that's high, middle and low income. Majority of the population in Nairobi depend on public means of transport for their daily transport needs. Figure 3.2 shows the major route networks in the city.

Figure 3.2: Major Route Network in Nairobi



Source: Survey of Kenya, 1999.

The available public transport however, has never been adequate and usually faced with many challenges in terms of quality and quantity leading to high social and economic costs. In Nairobi, the current situation of urban transport is alarming. The city's transportation problems are severe in degree, in daily duration and in size of the areas affected. The public transport for a long time had been characterized by severe struggles while getting on and off the available PSVs, insecurity and pick-pocketing, frequent accidents, overloaded vehicles, over speeding and general atmosphere of bad tempers. The key road public transport comprise of matatus and buses.

The bus public transport in Nairobi was for a long time provided by the Kenya Bus Service (KBS). The KBS started operations in 1934 as a subsidiary of Overseas Motor Transport Company Ltd of London (OMT). The company was taken over by United Transport Overseas Ltd (UTO) in 1951. The Nairobi City Council later acquired 25 percent of the company's shares in 1966. It is until 1980 that UTO terminated its services and later handed over its shares to Stagecoach Ltd of Scotland in 1992 and the company was renamed Stagecoach Kenya Bus. The Stagecoach operated until 1998 when it sold the company to a group of local investors who changed the company's name back to Kenya Bus Service (KBS). However, due to financial problems the KBS has gone under and the company has been renamed Kenya Bus Service Management Ltd. Since February 2004 when the 'new' road safety regulations were put in place, more companies were licensed to operate in the Nairobi city center. Hence new companies like Citi Hoppa and Double M came into operation.

Matatus is a local Swahili term referring to Nissans (14 seater) and minibuses popularly known as *manyangas* with sitting capacity ranging from above 14 to 41. The matatu industry originally started in 1960s as an illegal public transport by private undertakings, but was legalized in 1973 through a presidential decree. The matatus are owned by diverse people that include; individual single owners, associations, SACCOs and companies. According to Ministry of Transport, the buses and matatus in Nairobi were estimated at approximately 1,900 and 9,000 respectively (as at October 2006). The number keeps on varying because of registration of new PSVs and fall out of the old ones.

3.3.3 The Road Safety Situation in Nairobi

The road safety situation not only in Nairobi but in Kenya as a whole, has been a major problem. It was estimated that 3,000 persons die and tens of thousands of injuries occur on these roads every year (Republic of Kenya, 2005). The city has the highest number of registered PSVs and 60% of all the traffic accidents in the country occurred on its roads before the 'new' regulations were put in place (Kayi, 2004). The PSVs have been accused of over speeding, carrying passengers beyond capacity, playing very loud music, reckless and careless driving, being rude to passengers and driving unroadworthy vehicles, among others (Khayesi, 2004). The problem has not been due to lack of road safety regulations but their poor enforcement (Odero et al., 2003; Chitere and Kibua, 2004). There has been a lack of strong political will, concern and priority to address the problem of road traffic accidents (Khayesi 2004; Nantulya and Muli-Musiime, 2001). The response has often been piecemeal and ad hoc and characterised by high vigilance following a major road

crash that gradually tails off with the passing of time (Odero et al., 2003). However, there has been an important turn of events since 1st February 2004, with the government implementation of strict road safety regulations for public transport.

3.5 Sampling Strategy and Sample Size

The individual PSV was the unit of study. According to information collected from the Ministry of Transport (October 2006), the estimated number of registered PSVs in Nairobi is 11, 000. The sample size for the study was determined using standard error (S.E) method (Gregory, 1973).

$$\begin{aligned} \text{S.E \%} &= d^2 \\ d^2 &= \frac{p\%.q\%}{n} \\ n &= \frac{p\%.q}{d^2} \end{aligned}$$

Where: d is the desired value for the standard error

n is the sample size

p% is the desired sample value

q% = 100- p%

The results of a pilot study that was conducted in Nairobi city before the actual fieldwork were used to determine the standard error, sample value and confidence level. Hence the desired value for the standard error was set at 4% i.e. d = 4 and the sample value was 25% at 95% probability then the sample size was;

$$\begin{aligned} n &= \frac{25 \times 75}{4^2} \\ &= \frac{1875}{16} \\ &= 117.19 \end{aligned}$$

The sample size was henceforth justified using theories of social sciences where at least 100 respondents are needed for a valid and meaningful study (Orodho, 2004). Therefore, a sample size of 120 PSVs was considered. Although, it is difficult to determine the exact number of each type of PSV operating in Nairobi, the then estimates from the Ministry of Transport (as at October 2006) indicated that the Nissans, mini buses and buses were approximated at 5, 516, 3, 618 and 1, 852 respectively. These estimates guided the researcher in apportioning the sample ($n = 120$) among the three types of PSVs in the ratio of 3:2:1 (Nissans: Minibuses: Buses), hence the sampled vehicles included 60 Nissans, 36 minibuses and 24 buses giving a total of 120 PSVs. With the assistance of Local Authority officials and the Matatu Owners Welfare Association, the PSV routes were categorised into four i.e. North, South, East and West. Using systematic random sampling, a few internal and external routes were selected (Appendix 1). This involved random selection of a given number of PSV routes operated by the different types of PSVs. From each route selected a specific number of PSVs were randomly sampled as shown in Table 3.1.

Table 3.1: Samples of PSVs

Type of PSV	Nissans	Minibuses	Buses	Grand Total
Number of sampled routes per region	3	3	2	-
Number of sampled PSVs per route	5	3	3	-
Number of sampled PSVs per region	15	9	6	(30×4)
Number of sampled PSVs in the four regions	60	36	24	120

Sampling for each type of PSV was done separately. In each vehicle sampled, the owner and either the driver or conductor were identified and interviewed. The driver and the conductor gave similar information hence grouped together. Only those operators who were in operation both before and after implementing the regulations were considered. In some occasions some owners were either inaccessible or unwilling to participate in the survey therefore other owners were selected within the specific route to replace them. A total sample of 120 owners and 120 drivers/conductors were drawn. Using systematic random sampling, 120 passengers were selected in the various bus/matatu termini of the selected PSV routes to participate in the study. In total therefore 360 respondents (owners, drivers/conductors and passengers) were interviewed. Key informants were drawn from the Traffic Police, Transport Licensing Board, Matatu Associations and Ministry of Transport.

3.5 Piloting of the Study

Pilot study was conducted before the actual data collection in Nairobi. At least thirty respondents were randomly picked to fill the questionnaires. Piloting helped to determine validity and reliability of the research instruments. It provided some insights that made the researcher modify some of the questions and also shed some light on what was to be expected in the actual research. It also provided an opportunity for training of research assistants.

3.6 Validity and Reliability

The research instruments were validated through the application of content validity procedures. This is a judgement made better by a team of professionals (Taylor, 1971). In this connection, the researcher established content validity by seeking experts' judgements from the supervisors while developing and revising the research instruments.

3.7 Methods of Data Collection and Variables Specification

Data collection for this study was done by the researcher, with the help of two research assistants/enumerators, who were identified and trained. Specific data was collected for each objective.

(a). Changes in input and output of PSVs

The following data was collected:

- i. Input costs (expenditure) on fuel, wear and tear, maintenance, wages, insurance, inspection fee, route expenses, TLB fee, PSV license, parking fee and car wash.
- ii. Output (productivity) in terms of: number of vehicle trips per day, duration of movement per trip, bus fare per passenger, number of passengers transported per trip and average amount of daily collection.

This data was collected using a structured questionnaire (Appendix 2), which was administered to the PSV owners. The respondents (owners) were accessed through the drivers/conductors.

(b). Working conditions of the PSV operators

Data on working conditions concentrated on changes brought about by the regulations to the PSV jobs. The questions sought to identify the benefits and problems experienced by the operators as a result of the enforced regulations. Specifically the issues addressed included: salary levels, working benefits (medical allowance, formal day off, house allowance, and insurance policy), job security, number of working hours and days, wearing of badges and uniform, displaying drivers photograph and indicating route details and job satisfaction. The views and suggestions of the PSV drivers/conductors on their terms and condition of work were also examined. Structured and unstructured questionnaire (Appendix 3) was used to collect this data that specifically targeted the PSV drivers/conductors. The questionnaires were administered at the selected bus/matatu termini as the vehicles were queuing for passengers.

(c). Changes in quality of service of public transport

Data on changes in quality of PSV services was collected using both structured and unstructured questionnaires that targeted the commuters (Appendix 4). The specific focus was on the effects of the regulations on public transport attributes which include modal choice, comfort, speed, frequency of service, reliability, fare charged, rude crew, traffic jam, over speeding, playing loud music, carrying excess passengers, driving defective vehicles and failure to reach destination. More information was also gathered on both the benefits and problems encountered as a result of the enforced regulations. Views and suggestions from the commuters were also noted. The

questionnaires were administered as the passengers queued for vehicles in the evenings at the sampled termini.

d). Challenges and opportunities in enforcing the regulations

The data collected constitute problems experienced by the key enforcers of the enforced regulations. Interview schedule (Appendix 5) was used to collect the data and targeted key informants from: traffic police, Ministry of Transport, TLB, City Council and matatu association. At least two respondents were interviewed from each category.

3.8 Data Processing

The data collected was thoroughly examined and edited. This made it possible for any gaps, inconsistencies and incompleteness that emerged from data collection to be identified and handled immediately. It involved checking for completeness of the questionnaires, verifying the consistency in response, coding, data entry and preparation of summary tables. In case of any gaps in the data that went unnoticed during data collection, revisits were made to the field to fill up the gaps. The data collected were entered into a database developed using the statistical package for social sciences (SPSS), version 11.5. The database was then used to carry out further analysis.

3.9 Data Analysis

The analysis of data collected was done in stages. The first stage involved computation and presentation of descriptive statistics using mathematical mean, frequencies and percentages of the various variables. Descriptive statistics were used to describe the main

features of the data collected in quantitative terms. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. Since this study was descriptive in nature, descriptive statistics were used to convey the estimated magnitude and direction of the difference between the two periods (before and after implementing the regulations); it simply describes what is or what the data shows. Although inferential statistics tries to reach conclusions that extend beyond the immediate data by making inferences from the collected data to more general conditions, this study however, was concern with describing what was going on in the data collected hence descriptive statistics were preferred. Simple tabular comparisons were used to compare the means of the various input and output variables for the two periods. For example, mean for the input cost variables included; amount of fuel used per day, cost of service and repair, duration of tyres before replacement among others.

The hypotheses were tested using Student t-test. This is a parametric test, which is used to establish whether two samples could have been drawn from the same population. It tests whether two sets of data are really different. The null hypothesis states that there is no significant difference between the two sets of data and if the null hypothesis is rejected, it is assumed that the two sets of data are statistically different. F test was then used to test whether the assumption was valid or not. Student's *t*-test basically deals with the problems associated with inference based on "small" samples. In this study, Student t-test was found suitable for the purposes of hypothesis testing (H_{O1} and H_{O2}). The SPSS was used to compute t-values. When t-probability value is less than 0.05, then t-value is

said to be significant. T-test was therefore used to establish whether or not the differences observed between the means of the different variables in the two periods were statistically significant. Other information from in depth interview was analysed using qualitative methods through grouping. The overall findings are presented using pie charts, bar diagrams, tables and texts. A summary of variables, research instruments and tools of analysis is shown in Table 3.2.

Table 3.2: Summary of Variables, Research Instruments and Tools of Analysis.

Objective	Data to be Collected (variables)	Source of Data	Instruments for Data Collection	Methods of Data Analysis
Examine changes in the productivity of PSV in Nairobi.	Input cost (expenses) and Output (earnings)	PSV owners	Structured questionnaire and In-depth interview	Descriptive analysis; mean, t-test
Establish changes in the working conditions of PSV operators in Nairobi before and after implementing the enforced road safety regulations.	Salary levels, working benefits, permanent jobs, working hours, wearing badges and uniform, displaying drivers photograph and indicating route details	PSV operators (driver or conductor)	Unstructured & Structured questionnaire and In-depth interview	Descriptive analysis; mean, frequencies t-test
Assess changes in the quality of service of PSV in Nairobi before and after implementing the regulations.	Comfort, Speed, Frequency, Safety, Cost, Time taken, Customer care among others	Passengers selected randomly at various termini	Unstructured & Structured questionnaire and In-depth interview	Descriptive analysis; frequencies
Examine challenges & opportunities in enforcing the regulations.	Political will, policies, institutional framework, corruption, lack of resources, attitude, and road conditions etc.	Traffic Police, TLB, LoG, Ministry of Transport, and POWAK	Interview guide	Descriptive analysis

CHAPTER FOUR: CHANGES IN PRODUCTIVITY OF PSVS AND IN WORKING CONDITIONS OF PSV OPERATORS

4.1 Introduction

This chapter addresses the effects of the ‘new’ regulations on the input and output of PSVs, and the working conditions of PSV operators. The following research questions are addressed: what are the changes in the input and output of PSVs and what are the changes in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the ‘new’ road safety regulations? The objectives guiding this chapter are to: examine changes in the input and output of PSV and establish changes in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the ‘new’ road safety regulations. The hypotheses tested in this chapter are:

H₀₁: There is no significant difference in input and output of PSV in Nairobi before and after implementing the ‘new’ road safety regulations.

H₀₂: There are no significant differences in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the ‘new’ road safety regulations.

The t-test was carried out to determine whether or not any differences observed were statistically significant. The chapter is divided into two; the first section discusses the findings on the changes in input and output of PSVs while the second discusses the changes in working conditions of the PSV drivers and conductors.

4.2 Changes in Input and Output of PSVs

Changes in productivity of PSVs are presented in two sections. The first section discusses the changes in input costs of PSVs in terms of: amount of fuel used per day, cost of service and repair, duration of tyres, wages, licences i.e. PSV, Road and TLB, Insurance, car wash, parking fee and other daily expenses. While the second section highlights the changes in PSV output in terms of: vehicle trips per day, time taken per trip, number of passengers per trip, fare per passenger and amount of daily collection.

4.2.1 Overall Trend in Input Costs of PSVs

Table 4.1: Overall Mean Values for Vehicle Input Cost

Variable (N=120)	Period	Min	Max	Mean	Std. Dev	t	Sig (2-tailed)
Amount of Fuel per Day (Ltrs)	Before	30	142	60.68	25.467	15.168	0.000
	After	25	114	51.72	22.949		
Cost of Service & Repair per Week (Ksh.)	Before	1500	24000	6376.67	5163.344	6.758	0.000
	After	1400	18000	5044.17	3758.482		
Tires Duration (Months)	Before	3	8	4.88	1.336	-23.654	0.000
	After	5	12	8.23	2.039		
Driver Wages per Day	Before	300	1200	550.83	181.842	-11.419	0.000
	After	500	1100	670.83	178.883		
Conductor Wages per Day	Before	150	700	367.92	101.003	-11.544	0.000
	After	300	700	480.42	94.223		

Source: Computed by Author, based on Fieldwork Data (2007)

Table 4.1 above presents a summary of the trend in mean values of key input costs for the entire sample. It is noted that the mean values for the amount of fuel used per day and the cost of service and repair were higher before the regulations were implemented than

the period after. However, the mean values for tyre duration, and driver and conductor wages were lower before the regulations were implemented than the period after. The differences observed were found to be statistically significant ($P \leq 0.05$) for all the input costs.

Higginson (1982) observed that vehicle fuel and maintenance costs vary directly with mileage run and the level of vehicle utilisation. The study further notes that the cost of drivers, conductors and on- and off-loaders, is proportional to the number of hours paid and also relates closely to the amount of mileage operated. This indicates that the longer the distance covered and the more a vehicle is put to intensive use, the frequent the maintenance service, the higher the fuel and wages costs. For the period after the implementation of the regulations, the level of vehicle utilisation reduced due to the use of speed governors and the fitting of seat belts. The speed governors ensures that the vehicles which previously drove at very high speed do not go beyond the speed limit of 80 kph, therefore reducing the distance and number of trips covered by each PSV vehicle. Over speeding and over loading the PSVs used to contribute to increased consumption of fuel and frequent breakdowns.

The 'new' regulations reduced the passenger loads of the PSVs. Before these regulations were implemented, it was usual to find the current 14-seater matatu carrying more than 18 passengers, while a 62-seater bus would carry up to 100 passengers both seated and standing. Now, the load of these vehicles may not exceed their official seating capacity. These changes led to reduced fuel consumption and the cost of service and repair. Both

the frequency of service and repair and that of tyre replacement reduced significantly, therefore reducing the input cost. In terms of wages, there was a general increase in the amount of wages paid to both the drivers and conductors after implementation of the regulations. This is attributed to the introduction of identification documents required by the law enforcers, which include badges, photograph, PSV licence, letter of good conduct and uniform. To acquire all these documents, is tedious and expensive therefore the operators seem to demand more pay from the PSV owners as a compensation for the extra expenses incurred.

Other elements of inputs were also considered for this study, however, the effects of the 'new' regulations on each were negligible and have been partially discussed by Kimani et al (2004). Inspection fee is Kshs.1,000, and is paid annually before the particular vehicle goes for inspection and prior to registration and renewal of the PSV and TLB licenses. The fee is paid to traffic police who undertakes to inspect the vehicle so as to ensure that it complies with all the required vehicle conditions before it is allowed to operate on the roads. A certificate of inspection is then issued by the traffic police, which allow the vehicle owner to acquire the TLB and PSV licenses of which, both are issued by the Kenya Revenue Authority at a fee. The Transport Licensing Board (TLB) license is mandatory and has to be acquired before one can be allowed to operate a public transport business in any particular route in the country. The TLB fee is paid annually and is based on the vehicle carrying capacity. The rates are charged as follows: for vehicles with a sitting capacity ranging between 9-18 passengers is Kshs. 2,000; Kshs.2500 for 19-25

and Ksh. 3,000 for 26 and above. An application fee of Ksh. 625 is also charged in each of the above categories.

The PSV licence is also mandatory and has to be acquired before one can be allowed to operate a PSV vehicle in Kenya. The fee is mandatory for the PSV owners, drivers and conductors. The drivers and conductors are required to pay Kshs. 500 each. The owners pay the fee based on the carrying capacity of the vehicle. The amount stands at Ksh. 320 per passenger seat per year. This translates to Ksh.4, 480 for 14-seater; Ksh.9,600 for 30-seater and Ksh.19,200 for 60-seater. However, an application fee for a PSV license of Ksh. 1,000 and an additional Ksh. 500 for a PSV abstract in the case of the loss of the license were introduced after the implementation of the 'new' regulations. The road licence fee was mandatory and was charged at the rate of Ksh. 2,300 per year, but this fee was scrapped off after the implementation of the 'new' regulations. This was done by the Ministry of Transport so as to minimise the costs of running road transport.

Parking fee was charged at a rate of Kshs.70 per day before the regulations were implemented, but thereafter the rate changed to Kshs.1,400 per month. The fee is mandatory and payable at the Local Authority offices on monthly basis. There were no changes on the cost of car wash per day, which stands at between Kshs.100-200. The vehicles are supposed to be washed on daily basis however some operators do not adhere to these. The washing is officially to be done at the petrol filling stations but some individuals have established their own car wash points on back streets or along the roads and offer cheaper rates hence attracting more PSVs.

4.2.2 Changes in Input Costs by Type of PSV

An analysis of the average input costs by type of PSV revealed a trend that is more or less similar to that of the overall average input costs. Except for the cost of wages, the average costs of operating all the three types of PSVs were generally higher before the implementation of the enforced regulations. A significant difference ($P \leq 0.05$) was observed on all the input costs across the different types of PSVs. This is greatly attributed to the 'new' regulations, which were applied equally to all types of PSVs. Although the effects of the regulations were statistically significant in all the types of PSVs, the magnitude kept varying depending with the input elements and the type of PSV. This is summarised in Tables 4.2 and 4.3.

Table 4.2: Mean Input Cost by Type of PSV

Variables	Period	Type of PSV											
		Nissans				Mini-Buses				Buses			
		Mean	Std. Dev	t	Sig (2-tailed)	Mean	Std. Dev	t	Sig (2-tailed)	Mean	Std. Dev	t	Sig (2-tailed)
Amount of Fuel per Day (Ltrs)	Before	45.75	8.060	10.765	0.000	56.94	14.697	6.319	0.000	103.58	18.337	12.61	0.000
	After	37.50	6.004			49.81	14.497			90.13	15.504		
Cost of Service & Repair per Week (Ksh.)	Before	3781.67	1491.50	5.414	0.000	6402.00	2092.35	12.00	0.003	14937.50	4741.84	17.83	0.000
	After	2981.67	1367.47			3617.00	2890.47			10229.17	4741.07		
Tires Duration (Months)	Before	5.20	1.350	-16.959	0.000	5.03	1.298	-14.01	0.000	3.88	0.797	-13.29	0.000
	After	8.88	2.241			7.56	1.539			7.58	1.666		
Driver Wages per Day	Before	463.33	89.664	-9.023	0.000	527.78	113.669	-11.83	0.000	804.17	207.426	-3.473	0.002
	After	566.67	72.875			661.11	127.117			945.83	141.357		
Conductor Wages per Day	Before	364.17	112.405	-5.467	0.000	358.33	81.504	-11.85	0.000	391.67	97.431	-10.47	0.000
	After	445.83	70.885			461.11	83.761			595.83	69.025		

Source: Computed by Author, based on Fieldwork Data (2007)

Table 4.3: Trend of Input Cost by Type of PSV

Variables	Period	Type of PSV											
		Nissans				Mini-Buses				Buses			
		Min	Max	Mean	Mean Diff	Min	Max	Mean	Mean Diff	Min	Max	Mean	Mean Diff
Amount of Fuel per Day (Ltrs)	Before	30	65	45.75	8.25	31	80	56.94	7.13	75	142	103.58	13.45
	After	25	51	37.50		28	80	49.81		60	114	90.13	
Cost of Service & Repair per Week (Ksh.)	Before	1500	8300	3781.67	800	1900	13000	6402.00	2,754	10000	24000	14937.50	4708
	After	1400	7500	2981.67		1700	10000	3617.00		5000	18000	10229.17	
Tyres Duration (Months)	Before	3	8	5.20	3.68	3	8	5.03	2.53	3	5	3.88	3.7
	After	5	12	8.88		5	12	7.56		5	11	7.58	
Driver Wages per Day	Before	300	700	463.33	103.34	300	700	527.78	133.33	500	1200	804.17	141.66
	After	500	700	566.67		500	900	661.11		500	1100	945.83	
Conductor Wages per Day	Before	150	700	364.17	81.66	150	500	358.33	102.78	300	600	391.67	204.16
	After	300	600	445.83		300	600	461.11		500	700	595.83	

Source: Computed by Author, based on Fieldwork Data (2007)

Alongside the reduced cost of service and repair, it is worth noting that there has been gradual increase in the cost of vehicle spares and petroleum products, and therefore, the results observed must be interpreted with caution. This is because the underlying assumption in this study is that everything else is constant. Similarly, it was noted that after the implementation of the regulations, the frequency for service and repair reduced. On average the number of days taken by a vehicle before being taken for service is as follows: Nissan matatus 7-10 days, minibuses 14 days and buses more than 14 days. This is opposed to the former interval, where service was done on at least weekly basis alongside other minor repairs in the course of the week. Cost of service and repair is an input cost component closely related to the level of vehicle utilisation. In this regard the utilisation of PSVs reduced in terms of number of vehicle trips per day and the carrying capacity hence reduced cost of service and repair. This is discussed further in the next section alongside other vehicle output elements.

The average cost of wages generally increased across the three types of PSVs after the regulations were implemented. It is also important to note that before the regulations were implemented, both the minibus and bus owners employed at least two conductors per vehicle therefore paid less amount of wage per person. But after implementation of the regulations, each owner employs at least one conductor per vehicle hence more pay per person. This is attributed to the reduced carrying capacity of the PSVs leading to less work for the conductor and therefore uneconomical to have two of them. In general, the trend in the changes in input cost was that the lowest mean difference was observed in Nissans followed by minibuses then buses. This is basically attributed to the differences

in engine capacity and loading capacity, which is directly proportional to fuel consumption and cost of service and repair.

4.2.3 Overall Trend in Output of PSVs

This section discusses the changes in PSV output in terms of: vehicle trips per day, time taken per trip, number of passengers per trip, fare per passenger and amount of daily collection. The results on overall mean values for vehicle output are presented in Table 4.4.

Table 4.4: Overall Mean Values for Vehicle Output

Variable (N=120)	Period	Min	Max	Mean	Std. Dev	t	Sig (2-tailed)
Vehicle Trips per Day	Before	6	22	11.07	3.770	19.161	0.000
	After	3	16	7.93	2.602		
Time Taken per Trip-Normal (Hrs)	Before	0.50	2.50	1.0167	0.54013	-12.113	0.000
	After	0.50	3.00	1.2896	0.59408		
Time Taken per Trip-Peak (Hrs)	Before	0.75	3.00	1.3750	0.49366	-13.350	0.000
	After	0.75	3.00	1.7729	0.55571		
No. of Passengers per Trip	Before	18	110	43.79	29.475	13.380	0.000
	After	13	62	25.49	15.643		
Fare per Passenger	Before	10	80	28.77	14.728	-19.163	0.000
	After	15	120	43.38	21.914		
Daily Collection	Before	2500	18000	6083.33	3248.382	10.371	0.000
	After	2000	10000	4372.50	2093.927		

Source: Fieldwork (2007)

The results on Table 4.4 indicate that the average vehicle trips per day, number of passengers transported per trip and amount of daily collection were lower after the regulations were implemented. Higher averages were observed in vehicle output elements in terms of duration of travel per trip and amount of fare charged per passenger. The differences observed in all the output elements were found to be statistically significant ($P \leq 0.05$). Therefore, the null hypothesis (H_{01}) that there is no significant difference in the productivity elements (input and output) of PSV in Nairobi before and after implementing the 'new' road safety regulations is rejected based on these analysis.

The higher average in terms of time taken per trip was as a result of the introduced speed governors, which ensured that vehicle speed does not exceed 80 kph. This had more effect on vehicles plying the external routes, which cover relatively longer distance per trip more than those plying internal routes, for example Machakos route. The PSV operators also attributed the higher average on time spent per trip to increased traffic jam which came as a result of tremendous increase in the traffic density in the city. However, being among other factors that were taken constant, this fact was overlooked by the study. The longer time per trip had a direct negative effect on the number of total vehicle trips per day. Apart from the effect of speed governors, the reduced number of vehicle trips is also attributed to the increased volume of PSVs per route. The 'new' regulations opened up the public transport industry to new operators who had been locked out before. For a long time, the industry was dominated by individuals and cartels, which had monopolised the industry and determined who was to be allowed to operate in the business. The cartels also controlled the allocation of routes to the operators. Currently,

the operators choose routes of their own choice but need to acquire a license from the Transport Licensing Board (TLB) that allows them to operate in the particular route.

The 'new' regulations restricted the carrying capacity of PSVs to a given licensed maximum capacity and that only seated passengers should be transported. This was also enhanced by the introduction of seat belts where all passengers were required to wear the belts, failure to which were to be subjected to an instant fine of Ksh. 500 by the traffic police. The reduction in the carrying capacity of PSVs, therefore led to a direct increase in the fare charged per passenger so as to compensate for the drop in daily earnings. Although there was an increase in transport charges, the overall mean for daily collections remained higher for the period before than the period after the regulations were implemented. This therefore, indicates that the decrease in both the number of vehicle trips and PSVs carrying capacity, had more significant effect on reducing the amount of daily collection as compared to the increased amount of fare charged, after the regulations were implemented.

4.2.4 Changes in Output by Type of PSV

When the PSV output was classified according to the type of PSV (Table 4.5 and 4.6), the results also revealed a trend more or less similar to that of the overall mean output. A significant difference ($P \leq 0.05$) was also observed on all the output elements across the different types of PSVs. The most affected variables are vehicle trips per day, number of passengers transported per trip and amount of daily collection, whose averages reduced sharply after the regulations were implemented.

Table 4.5: Mean Output by Type of PSV

Variables	Period	Type of PSV											
		Nissans				Mini-Buses				Buses			
		Mean	Std. Dev	t	Sig (2-tailed)	Mean	Std. Dev	t	Sig (2-tailed)	Mean	Std. Dev	t	Sig (2-tailed)
Vehicle Trips per Day	Before	11.08	2.824	21.469	0.000	12.83	5.062	10.937	0.000	8.38	1.279	5.560	0.000
	After	7.75	2.128			8.89	3.616			6.96	0.999		
Time Taken per Trip-Normal (Hrs)	Before	0.9833	0.6359	-11.346	0.000	1.1875	0.49776	-5.388	0.000	0.8438	0.12363	-4.338	0.000
	After	1.2833	0.6268			1.4722	0.63183			1.0313	0.29775		
Time Taken per Trip-Peak (Hrs)	Before	1.2792	0.4696	-12.652	0.000	1.5347	0.58295	-5.881	0.000	1.3750	0.33783	-4.796	0.000
	After	1.7333	0.5164			1.9375	0.69276			1.6250	0.33783		
No. of Passengers per Trip	Before	18.33	0.705	53.765	0.000	55.06	10.946	16.705	0.000	90.54	11.898	25.894	0.000
	After	13.05	0.220			28.36	4.409			52.29	8.379		
Fare per Passenger (Ksh.)	Before	31.83	14.141	-15.134	0.000	26.31	17.221	-8.774	0.000	24.79	10.371	-9.287	0.000
	After	48.08	21.295			39.61	25.670			37.29	14.141		
Daily Collection (Ksh.)	Before	3845.00	1100.29	5.638	0.000	6369.44	1669.357	6.661	0.000	11250.00	2489.10	9.159	0.000
	After	3016.67	556.979			4213.89	1054.826			8000.00	1276.88		

Source: Fieldwork (2007)

Table 4.6: Trend of Output by Type of PSV

Variables	Period	Type of PSV											
		Nissans				Mini-Buses				Buses			
		Min	Max	Mean	Mean Diff	Min	Max	Mean	Mean Diff	Min	Max	Mean	Mean Diff
Vehicle Trips per Day	Before	6	16	11.08	3.33	6	22	12.83	3.94	6	10	8.38	1.94
	After	4	12	7.75		3	16	8.89		5	8	6.96	
Time Taken per Trip-Normal (Hrs)	Before	0.50	2.50	0.9833	0.30	0.50	2.50	1.1875	0.2847	0.75	1.00	0.8438	0.1875
	After	0.50	3.00	1.2833		0.50	3.00	1.4722		0.75	1.50	1.0313	
Time Taken per Trip-Peak (Hrs)	Before	0.75	2.50	1.2792	0.4541	0.75	3.00	1.5347	0.4028	1.00	2.00	1.3750	0.25
	After	1.00	3.00	1.7333		0.75	3.00	1.9375		1.00	2.00	1.6250	
No. of Passengers per Trip	Before	18	20	18.33	5.28	40	80	55.06	26.70	75	110	90.54	38.25
	After	13	14	13.05		24	42	28.36		41	62	52.29	
Fare per Passenger (Ksh.)	Before	15	80	31.83	16.25	10	80	26.31	13.30	10	45	24.79	12.50
	After	20	120	48.08		15	120	39.61		20	70	37.29	
Daily Collection (Ksh.)	Before	2500	6500	3845.0	828.3	2500	8500	6369.44	2155.6	7500	18000	11250.0	3,250
	After	2000	4500	3016.7		2500	6000	4213.89		5000	10000	8000.00	

Source: Fieldwork (2007)

Variations were noted when the means and mean difference of these output elements were compared across the three types of PSVs. The mean difference of the number of vehicle trips (lost) per day by the Nissans, minibuses and buses are 3, 4 and 2 respectively. In terms of passengers transported per trip, the buses and minibuses were greatly affected than Nissans with a mean difference of 38, 27 and 5 respectively. The mean differences in the daily collection were Ksh. 800, 2160 and 3,250 for the Nissans, minibuses and buses respectively. This therefore, indicates that the changes observed in the daily collection were directly proportional to the changes in the number of passengers transported per trip. On the other hand, variations in the mean difference of duration of travel per trip and amount of fare charged per passenger were small and therefore negligible.

4.3 Changes in the Working Conditions of PSV Operators

In order to examine the changes in the working conditions of the PSV drivers and conductors, it was important to collect data on both the socio-economic and occupational profiles of the respondents. The socio-economic elements include: age, gender, marital status and level of education. While the occupational profiles are: work capacity, work experience, work starting and stopping time, number of working hours, number of working days per week, terms of payment, wages/salary, benefits/allowances, statutory charges, job satisfaction and status of work condition. The findings and discussions are done under these sub-themes.

4.3.1 Socio-economic Profiles of the Workers

As already mentioned, 120 PSVs were sampled and either the driver or the conductor was interviewed. About 48 per cent were drivers, 43 per cent were conductors while the owner/driver and owner/conductor were 5.8 and 2.5 per cent respectively. The study considered only those drivers and conductors who were in operation both before and after the enforcement of the road safety regulations. This was ascertained by their working experiences where majority (80%) of the drivers and conductors had worked for between 5–10 years, while the remaining proportion (20%) had worked for more than 10 years. The ages of the drivers and conductors were categorised as follows; below 30 years (40.8%), 31–39 (38.3%), 40–49 (13.3%) and those above 50 years were 7.5 per cent. Majority (92.5%) of the drivers and conductors were male while the rest (7.5%) were female. In terms of marital status, 73.3 per cent were married, 22.5 per cent were still single while the remaining proportion comprised of the divorced, separated and widow/ers. Most (57.5%) of the drivers and conductors had some secondary education, 32.5 per cent had some primary education while 10.0 percent had post-secondary education. This information is summarised in Table 4.7.

Table 4.7: Socio-economic Profiles of the Workers

Variable	Categories	Frequency (f)	Percent (%)
Workers Category	Driver	58	48.3
	Conductor	52	43.3
	Owner driver	7	5.8
	Owner conductor	3	2.5
	Total	120	100.0
Workers' Experience (Years)	5-10	96	80.0
	11-15	17	14.2
	above 15	7	5.8
	Total	120	100.0
Workers' Age	Below 30	49	40.8
	31-39	46	38.3
	40-49	16	13.3
	Above 50	9	7.5
	Total	120	100.0
Gender	Male	111	92.5
	Female	9	7.5
	Total	120	100.0
Marital Status	Married	88	73.3
	Single	27	22.5
	Divorced/Separated	3	2.5
	Widow/er	2	1.7
	Total	120	100.0
Level of Education	Primary	39	32.5
	Secondary	69	57.5
	Post Secondary	12	10.0
	Total	120	100.0
Total, N = 120			

Source: Field Work 2007

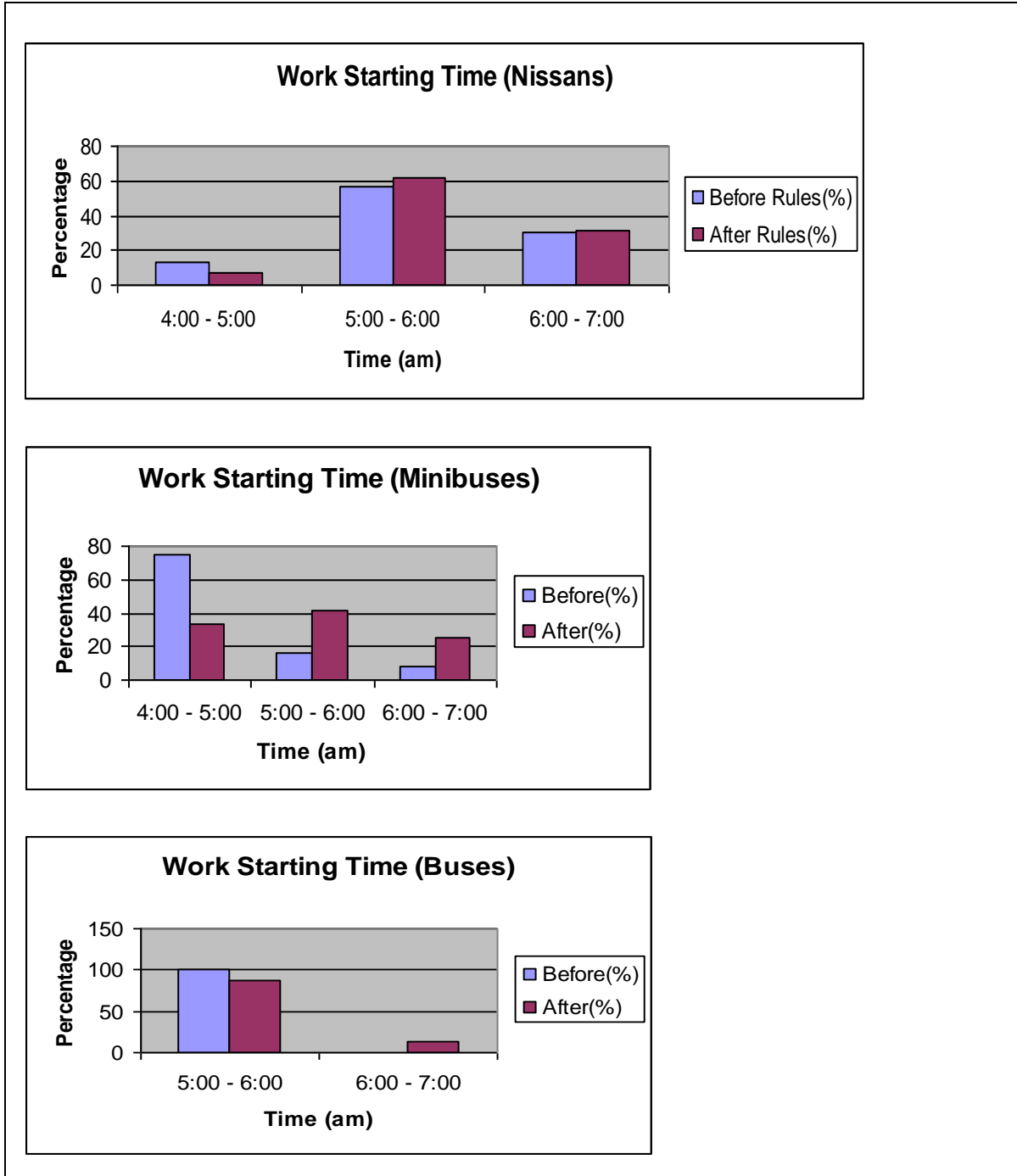
The socio-economic profiles of the workers are important and have been known to affect their performance. For instance, for one to be a good driver, age and the number of years worked are crucial. Table 4.7 indicates that the PSV work is too strenuous and attracts very few people of 50 years and above (7.5%). Drivers and conductors who are married tend to be more responsible and accountable even to their employers (Muyia, 2001). It has been established that for one to perform well in his driving job, he needs education to be

able to read road signs, communicate effectively with passengers, fellow drivers, policemen and the general public (Ibid).

4.3.2 Occupational Profiles and Working Conditions of the Workers

Daily time of commencing work: Changes in the time of starting work were negligible among the Nissan matatus and buses. Before the regulations, majority of the Nissans (56.7%) and buses (98.8%) started work between 5am and 6am daily. After the regulations, a similar trend was also observed where majority of Nissans (61.7%) and buses (87.5%) still started work at the same time category. On the other hand, a significant change was noted among the minibuses. Whereas before the regulations, the starting times were; 4-5am (75%), 5-6am (16.7%) and 6-7am (8.3%), in contrast after the regulations there was a slight change so that only 33.3 per cent reported starting work at between 4 - 5am, 41.7 per cent at 5 - 6am and 25.0 per cent at 6 – 7am. These trends are illustrated in Figure 4.1. The observed changes were attributed to the ‘new’ regulations which restricted the PSVs to start work not earlier than 5 o’clock in the morning.

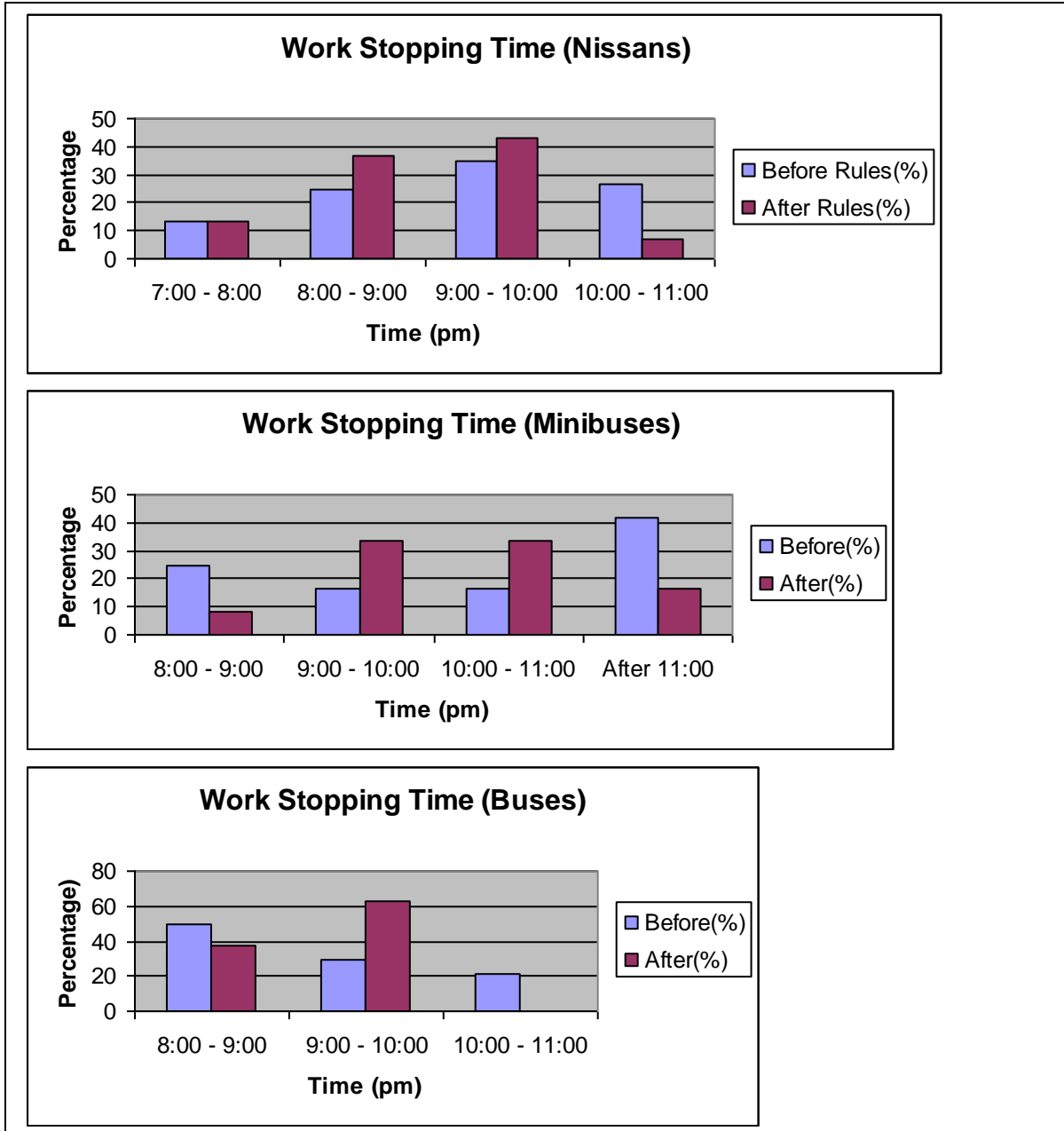
Figure 4.1: Work Starting Time



Daily time of ending work: Before the regulations, majority (50%) of the buses ended their work at between 8–9pm, but after the regulations majority (62.5%) of them ended work

one hour later (9-10pm). This extended time was a makeup of the lost trips during the day hence, enabling the drivers and conductors attain their set targets of daily collection. Among the minibuses, the trend before the regulations was that 41.7 per cent (majority) of the vehicles ended work after 11pm. After the regulations the trend changed such that 33.3 percent ended work at 9–10pm and another 33.3 percent ended work at 10–11pm. A slightly different trend was observed among the Nissans, whereas majority of the vehicles stopped working at 8-9pm (25.0%), 9-10pm (35.0%) and 10-11pm (26.7%), after the regulations the trend changed hence most vehicles stopped working earlier, that is 8–9pm (36.7%) and 9-10pm (43.3%). The changes observed in both the Nissans and minibuses were attributed to the enforced regulations that required the PSVs not to operate after 10 pm. The observed changes are illustrated in Figure 4.2.

Figure 4.2: Work Stopping Time



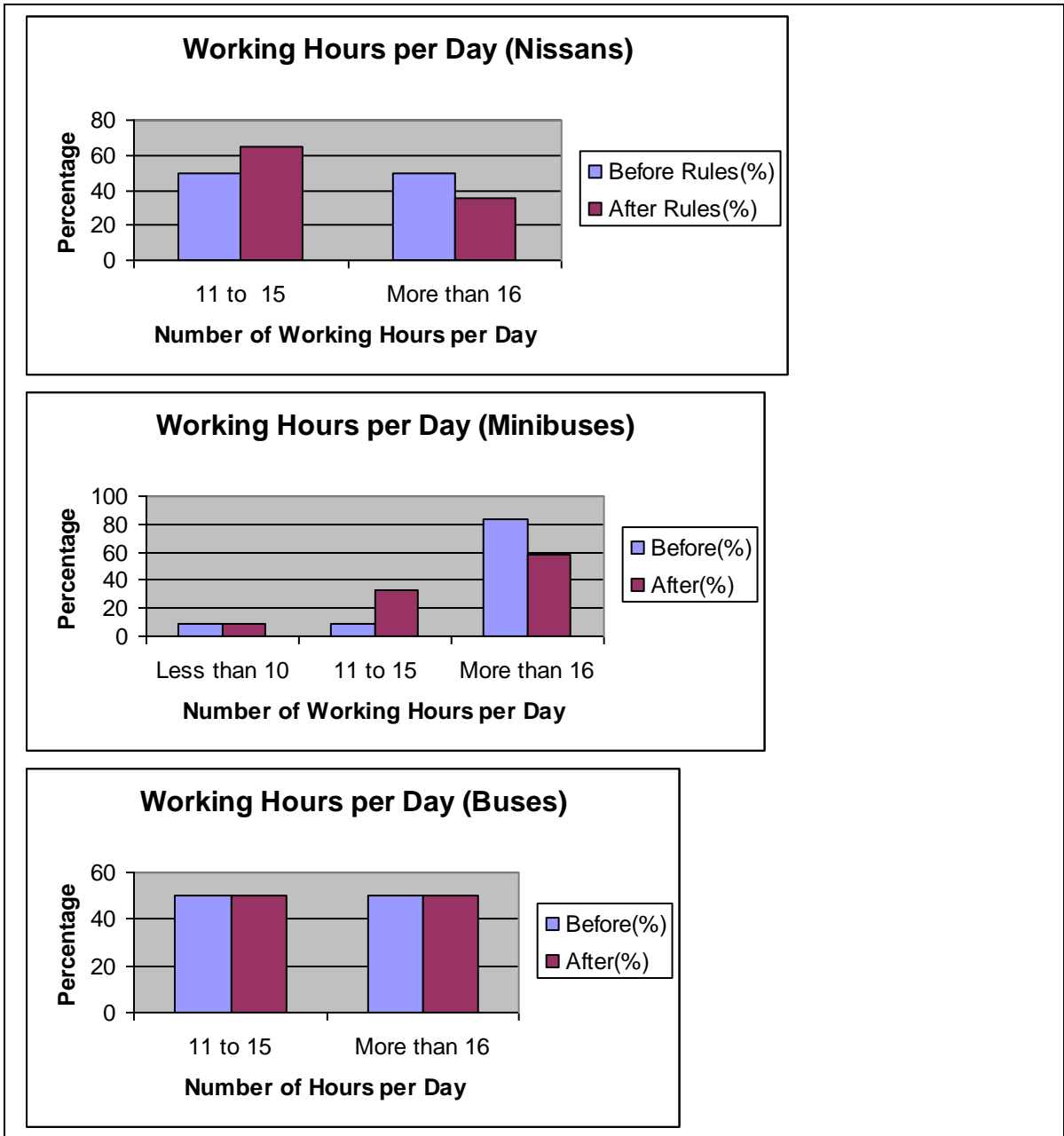
Number of hours worked per day: The number of working hours is determined by starting time and closing time. Before the regulations, half (50.0%) of the Nissan operators worked for between 11-15 hours while the other half (50.0%) worked for more than 16 hours per day. After the regulations more (65.0%) operators worked for 11-15 hours as opposed to

those who worked for more than 16 hours (35.0%). A similar shift was also observed for minibus operators, whereas before the regulations 83.3 percent and 8.3 percent worked for more than 16 and 11-15 hours per day respectively, after the regulations, the numbers reduced and hence only 58.3 percent worked for more than 16 hours while 33.3 percent worked for 11-15 hours. On the other hand, there was no any notable change on working hours for bus operators. A 50 percent balance was maintained in terms of those working for 11-15 and more than 16 hours per day. This was observed for the two periods. These results are presented graphically on Figure 4.3.

The mean working hours per day were also calculated and that the Nissans and buses had a small margin for the means of the two periods. Whereas Nissans had a mean 15.7 and 15.3, the buses had a mean of 15.5 and 15.2 for the period before and after the regulations respectively. The minibuses on the other hand had a mean of 17.1 and 15.0 for the periods before and after the regulations respectively showing a greater mean margin of 2 (hours). The mean margin for Nissans and buses were negligible. However, although there was a slight general reduction in the number of working hours, the results indicate that the regulation that limited the working hours of the operators to a maximum of 8 hours per day was not adhered to. The main reason given by the operators was that most of the PSV owners could not employ more than one driver per vehicle; it was too expensive. Muyia (2001) notes that PSV operators fall under informal sector of employment where working hours are never considered in job entitlement. Although the study did not find a significant relationship between rate of accidents per driver and the number of working hours, it

concluded that when drivers work for longer hours they end up having more accidents due to fatigue and poor concentration.

Figure 4.3: Number of Working Hours per Day



Number of days worked in a week: For both the Nissan and minibus operators, it was observed that majority of them worked for six days per week for the two periods (Figure 4.4).

Figure 4.4: Number of Working Days per Week

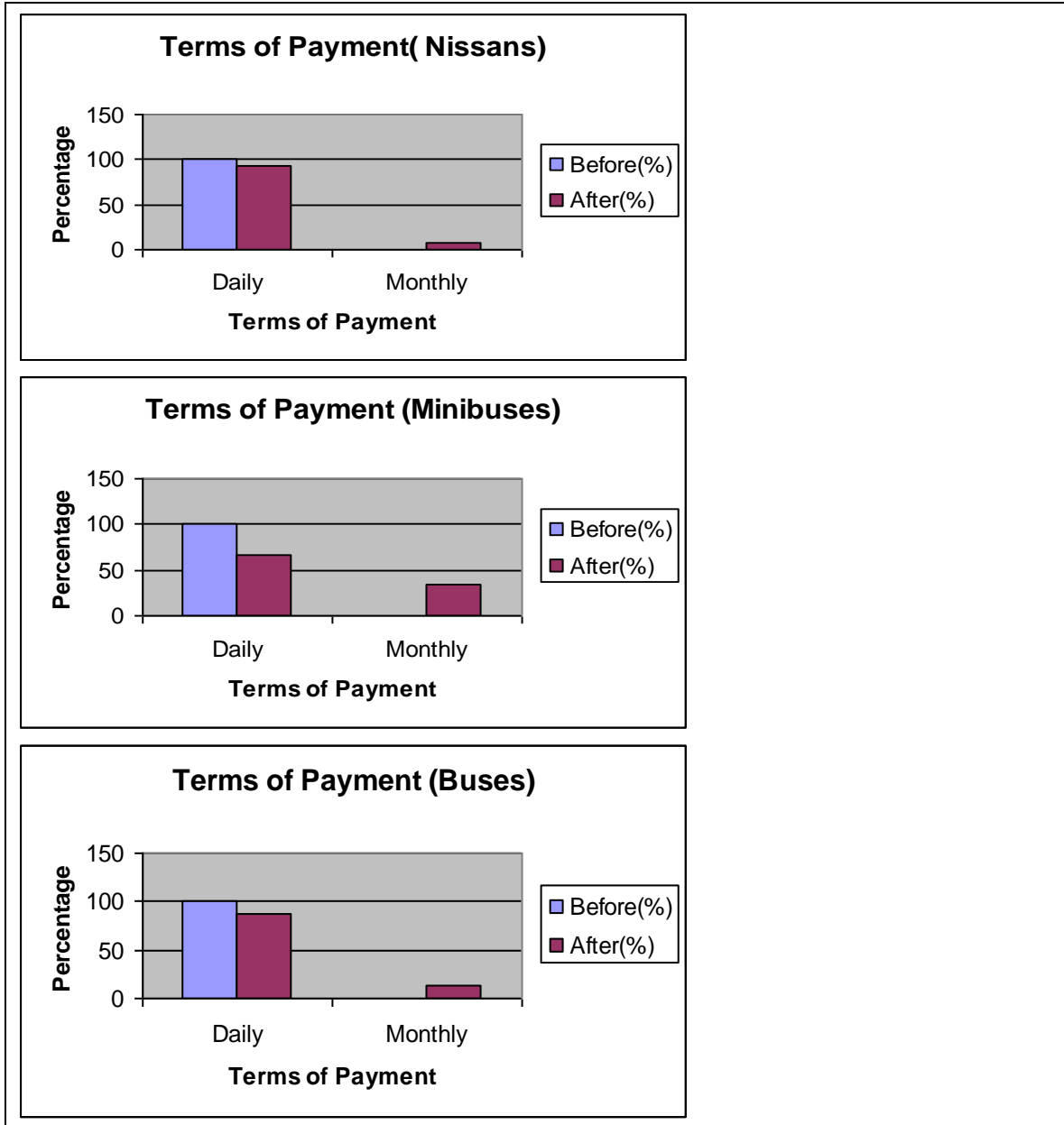


Whereas before the regulations, the number of days worked per week by Nissan operators were; less than five (20.0%), six (55.0%), and 7 (25.0), after the regulations there was a

slight change so that 13.3 percent reported working for less than five days, 73.3 percent for six days and 13.3 percent for seven days. Among the minibus operators, 16.7 percent worked for less than five days a week and for those who worked for six and seven days were equal (41.7% for each) before the regulations, but after the regulations more (66.7%) operators worked for six days while equal percentage (16.7%) worked for less than five and seven days. Majority (75.0%) of the bus operators worked for six days while the remaining percentage (25.0%) worked for seven days, however, after the regulations an equal number (50.0%) worked for six and seven days. Before the regulations, the mean number of working days per week was 6.05, 6.25 and 6.25, while after the regulations the means were 6.00, 6.00 and 6.5 for Nissans, minibuses and buses respectively. This indicates that there was no much difference in days worked both before after the regulations. Chitere (2004) notes that working for six days is normal for businesses such as PSV, doing so for seven days does not provide a worker time to rest while working for less than five days tends to denote underemployment.

Terms of payment: Payment on daily basis was the most dominant mode among the three types of PSVs both before and after the regulations. It was noted that more than 95 percent of the operators were paid on daily basis before the enforcement of the regulations (Figure 4.5). However, some changes were noted after the regulations, such that some operators were paid on monthly basis. This was distributed as follows; Nissans (6.7%), minibuses (33.3%) and buses (12.5%). The shift observed was quite minimal especially for Nissan and bus operators (Figure 4.5).

Figure 4.5: Terms of Payment

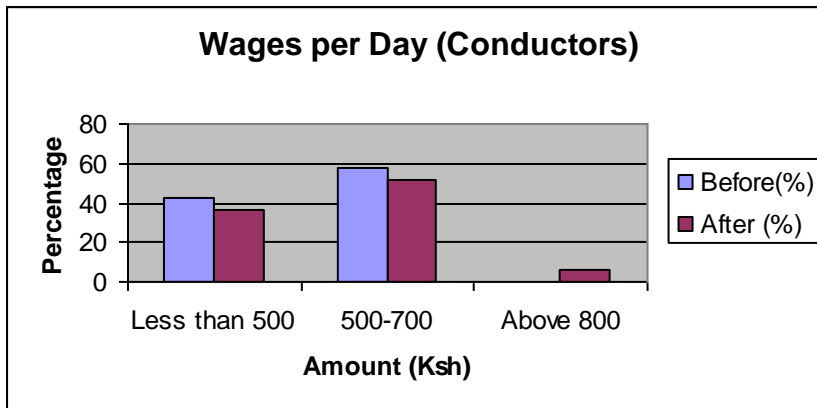


This result indicates that as much as the regulations required that the operators to be employed on permanent basis entitled to monthly salary, this is not the case. Among the reasons given by the operators against this regulation is that because of the frequent breakdowns of the PSV vehicles, some of them may miss their pay from dishonest vehicle

owners and therefore preferred to be paid on daily basis. Others reported that some vehicle owners did not accept to employ them on permanent basis.

In terms of amount of wages per day and salary per month, among the interviewed conductors, 42.3 percent earned less than Ksh. 500 per day before the regulations, Ksh. 500-700 (57.7%) and none earned above Ksh. 800. After the regulations, 36.5 percent earned less than Ksh 500, Ksh. 500-700 (51.9%), above Ksh. 800 (5.8%). This is illustrated in Figure 4.6.

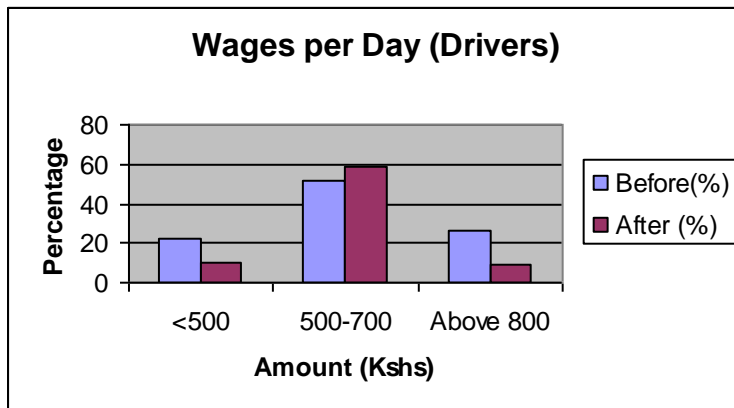
Figure 4.6: Wages per Day for Conductors



Another 5.8 percent of the conductors were paid on monthly basis and earned an average of Ksh. 10,000-12,000 per month. In general, there was no significant change on the percentages of conductors earning the various categories of wages per day however, a notable general increase was observed on wages earned when the mean wages for the two periods were calculated. For the period before the regulations the mean daily wage was Ksh 367.42 as opposed to Ksh 480.42, which was earned after the regulations. The range of the wages was 150-700 and 300-700 before and after the regulations respectively.

Of the drivers interviewed, before the regulations 22.4 percent reported earning less than Ksh 500 per day, Ksh 500-700 (51.7%), Ksh 800 and above (25.9%). After the regulations, 10.3 percent earned less than Ksh 500, Ksh 500- 700 (58.6%), Ksh 800-1000 (8.6%) and 22.4 percent were paid on monthly basis (Figure 4.7).

Figure 4.7: Wages per Day for Drivers

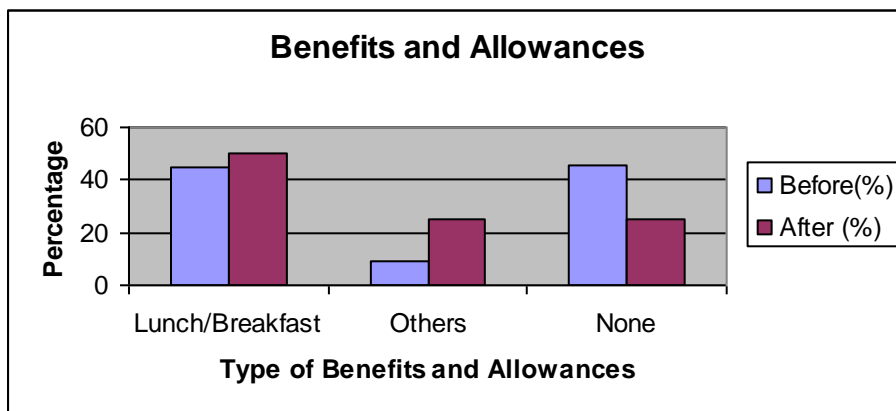


Among those who were earning a monthly pay, 23.1 percent earned less than Ksh 10,000 per month, another 23.1 percent earned between Ksh 10,000-12,000 and the majority (53.8%) earned above Ksh 12,000. The general trend indicates that there was an increase in percentage of those who were earning between Ksh 500-700 per day and also an emergence of a 22.4 percent that started earning a monthly pay after the regulations which was not the case before the regulations. The range was 300-1,200 and 500-1,100 and the mean wages was Ksh 550.83 and Ksh 670.83 per day for the periods before and after the regulations respectively. This also depicts a general increase in wages earned after the regulations

Benefits and Allowances: When the operators were asked as to whether they were getting any benefits and allowances in their work, for the period before the regulations, 45.0

percent noted that were getting only lunch and breakfast allowance, 9.2 percent got other allowances (day offs, insurance cover and house allowance) while 45.8 percent got no allowance at all. The contrasting percentages after the regulations were lunch/breakfast (50.0%), other allowances (25.0%) and no allowance (25.0). This shows that, after the regulations there was a reduction in the percentage of those who were not getting any allowances at all, and an increase of those who started getting other allowances apart from lunch and breakfast (Figure 4.8).

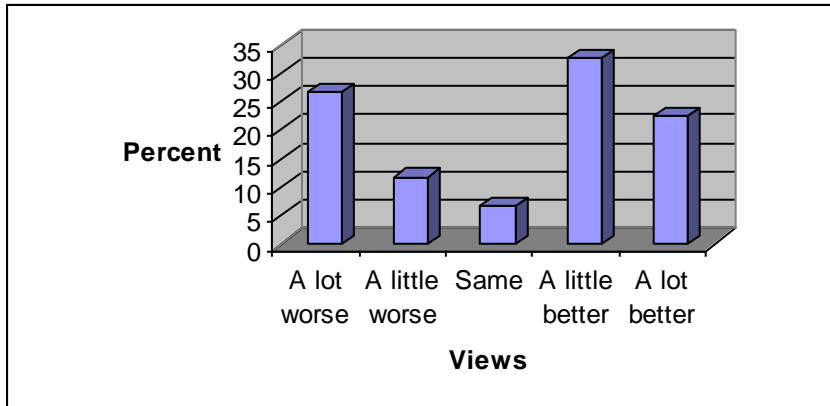
Figure 4.8: Benefits and Allowances



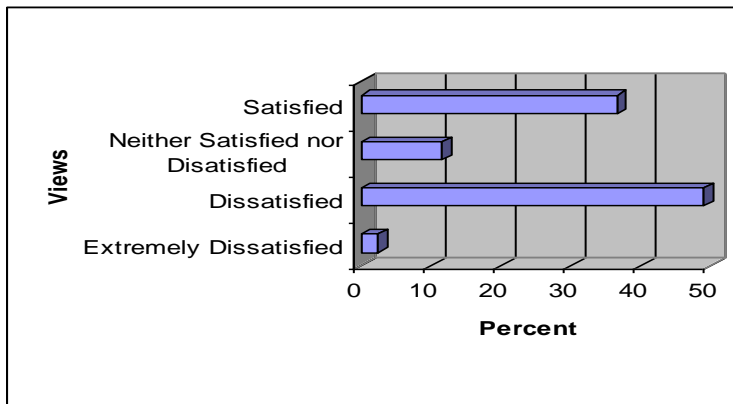
Payment of statutory charges: As already mentioned the enforced regulations required the PSV operators to be employed on permanent basis and on top of that were to pay statutory charges, which included NHIF, NSSF, PAYE among others. However, when the operators were asked whether they were paying these charges only 14.2 percent responded affirmatively while the rest (85.8%) said that were not paying. The drivers and conductors gave several reasons as to why they were not paying these charges. These included: unfavourable work conditions (35.0%), employers were not co-operative (32.0%),

payment was not compulsory (13.6%), 9.7 percent said that were not aware while 10.0 percent gave other reasons. As mentioned before majority (over 95%) of the operators were paid on daily basis and this therefore made it difficult for them to subscribe these charges on monthly basis. The operators noted further that most of the employers found it quite expensive to subscribe for these charges since they would need to pay extra amount on top of the usual wages to their workers. Some of them were even reluctant to employ drivers who already had the NSSF certificates. Some operators noted that since the payment of these charges was not made compulsory they therefore did not see the need of subscribing. The situation was also made worse by their low wages which could hardly sustain them. However, some operators felt that it could be a good idea if the employers were forced by the government to subscribe for these charges on behalf of the employees, for this could assure them of some future benefits especially after retiring. Some operators were ignorant of statutory charges and this necessitated some enlightenment.

The drivers and conductors had different views on their working conditions. 32.5 percent felt that their conditions had improved and were slightly better, a lot better (22.5%), same (6.7%), others noted that the conditions had deteriorated and therefore were a little bit worse (11.7%) and a lot worse (26.7%), {Figure 4.10}. From the above results it is notable that most (55.0%) of the respondents responded affirmatively that the working conditions had improved as opposed to 38.4 percent who noted that the conditions had worsened. In general, therefore, we can conclude that the enforced regulations improved the working conditions of the PSV operators.

Figure 4.9: Views on Working Conditions

Although it's already noted that the working conditions of the PSV operators generally improved, the operators had different views on their job satisfaction; majority (49.2%) were dissatisfied, extremely dissatisfied (2.5%), neither satisfied nor dissatisfied (11.2%) while 36.7 percent were satisfied (Figure 4.10).

Figure 4.10: Job Satisfaction

This therefore indicates that the working conditions of the PSV operators still require a lot of improvement. Muyia (2001) also notes that the PSV operators are forgotten in the sense that there exist no formal terms of service for them. Among the issues leading to

lack of job satisfaction as stated by the respondents included, poor pay and harassments from both the PSV owners and the traffic police.

When the operators were asked whether they were intending to remain in the PSV business for the next five years, only 33.3 percent responded affirmatively, 42.5 percent said that were not willing to stay while 24.2 percent were not sure whether they will stay or quit the job. This shows that the majority were not willing to stay longer in this business. Several reasons were given for each opinion. Among the reasons given by those respondents who were willing to remain in PSV business were; the work earns some income (majority-37%), no other better option (32%), if conditions will be favourable (15%), jobless stressing after regulations (8%) and another 8 percent gave other reasons. On the other hand, of those who were not willing to remain in business, the majority (47.1%) noted that the work was too stressing, 25.5 percent complained of police harassment, 11.8 percent took note of the unpredictable conditions while the remaining percentage (15.7%) gave other reasons which include poor pay and harassment from the employers. For those who were not sure whether to remain in business or quit, reported that the ever changing regulations had always affected their working conditions and therefore it was difficult for them to tell of their future in the PSV business.

T-test was carried out, by comparing the means of the two periods so as to ascertain whether the differences observed in the working conditions were statistically significant. Except for the number of working days per week, all the differences noted on the other variables were statistically significant ($P \leq 0.05$). These include; work starting and

stopping time, number of hours worked per day, amount of wages/salary, terms of payment and benefits/allowances. The null hypothesis (H_{O2}) tested under this section that there is no significant difference in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the 'new' road safety regulations was therefore rejected in respect to the statistical difference noted above.

4.4 Summary

This chapter has assessed two objectives; first was to examine changes in the input and output of PSV and second was to establish changes in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the 'new' road safety regulations. In terms of input costs, it is noted that the mean values for the amount of fuel used per day and the cost of service and repair were higher before the regulations were implemented than the period after. However, the mean values for tyre duration, and driver and conductor wages were lower before the regulations were implemented than the period after. The differences observed were found to be statistically significant ($P \leq 0.05$) for all the input costs. On the other hand, it was observed that the average vehicle trips per day, number of passengers transported per trip and amount of daily collection were lower after the regulations were implemented. Higher averages were observed in vehicle output elements in terms of duration of travel per trip and amount of fare charged per passenger. The differences observed in all the output elements were found to be statistically significant ($P \leq 0.05$). Therefore, the null hypothesis (H_{O1}) that, there is no significant difference in the input and output elements of PSV in Nairobi before and after implementing the 'new' road safety regulations is rejected based on these analysis.

Minimal changes were observed on the working conditions of the PSV drivers and conductors. The notable changes were noted in terms of shifts in the frequency distribution of the respondents when examined under different variables. These changes, however, did not have much effect on the mean values derived from the frequency distributions. Although these changes are said to be small the difference noted were statistically significant ($P \leq 0.05$) for work starting and stopping time, number of hours worked per day, amount of wages/salary, terms of payment and benefits/allowances. The null hypothesis (H_0) tested under this objective that there is no significant difference in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the 'new' road safety regulations was also rejected in respect to the statistical difference noted on the above variables.

CHAPTER FIVE: QUALITY OF PUBLIC TRANSPORT SERVICE AND CHALLENGES AND OPPORTUNITIES IN IMPLEMENTING ROAD SAFETY REGULATIONS

5.1 Introduction

This chapter discusses the effects of the enforced regulations on the quality of public transport service and the challenges and opportunities in implementing the regulations. The following research questions are addressed; what are the changes in the quality of service of public transport and what are the challenges and opportunities in implementing and enforcing the ‘new’ road safety regulations in Nairobi? The objectives guiding this chapter are to; assess changes in the quality of service of public transport, and to, examine the challenges and opportunities in implementing and enforcing the ‘new’ road safety regulations in Nairobi. The chapter is divided into two; the first section discusses the findings on the changes in quality of public transport service while the second addresses the challenges and opportunities in implementing and enforcing the ‘new’ road safety regulations.

5.2 Changes in the Quality of Service of Public Transport

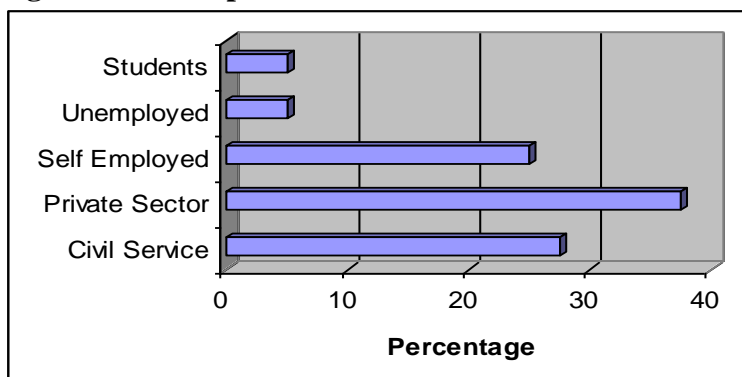
Any assessment of the quality of service of a transportation system or mode will always differ depending on the different tastes and preferences of the users. Campbell (1963) notes that the main parameters, which go to make up what we might call people’s transportation preference function are; comfort, time taken, speed, safety, frequency of service, reliability, cost of fare among others. It is because of this that this study sought the views of the commuters or users of the PSV services to determine whether there was any

changes in the quality of the service after the implementation of the ‘new’ road safety regulations. More important was to take note of the socio-economic profiles of the respondents, which assisted in ensuring that there was a balanced sampling.

5.2.1 Socio-economic Profiles of the Respondents (Commuters)

The ages of the 120 commuters interviewed were distributed as follows; below 20 years (5%), 20-29 (42.5%), 30-39 (25%), 40-49 (25%) and those above 50 years constituted only 2.5 percent. Based on gender, 52.2 percent were male while 47.5 percent were female. The occupational profiles of the commuters were categorised as follows; civil servants (27.5%), private sector (37.5%), self-employed (25.0%), unemployed (5%), and students were 5 percent (Figure 5.1).

Figure 5.1: Occupations of Commuters

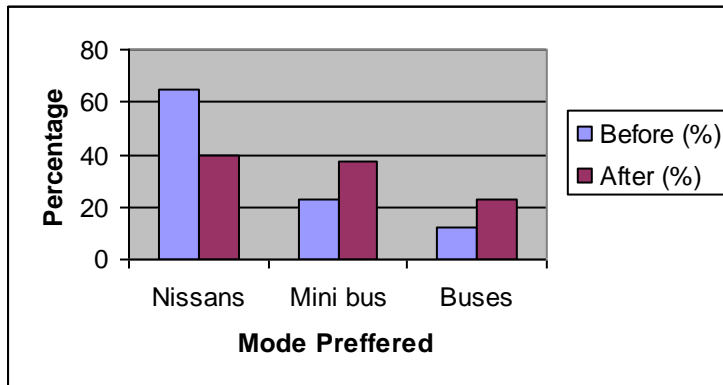


5.2.2 Mode of Public Transport Preferred

Whereas before the regulations, the modes of transport preferred were Nissans (65.0%), minibuses (22.5%) and buses (12.5%), after the regulations there was a slight change so that 40.0 percent preferred Nissans, 37.5 percent minibuses and 22.5 percent preferred buses (Figure 5.2). This indicates that more commuters preferred minibuses and buses

after, than before the regulations, while on the other hand those who preferred Nissans reduced after the regulations.

Figure 5.2: Mode of Transport Preferred



The respondents gave several reasons as to why they preferred certain mode of transport especially after the regulations were implemented. Of those who preferred Nissans, majority (60.0%) noted that Nissans were faster, more frequent (33.3%), more flexible (13.3%), and the remaining proportion (26.6%) gave other reasons. Those who preferred minibuses reported that the minibus charged lower bus fare compared to Nissans (35.7%), more comfortable to travel in after the regulations than before (35.7%), and 49.9 percent gave other reasons. Those who preferred buses noted that buses were the most affordable in terms of fare charged (42.8%), more spacious and have more space for luggage after the regulations than before (42.8%) and less susceptible to car jacking as compared to Nissans (14.3%). The reasons given above by the respondents on the preferred mode of transport indicate that the 'new' regulations affected the quality attributes of public transport hence affecting the modal choice.

5.2.3 Quality Attributes of Public Transport

In its attempt to assess and discuss the subjective views of the respondents on changes in quality of public transport, the study categorised variables in terms of; those that were most improved, those with little to no improvement, same to little worse, and those that recorded worst (negative) changes (Table 5.1). The categorisation/grouping was done based on the inclination of the majority (percentages) of the respondents. The minority responses were over looked, so as to get a focused discussion but were only included in Table 5.1.

5.2.4 Most Improved Transport Attributes

Comfort was the most improved attribute where 42.5 and 57.5 percent of the commuters noted that the condition was a lot better and a little better respectively. A great positive change was also noted in terms of carrying excess passengers; the incidences of carrying excess passengers in the PSVs had reduced. Among the respondents, 62.5 and 27.5 percent confirmed that the condition was a lot better and a little better respectively. The changes noted were highly attributed to the enforced regulations that reduced the passenger loads. Before these regulations were implemented, it was usual to find the current 14-seater matatu carrying more than 18 passengers, while a 62-seater bus would carry more than 80 passengers both seated and standing. After the regulations, the PSV operators were forced to carry passengers not exceeding the licensed carrying capacity of their vehicles.

Table 5.1: Commuters Views on Changes of Public Transport Attributes

Attributes	A lot better		A little better		Same		A little worse		A lot worse	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Most Improved										
Comfort	51	42.5	69	57.5	0	0	0	0	0	0
Carrying Excess Passengers	75	62.5	33	27.5	9	7.5	3	2.5	0	0
Safety/accidents	33	27.5	75	62.5	6	5.0	3	2.5	3	2.5
Over speeding	33	27.5	72	60	11	8.7	3	2.5	2	1.0
Driving Defective Vehicles	18	15.0	78	65.0	15	12.5	9	7.5	0	0
Failure to Reach Destination	48	40.0	42	35.0	9	7.5	15	12.5	6	5.0
Little to No Improvement										
Frequency	15	12.5	33	27.5	42	35.0	15	12.5	3	2.5
Rude Crew	9	7.5	51	42.5	42	35.0	12	10.0	6	5.0
Loud Music	6	5.0	33	27.5	60	50.0	6	5.0	15	12.5
Reliability	27	22.5	33	27.5	39	32.5	18	15.0	3	2.5
Same to Little Worse										
Traffic Jam	0	0	9	7.5	51	42.5	30	25.0	30	25.0
Worse/Worst										
Bus Fare	3	2.5	6	5.0	0	0	54	45.0	57	47.5
Time Taken	12	10.0	24	20.0	18	15.0	48	40.0	18	15.0

A significant improvement was recorded in terms of safety in the PSVs. Of the 120 commuters, 27.5 and 62.5 percent responded affirmatively that safety was a lot better and a little better respectively. This was confirmed by the reduced incidences of over speeding where 27.5 and 60.0 percent of the commuters noted that the condition was a lot better and a little better respectively. This was also attributed to the introduction of speed governors, which automatically controlled the speed of PSVs not to go beyond a speed limit of 80

kph. It is worth noting that over speeding is a common contributing factor in the causation of road traffic crashes. In Ghana, the 'speed factor' alone accounted for more than 50 per cent of all Ghanaian road traffic crashes between 1998 and 2000 (Afukaar, 2003). It has also been established that if the mean speeds of vehicles can be reduced by 1 km/hr, then, on average, injury and crashes will be reduced by about 3 percent (Finch, 1994).

After the regulations were enforced, an average improvement was also observed on the general mechanical condition of the PSVs, which was confirmed by the respondents where 15.0 and 65.0 percent responded affirmatively that the vehicles' conditions were a lot better and a little better respectively. On the issue of PSVs failing to reach their final destinations/terminus, 40.0 and 35.0 percent of the commuters noted that the situation was lot better and a little better respectively.

5.2.5 Little to No Improvement

Some of the PSV transport attributes recorded little to no improvement/changes. This was indicated by the trend observed on the responses where highest frequencies were recorded on the choices of 'a little better' and 'same' under the qualitative analysis (Table 5.1). Of the frequency of service, 27.5 and 35.0 percent of the commuters reported that the frequency was a little better and same respectively. Almost equal percentages i.e. 27.5 and 32.5 percent respectively noted that the reliability of the various PSVs on the roads did not change very much. Similarly, the respondents noted that the characters of the crew did not change very much and that, the incidences of the crew handling the commuters in a rude manner was a slightly better (42.5%) and same (35.0%). In terms of playing loud

music, 27.5 and 50.0 percent reported that the situation was a little better and same respectively.

5.2.6 Same to Little Worse Changes

Of the 120 commuters interviewed, the majority (42.5%) recorded that the intensity of traffic jam was the same for both periods i.e. before and after the regulations, for those who noted that the situation was a little worse and a lot worse were 25.0 percent for each case respectively. It is not certain that the changes noted on traffic jam were wholly caused by the 'new' regulations; the problem has also been contributed by the increase in the number of private vehicles over time.

5.2.7 Worse/Worst Changes

Duration and cost of travel were worst hit by the regulations. Among the respondents, majority (40.0) noted that the duration of travel/time taken was a little worse, 15.0 percent noted that it was a lot worse while 15.0 and 20.0 percent reported that the situation was same and a little better respectively. In terms of cost of travel or fare charged, 45.0 and 47.5 percent of the respondents affirmatively recorded that the cost was a little worse and a lot worse respectively. The increase in travel time is attributed to two reasons. First are the enforced regulations, which reduced the speed of PSVs to maximum speed of 80 kph. The effect was greatly felt by those vehicles operating the external routes covering longer distances than those on the internal routes. However, PSV operators on both routes complained that there has been a general increase in the number of vehicles in the roads leading to more traffic jam and therefore more time is spend in travelling from one point

to the other. The cost of travel had to automatically go up because of the reduced passenger carrying capacity of the PSVs and therefore the operators had to compensate by increasing the fare charged. However, this interpretation should be taken with caution, in that the increase in cost of travel is a function of many factors including cost of fuel and maintenance among others. Nevertheless, since this study is specifically set to examine the effects of the 'new' regulations, all other variables besides the regulations are taken constant.

This section has discussed the changes in the quality of public transport after the regulations were enforced. The next section will address the challenges and opportunities in implementing and enforcing the 'new' regulations.

5.3 Challenges and Opportunities in Implementing and Enforcing the Regulations

In the process of implementing and enforcing the 'new' regulations, several challenges and opportunities were encountered by the various stakeholders in the public transport industry. In this respect, this study collected data (views and suggestions) on the benefits and problems encountered as a result of the 'new' regulations by both the PSV operators and the commuters. The data collected was highly subjective and were in terms of multiple responses. The discussion dwells mainly on the majority of the responses so as to get a precise and focused discussion. More information was also gathered on the problems experienced by the key enforcers of the 'new' regulations. These included key informants from; traffic police, Ministry of Transport, TLB, Local Authority/City Council and matatu associations.

5.3.1 Benefits and Problems Encountered by PSV Operators and Commuters

Speed governors: The ‘new’ regulations stated that every PSV and commercial motor vehicle with tare weight that exceeds 3,048 kgs be fitted with a speed governor from 1st February 2004. The governor was to be adjusted such that at no any time will the vehicle exceed, a speed of 80 kph. The regulation had some benefits to both the operators and the commuters. Among the operators, 80.6 percent noted that introduction of the governors reduced accidents, made driving more comfortable (52.8%) and reduced cases of mechanical breakdowns (19.4%). Majority (86.7%) of the commuters also responded affirmatively that the gadgets reduced accidents. On the other hand, the operators complained that buying and fitting the governors was too expensive (38.9%), some were sub standard/fake (25.0%), others were non-compatible with some vehicle engines hence leading to serious mechanical problems (22.2%) and 19.4 percent reported that some drivers tamper with the gadget. It is important to note that, as a result of some drivers tampering with the governors, other drivers are also forced to follow suit so that they can compete effectively with their colleagues in the business. The vehicle owners also contribute to the stated problem by setting a higher minimum target of daily collection which on some days is difficult to attain hence leading to over speeding as reported by the operators. Some operators, however, tend to over speed intentionally so as to make extra amount of daily collection for themselves. Of the commuters, while 50.0 percent did not have any problem with the speed governors, 40.0 percent complained that more time was wasted in travelling because of the reduced speed. In respect to these results, the introduction of the governors was nevertheless, supported by the majority of operators and commuters.

Seat belts: Every PSV vehicle was to be fitted with seatbelts in every sitting position. Majority of both the operators (91.7%) and commuters (90.0%) supported the idea that it enhanced safety in public transport industry. On the other hand, 53.3 percent of the commuters complained that the belts were usually dirty, wet, faulty and substandard. Among the operators, 22.2 percent reported that it was expensive to fit and maintain the belts, extra work to keep them clean (19.4%), while 25 percent noted that there was no point of fitting the belts since the passengers were not using them and it was also not the duty of the conductors to force passengers to wear the belts.

Wearing badges: The drivers and conductors were required to wear special badges provided by Registrar of Motor Vehicles. Most operators (52.8%) and commuters (90.0) reported that the badges were important in identifying the specific PSV operators from other people. A 13.3 percent of the commuters also felt that the badges would enable them report cases of misconduct by getting the details of the offending operators. However, 41.7 percent of the operators did not see any benefit of wearing badges. Instead, they complained that the traffic police kept harassing them even after acquiring the badges and could even confiscate them (19.4%). In such cases they preferred to keep the badges in their pockets than wear them. It was also a big problem to replace the badges whenever they move from one vehicle to another (36.1%), and that their work condition was temporary and did not favour the use of badges (19.4%).

Employment on permanent basis: The PSV owners were required to employ their workers (drivers and conductors) on permanent basis and pay them on monthly basis. Of the operators, 47.2 percent supported the idea that it would guarantee them some job security,

get better pay and allowances (33.3%), could be easy to budget (11.1%) and even access variety of loans (5.6%). Most commuters (46.7%) reported that employing the crew on permanent basis would make them behave well and would be easier to instil discipline (40.0%). Some operators however, were against the permanent employment. They (13.9%) noted that the idea was not applicable to their informal nature of work where payments were made daily and that there was no guarantee to work on the same vehicle the following day. 19.4 percent reported that they are likely to lose their pay because of the frequent break downs of the PSVs and that even the employers could take advantage (30.6%). Others (25.0%) reported that some employers do not accept to employ them on permanent basis; too expensive and some of the crew are difficult to manage. Majority (80.0%) of the commuters did not have any problem in employing the crew permanently.

Vehicle identity: All the PSVs were required to display the details (number and name) of the routes they are plying. They were also needed to paint a yellow band (broken) on both sides and on rear measuring 150mm in width clearly visible from a distance of not less than 275 metres. The regulation was taken positively by majority (66.7%) of the operators that the details were good identity for each PSV, regulates the number of PSVs per route hence reduce competition (16.7%) i.e. the route allocation is done by the Transport Licensing Board upon payment of annual licence fee commonly known as TLB licence. It could also be possible to get regular customers (13.9%). Some operators (38.9%) however, noted that because they are restricted to operate on only one route, it sometimes becomes difficult to operate especially when transport conditions are not favourable in the particular route. For instance, when there is traffic jam or in cases when a particular

vehicle is being sought by the traffic police, for a particular offence committed. Of the commuters, majority (86.7%) supported the display of route details as it made it easier to identify the different PSVs and that it restricted the vehicles from changing routes along the way (23.3%). A few (23.0%) of the commuters complained that some of the route details were not clear and even some routes were using the same number which can easily cause confusion to the commuters especially those who are visiting the city for their first-time.

Wearing uniform: The drivers were required to wear dark blue uniform while the conductors were to wear maroon ones. Most of the operators (86.1%) were positive about the regulation that it identified them at their work operations. However, 55.6 percent lamented that wearing the uniform made them more prone to police harassment because they could be spotted easily. Walking on the streets could result in frequent arrests and be charged of touting. Some operators complained that the conductors were mainly targeted because they are the ones who collect money from the passengers hence harassed so as to part with part of it as a bribe. Other operators (16.7%) complained that the uniform which comprised of a long trouser, a shirt and a three-piece coat were not fit to be worn in both hot and cold weather. In this case therefore, during hot weather, the operators could remove the three-piece coat while in cold weather they could put on a jacket or an over coat on top of the uniform. This usually led to police harassment with the argument that they were not in full uniform. Among the commuters, majority (86.7%) supported the wearing of uniform that it was easier to identify the crew in charge and that the operators looked smart and presentable in uniform (16.7%). On the other hand the commuters

complained that some operators were not wearing the uniform regularly (16.7%) while others were wearing dirty or discoloured uniform (13.3%). Although the introduction of uniform was supported by majority of both operators (86.1%) and commuters (86.7%), it is important to note that the implementation of this regulation was hampered by the President's (Kibaki) sympathy with the PSV operators in December, 2007 at the peak of general election campaign. This was based on the complaints launched to him by PSV operators that they were being harassed by the traffic police and that, they did not need to wear uniform like school children. Hence the implementation was relaxed.

Retesting of drivers: The regulations required that every PSV driver to undergo a compulsory driving test, after every two years, to ascertain his or her competence. Only 30.6 and 16.7 percent of the operators responded affirmatively to this regulation that, it would assist in refreshing driving skills and rules, and eliminate illegal/unqualified drivers respectively. The commuters also made similar statements (like the operators) in the percentages of 46.7 and 33.3 percent respectively. Majority (55.6%) of the operators did not see the need of retesting the drivers and 36.1 percent reported that driving is a skill that develops with time; the more one drives the more skilful he/she becomes. In this case therefore, there was no need of retesting the already qualified drivers. In fact 36.1 percent noted that retesting drivers was a waste of time and an added expense to the operators. Majority (66.7%) of the commuters did not have any problem or complain in retesting the drivers.

Displaying of driver's photograph: The PSV driver was required to exhibit a recent copy of his photograph showing the head and shoulders (taken full face and without hat). The photograph was to be displayed such that it was visible to passengers riding in the vehicle. It was to be approved by a senior police officer and that the reverse of the photo was to bear the particulars of the driver's identity card, PSV license and the signature of the authorising police officer. Of the operators, majority (55.6%) did not see any significance of the photo and that it served no purpose because they already had other identification documents. However, 25.0 percent responded affirmatively that the photos were important in identifying the driver in charge and therefore it could be easier to win customers' (commuters) confidence. Among the commuters, majority (76.7%) supported the displaying of drivers photograph for identification purposes and could even limit the illegal ones from driving the vehicle. In contrast however, 20.0 percent reported that most of the drivers do not display the photographs.

An in-depth interview with the Kenya Bus Service; the oldest bus company in Nairobi (currently known as KBS management Ltd), revealed that apart from other managerial, financial and operational challenges the company was facing, its management officials complained that the enforced regulations had great negative implications to the smooth running of the company. First, the officials reported that the rules were punitive and unfavourable to a formal operator who, over the years had endured storms that have affected the public transport in Nairobi city in the past. The rules had cost KBS Company Ksh. 1.04 billion by February, 2005 to fit the speed governors and seat belts in all (424) vehicles. The company was therefore forced to seek credit facilities within a short notice

hence plunging into great indebtedness. Their engines were high-fuel consumers meant to carry heavy loads; licensed to carry 105 passengers. The bus capacity was brought down to 60 under the enforced regulations. The reduced capacity had serious implications on KBS peak passenger loading and resulted in massive loss of revenue. Other “unnecessary costs” the bus firm incurred, include reconfiguration of seat arrangement from 2×2 with a wide gangway to 2×3 with a narrow gangway, sealing of the second door and removing the stairs.

The reduced carrying capacity of the big buses meant that the number of matatus on Nairobi streets would increase resulting in more traffic congestion especially during peak hours. For the KBS Company, it meant; further losses through the fuel wasted in long traffic queues, fewer trips made and reduced crew productivity. Another expensive rule is the one that banned fleet operators from using the company buses on any route, hence limiting their area of operation. The KBS officials further noted that instead of enjoying tax breaks, the public passenger transport is laden with excise duty, advanced tax, fuel levy, TLB fees, PSV fees, annual police inspection fees, value added tax, among others. The officials pointed out that the informal sector can easily evade some, if not most of these rules through bribes and other unorthodox means. They therefore concluded that the operating climate continues to favour lower capacity vehicles in the informal sector to the detriment of big buses in the formal sector.

5.3.2 Comments and Suggestions from the PSV Operators

Both the drivers and conductors made some general comments and suggestions about the enforced regulations as stated below;

1. That the uniform should fit both cold and warm weather.
2. The badges should not necessarily match with the vehicle details instead universal badges should be introduced.
3. Although some of the regulations were good while others were bad, the traffic police took advantage of the many regulations to harass the operators.
4. The traffic police powers are too much and should be checked, and corruption among them minimized.
5. The government should facilitate retesting of drivers so as to minimize expenses and that the retested drivers should be awarded some promotion at the work places by their employers.
6. Fines are too high at the law courts hence encouraging corruption between the traffic police and the operators.
7. The drivers and conductors suffered most because of the regulations and therefore should form route SACCOs to advocate for their welfare and dialogue should be encouraged among the stakeholders.
8. The government should enforce the regulation on permanent employment
9. Finally, the regulations will only be sustainable, if the government is committed to enforcing them in the right manner, otherwise they have no future.

5.3.3 Comments and Suggestions from the Commuters

The following are the general comments and suggestions made by the commuters;

1. That the operators need some customer care training specifically on how to handle the commuters.
2. Need to form commuter SACCOs to advocate for commuters' welfare.
3. Need dialogue among the various stakeholders and promote public awareness on the importance of the 'new' regulations.
4. Strict enforcement of the regulations and, corruption should be minimized among the key enforcers.
5. The seat belts must be of good standards and kept clean always.
6. Generally, the regulations were good; they streamlined the public transport industry. However, serious enforcement is needed for them to last longer otherwise they will die out with time.

Apart from the data collected from the PSV owners, drivers/conductors and commuters, further information was collected through in-depth interview from the key informants who were drawn from the Ministry of Transport, Transport Licensing Board, Local Authority, Traffic Police and the Matatu Civil Organizations.

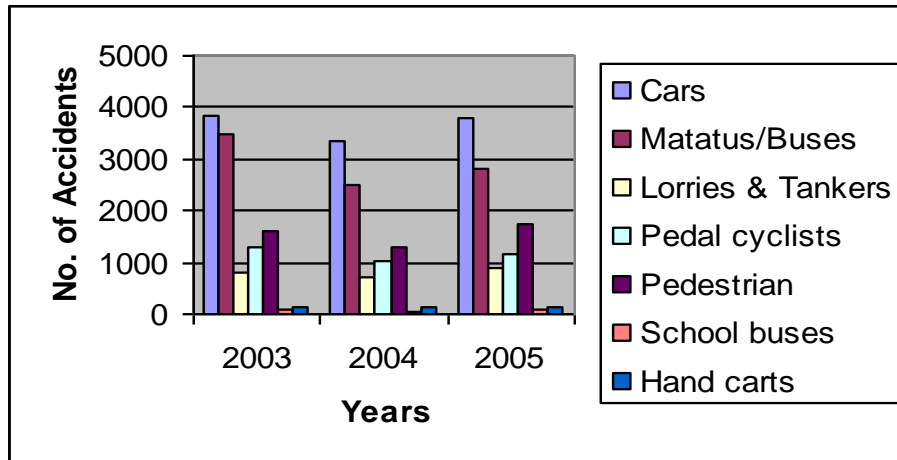
5.3.4 The Ministry of Transport

The Ministry of Transport is mandated to formulate transport policy, develop regulatory framework, oversee service delivery of State Corporations under the Ministry, investigate air accidents, motor vehicle inspections and provide meteorological services. In order to

ensure there are standard guidelines and policy direction in the service delivery and operations in the sector, the Ministry is in charge of developing/reviewing and overseeing enforcement of policies in the transport and meteorological sectors. The Ministry ensures development of regulatory framework, which is enforced through various regulatory bodies. Currently, the Transport Licensing Board (TLB) established by an Act of Parliament (Cap 404) ensures harmony in the provision of road transport services. The Ministry has re-instituted efforts to ensure that this is respected by transport operators.

As already mentioned, in 2003, the Ministry of Transport introduced some transport regulations and measures to improve safety on our roads by initiating amendments of Traffic Act Cap 403 laws of Kenya. At that time, statistics on road safety in Kenya indicated that despite the country having a low motorization rate of about 20 vehicles per 1000 people, on average, up to 3000 fatalities were being recorded annually with 10,000 injuries besides those that went unreported (Republic of Kenya 2006). This translates to 1 death per 10,000 people. The insurance industry estimates indicate that the Kenya economy was losing in excess of Ksh. 14 billions annually due to road accidents, which translated to 5% of the GDP. According to available statistics, 85 percent of road accidents are caused by human error, 11% due to mechanical failure and 4% are attributed to environmental factors. Table 5.2 and Figure 5.3, shows the trends in the number of accidents when the 'new' regulations were first implemented.

Figure 5.3: Number of Accidents Caused by Various Types of Vehicles (2003-2005)



Source: Ministry of Transport, 2006

The above results indicate that in 2004 when the enforced regulations were put in place, there was a significant decline in the number of accidents related to PSVs and private cars. However, one year later (2005), an upward trend in the number of accidents was noted despite the existence of the ‘new’ regulations (Figure 5.3). The Ministry of Transport officials reported that when the regulations were first enforced the compliance was quite high, but as time went by several challenges were encountered in enforcing the regulations, which compromised the compliance and hence increasing the number of road accidents reported. Therefore the desire to completely eliminate road crashes has not been realized.

The Economic Survey of 2005 indicates that the public transport sector registered a significant growth after the enforced regulations were put in place. In the year 2003, a total of 42,000 vehicles were registered. The figure increased to 47,000 vehicles in 2004 and 51,000 vehicles in 2005. This translates to a 20 percent increase in the number of mini

buses registered and about 10 percent for buses for the period between 2003 and 2005. There was a considerable decline (40%) in the number of passengers killed in the above period. The reforms created conducive environment for investment; many people who feared investing in this sub sector prior to the introduction of the reforms due to the existence of cartels were able to invest with confidence and hope of making profit. Among the new entrants into the sector included bus companies like Citi Hoppa, Express Connection (Double M) among other individual investors.

The Ministry of Transport monitors the implementation of road safety regulations through the Transport Licensing Board department which works together with Traffic police, Motor Vehicle Inspection Unit and Registrar of Motor Vehicles.

5.3.5 The Transport Licensing Board

The Transport Licensing Board (TLB) is a licensing and regulatory body established by an Act of Parliament, Transport Licensing Act, Cap 404 laws of Kenya to provide for the coordination and control of means of and facilities for transport. The key function of the TLB is to license public and commercial service vehicles to operate on the roads. The licenses are granted upon compliance with road safety requirements outlined in the Transport Licensing Act and other enabling statutes. The TLB plays a pivotal role in overseeing the implementation of the 'new' road safety regulations by co-ordinating other Government departments involved in implementation of road safety regulations.

In order to co-ordinate the implementation of the regulations, the TLB in conjunction with officers from the Motor Vehicle Inspection Unit and Traffic police have been conducting crackdowns in different parts of the country to monitor compliance with road safety requirements. This is usually meant to ensure that only vehicles that have fully complied with the regulations are allowed to operate. The TLB as empowered by the Transport Licensing Act Cap 404 laws of Kenya has been suspending licenses of vehicles that have not complied with the regulations. PSV badges for drivers and conductors of the affected vehicles have also been withdrawn by the Registrar of Motor Vehicles. During the suspension period, both the crew and the particular vehicles are not allowed to engage in any public transport business. Thereafter, the crew are expected to seek clearance and obtain certificate of good conduct from the CID department before they can be allowed to resume work. On the other hand the owners are required to take the vehicles to Vehicle Inspection Unit for re-inspection and obtain a certificate of compliance to confirm that the particular vehicles have been inspected and cleared by the unit. The suspension usually lasts for a minimum period of 1 month running up to several months.

Although the crackdown is used to enforce the regulations, it is usually faced with some challenges. Due to lack of strict enforcement of the regulations, some drivers and conductors ignore the suspension and continue with operation by moving away from their usual routes of operation to others. Similarly, the vehicle owners on the other hand can also change routes or regions of operation. For instance, a PSV suspended in Nairobi can be relocated to Kisumu or to any other region away from Nairobi. However, in some occasions such vehicles have been arrested but majority have gotten away with it hence

challenging the efforts to enforce the regulations. Alternatively, the owners of the suspended vehicles can sell them off to unsuspecting buyers who later discover the problem and can do less to overcome it.

The TLB officials further noted that during crackdowns, many operators usually play a cat and mouse game with the TLB. They temporarily withdraw their vehicles from the roads fearing that they would be impounded. Once the crackdown operation is over or moves to other areas, the same vehicles are returned back to the roads. For the case of impounded vehicles, the police usually remove the number plates and inspection stickers of these vehicles, which are then returned to Registrar of Motor Vehicles awaiting the PSV owners to repair and service them. Sometimes the process is derailed by lack of enough vehicle inspectors as reported by TLB officials.

The commuters on the other hand complained that sudden crackdown on the un-roadworthy vehicles usually causes a lot of disruptions to commuter transport. During such times, the operators of the few vehicles that are compliant with the regulations take advantage of the crisis to increase fares. The situation is sometimes made worse, if there are protests by the PSV operators hence paralysing and inconveniencing the commuters. Most commuters are therefore left stranded at various matatu termini as others struggle to get seats in the few operating PSVs. The commuters observed that the disruptions witnessed would not occur if the enforcement of traffic rules and regulations was a permanent and continuous process; not sporadic. The occasional crackdowns therefore, have largely been unsuccessful.

The TLB officials however, defended themselves that, its sometimes very difficult for the TLB officers to be supervising the PSV drivers on the roads all the time and that the PSV owners, crew and passengers should also be responsible. A commuter concurred with the TLB officials and said that;

“we are as guilty as matatu operators because we disregard the seatbelts, get into the already loaded matatu and encourage speeding giving the lame excuse that we are in a hurry. We need to demonstrate our commitment to traffic rules by complying at all times”.

The TLB officials also reported that the PSV crew have demonstrated that they have no regard for the law. Even when they are slapped with heavy penalties, they still repeat the same mistakes. They further noted that some PSV crew violate the rules frequently because it is the vehicle owner who pays the court fines and not them.

There have been frequent calls by various lobby groups for self-regulation policy in the public transport industry. The TLB officials however, dismissed such calls that history had proved that the PSV operators will disregard the traffic rules if left to self-regulate themselves. The officials went further and noted that in 1973, the then President (Jomo Kenyatta) allowed them to self-regulate, a decision that led to chaos on the roads. Similarly, in 1999 some of the currently enforced rules were introduced under TLB following a public outcry. Among the key regulation was the attempt to have speed governors (nicknamed ‘black box’) installed in public service vehicles in Kenya, through a directive from the minister for Transport and Communication. This failed since the PSV operators did not adhere to it. Instead they complained that the gadgets were costly and by lobbying through the power structures, they managed to have the directive stayed

(Khayesi, 1999). It is quite notable that the challenges being faced in implementing the current regulations are therefore not new as such.

As part of the reforms that came along with the 'new' regulations, the Ministry of Transport introduced a hot line number, SMS 2333 through which members of the public could report those operating PSVs that do not comply with the traffic regulations. Owners of the reported vehicles were therefore required to go for mandatory vehicle re-inspection. Those who failed to comply were summoned to appear before the board to face disciplinary action. The service was received quite well by the public when it was first introduced and the office in the Ministry of Transport concerned with the complaints were receiving between 15 and 30 reports a day, or between 500 to 1000 monthly. The idea was a brilliant one as part of public policing. The officials of the Ministry of Transport however, complained that the Traffic police were a bit reluctant in arresting the reported offenders hence derailing the efforts of the public to monitor the PSV crew compliance with the regulations.

The Ministry of Transport officials further reported that some of the major obstacles to the success of the 'new' regulations were apathy from the traffic police in enforcing them. Others were the unscrupulous PSV drivers and conductors, corrupt traffic police officers and indifferent commuters which abetted the flouting of the regulations. One of the officials in Ministry of Transport was so defensive and noted that;

“.....their main role is to regulate or rather draw up the rules. It then becomes the duty of the traffic police who are mandated to enforce the regulations. The TLB officials only undertake inspections once in a while to ensure that the PSVs observe the regulations. The Ministry of Transport neither trains nor tests the drivers before giving licenses. They do not construct roads and they are not in charge of the traffic police to inspect the state of vehicles on the road. They

do not even manage speed guns. In fact accidents and lawlessness on the roads are caused by poor driving habits, poor state of roads and poorly maintained vehicles, factors that are beyond the control of the Ministry of Transport. Hence, we cannot be blamed for any messes on the roads.”

The TLB however, has been criticised that it duplicates the work of the Traffic police and that its “knee jerk reactions” to those flouting the rules is not enough to curb accidents. It is important to note that the road transport sub-sector is managed by different government ministries and departments in Kenya. There are several challenges encountered when diverse departments spread over different ministries deal with the management of public transport. For instance, the Ministry of Transport gives policy guidelines to the management of the sub-sector, however, the Traffic police coming under the Office of the President make it difficult for the Ministry of Transport and its organs to give the officers instructions or take action on those who fail to follow or enforce the law. Nevertheless, there is an Integrated National Transport Policy and a National Road Safety Action Plan put in place some years back and although they are yet to be fully implemented, the two sought to bring together various ministries and it is upon all the concerned parties to play their roles in ensuring smooth flow on the roads. More punitive measures are needed and it is worth noting that the success of any government policy depends on the unwavering co-operation and good will of all stakeholders. Table 5.3 shows the Ministries and Government departments involved in the management of public transport.

Table 5.2: Institutions Involved in Road Transport Management in Kenya

Ministry	Departments	Functions
Ministry of Transport	Transport Licensing Board (TLB)	- Licensing and regulation
	Registrar of Motor Vehicles	- Registration of vehicles - Licensing of drivers and conductors
	Others	- Policy formulation - Road safety campaigns - Road safety research
Office of the President	Kenya Police (Traffic)	-Traffic law enforcement - Prosecution - Driver testing - Keeping of National crash data records
	Motor Vehicle Inspection Unit	- Motor vehicle worthiness inspection
	Attorney General	- Litigation
Ministry of Finance	Kenya Revenue Authority (KRA)	- Revenue collection
Ministry of Trade and Industry	Kenya Bureau of Standards	- Standardisation of facilities used in the sub-sector
Ministry of Roads and Public Works	Main office	- Funding road construction and maintenance
Ministry of Local Government	City/Town Council	-Construction and maintenance of roads within the municipality - Allocation and management of stages
Others	Non-governmental Organisations (NGO)	- Funding - Emergency services - Road safety campaigns
	Vehicle Owners	- Maintenance of vehicles - Ensuring that they comply with the laws
	Private Sector	- Funding

Source: Kenya Institute of Public Policy and Research Analysis

5.3.6 The Local Government Authorities

The Local Government Act and the Traffic Act gives a wide range of responsibilities to local authorities with respect to urban public road transportation. The key role of the local

authority in public transport is to designate parking places for vehicles including the PSVs termini and stages. Although the local authorities are expected to manage the PSV terminus, this study established that most of them have not been able to fully take over that responsibility. The vacuum created by this laxity, is exploited by illegal groups who illegally extort money from investors. Asingo (2004) found that where local authorities have set up terminuses, they tend to be inconveniently located and small in size compared to the vehicle fleet that use them. This therefore encourages picking and dropping of passengers outside the designated stages and terminuses. The role of fixing terminuses and stages is increasingly being assumed by the PSV operators who arbitrarily fix some of the terminuses within the city centre (Ibid).

Apart from designating and manning the parking spaces, the local authority collects the parking fee from the vehicles owners. For the private cars the fee is Ksh. 70 per day while the PSVs are charged Ksh. 1,400 per month. However, majority of the PSV operators interviewed were not comfortable with the operations and the services of the local authority in the public transport sector. They complained that the local authority employees manning the bus parks had transformed the public transport sector into a cash cow. Despite the existence of the enforced regulations, the above mentioned shortcomings of the authority have promoted corruption between the operators and the local authority officials. For instance, because of the limited parking space some operators are forced to tout for passengers and when arrested by the local authority officials they part with bribes to get released. Because of this weakness, illegal groups/cartels have persistently taken advantage of the situation to extort money from the operators. The operators therefore, did

not see the need of having the local authority officials instead they preferred to have their own people and pay them a fee to man the terminuses. They noted that their own people would be more organised and mutual respect among them is likely to exist.

The persistent problems of cartels in general could be reduced if local authorities could take firm control of the stages and terminuses in a transparent manner. This problem however, has been so perennial and the government has opted to privatise the management of the stages and terminuses but the programme is yet to be effected.

5.3.7 The Traffic Police Department

The first Traffic Police section was established in 1954 at Police Headquarters in Nairobi. Its mandate was to monitor and maintain records of Traffic related cases. Due to the increase in vehicular traffic leading to expansion in Traffic operations countrywide a police officer in charge of Traffic Operations was appointed. In 1973, Highway Traffic Operations was created under a Commandant. In 1985, Highway Traffic operations changed its title to Police Traffic Department. In 2003, Traffic Department was restructured and all the Traffic Police Bases countrywide were handed over to respective Provincial Police Officers for both administrative and operational management. In the year 2005, the Commissioner of Police made reorganization and established Highway Patrol Unit under the Traffic Department to assist in curbing highway robbery and to enforce traffic rules along the main highways countrywide. Presently, the Traffic Police Department is mandated by the law to manage and run the; Government Vehicles Check Unit, Driving Test Unit, Motor Vehicle Inspection Branch and Road safety section. Its key

roles include enforcement of traffic laws and regulations, testing of drivers and issuances of certificate of compliance, inspection and certification of road-worthiness of vehicles on the road, and apprehension/prosecution of traffic offenders.

The Traffic police have been facing various challenges in enforcing the enforced regulations as provided by Legal Notice 161 of 2003. The police noted that some PSV drivers tamper with the speed governors especially after passing the police checks at road blocks. Some have installed switches that are used to switch on/off the speed governor depending on the presence of the police. They noted that the problem was rampant among the PSVs plying the external routes of Nairobi and those plying upcountry routes because of the long distances covered. The main reason of doing so is to reach their destinations faster; the gadgets were reported by the drivers to prolong the time that it takes one to reach a given destination hence need to install the switch. Others claim that they are forced to manipulate the speed governors so that their vehicles can go uphill. They argued that some vehicles fail to go uphill with the speed governors in place. At the moment therefore, it is common to see PSV vehicles cruising at speeds beyond 80 kph. All these have resulted in rise in the number of road accidents, hence derailing the desire to completely eliminate road crashes.

The Traffic police noted further that some PSV drivers are reckless in driving and sometimes it is difficult to detect human error or such a problem to pre-empt a tragedy. Some of them operate without valid driving licenses while others give out their vehicles to unqualified/unlicensed drivers after passing a police check point. Kayi (2007) found that

28 percent of drivers in Nairobi had neither taken driving lessons nor the driving test yet they possessed valid driving licenses. On other occasions some drivers still operate on squad driving basis where one driver is employed but goes ahead and gives out the vehicle to other drivers in turns. Some drivers do carry excess passengers after by-passing the police check points while others play very loud music; they have installed big speakers at invisible points in their vehicles. In terms of safety belts, the Traffic police reported that in most PSVs the belts are faulty and some do not have them at all. Passengers on the other hand do not see the need to use them until they spot a traffic policeman manning a road blocks ahead.

Poor infrastructure and poor working conditions were also reported by the Traffic police as being among the challenges they face in enforcing traffic regulations. The limited parking space has led to congestion in the main termini particularly in the CBD of Nairobi city. This has forced some operators to tout for passengers. On the other hand the dilapidated infrastructure characterized by pot holes contributes to incidences of accidents. In terms of the poor working conditions, the study's findings concurs with Asingo (2004) that the traffic police are ill equipped to enforce the traffic regulations and that, they work under extremely difficult conditions which are characterized by lack of basic facilities. They also lack adequate protection against the harsh weather conditions like rain. When it rains heavily, for instance, the police are not able to remain on the road due to lack of shelter. This gives room for blatant neglect of the traffic rules and explains the tendency for heavy traffic jams during heavy rains. Some PSV operators also tend to increase their

fares at will the minute they sense that passengers look stranded or desperate to get home due to sudden change of weather conditions.

The Motor Vehicle Inspection unit is mandated by the law to inspect vehicles so as to make sure that they are in good mechanical condition and comply with provisions of the Traffic Act before issuing a certificate of compliance. The inspection certificate or sticker however, is by no means a guarantee that a vehicle is in compliance with the required standards. The officials of the motor vehicle inspection unit reported that some operators may make their vehicles “clean for a day” or swap entire parts in and out of the vehicle in order to pass the test. It is important to note that the condition of the inspected vehicles is not static; the condition whether intended or unintended deteriorates with time. This has forced the traffic police, motor vehicle inspection unit and the TLB to conduct frequent crackdowns so as to ensure that the PSVs comply with the provisions of the Traffic Act, especially those of Legal Notice 161 of 2003. The crackdowns however, are more technically demanding than just checking a valid inspection sticker on the wind screen of the vehicle. The situation is exacerbated by some illegal organizations selling to vehicle owners speed compliance certificates/stickers without fitting the actual speed governors hence resulting in increased number of un-roadworthy vehicles. The reason for buying such illegal documents is that the speed governors are too expensive to buy and unless the government subsidizes its price, the illegal deal will continue thriving hence compromising the road safety standards.

5.3.8 The Matatu Civil Organizations

The matatu transport industry has had several civil organizations catering for the interests of its members since 1973 when they were first allowed to operate. The Matatu Vehicle Owners Association (MVOA) was formed soon after the 1973 Presidential decree that allowed the matatus to officially operate as a legitimate means of public transport. The main aim of the association was to control the operations of the sector and articulate the interests of the owners to the government. The association however, was later accused by the government of providing avenue for political destabilization, and therefore banned in 1988. In 1997, another matatu civil organization known as Matatu Welfare Association (MWA) was formed and was officially registered in 2001. Its objective was to replace MVOA and sought to bring together matatu owners and operators in order to articulate the issues affecting the matatu industry. The Matatu Owners Association (MOA) was formed in April 2003, partly out of the feeling by some matatu owners that MWA was not adequately addressing the problems afflicting the matatu industry. The two associations ran parallel hence compromising their ability to adequately represent the interests of matatu owners. The government seemed to be in good terms with MWA, and even involved them in the drafting of the National Integrated Transport Policy. On the other hand MOA organised a national strike in November 2003 to protest the introduction of the enforced regulations leading to many conflicts with the government. Nevertheless, in February 2007, the two associations (MWA and MOA) signed a memorandum of understanding in which the two merged into one union. The officials agreed to work together to bring all PSV operators under one body. The union was named Public Service Vehicle Owners Welfare Association of Kenya (POWAK) and its main aim is to regulate

and maintain sanity in the PSV sector. It is mandated to represent the PSV operators in every forum and aims to support and promote the interests of the operators in consultation with other stakeholders in finance, insurance and the government.

Since the introduction of the enforced regulations, the matatu associations have been facing various challenges in representing the PSV operators especially in issues concerning implementation of the regulations. The relationship between matatu association and the government (Ministry of Transport, TLB and traffic police) has therefore been characterised by accusations, counter accusations and bare-knuckled attacks. The POWAK officials criticised the frequent crackdowns conducted by the traffic police and the TLB officers noting that it is a 'hide and seek' game which cannot make the roads any safer. They lamented some of the actions taken by the TLB officers against the PSV operators as being unwarranted. For instance, it was wrong for a vehicle to be taken for inspection when a conductor/driver is arrested for not wearing a badge or a vehicle is detained because of minor defects. In fact during crackdowns, some of the vehicles detained may stay at police stations for a week due to shortage of motor vehicle inspectors. The POWAK officials dismissed the hot line initiative (SMS-2333) used by TLB to receive complaints as being faulty as anyone with malice could call to complain about a given PSV in order to get it out of the business.

The POWAK officials were against the claims made by the Ministry of Transport that the road safety situation has improved and they argued that the sector has gone back to its old way-ward ways. They further noted that the enforced regulations seemed effective for a

few months after they were introduced, but slowly, the situation started reversing. They perceived the frequent crackdowns as a way of punishing and harassing the PSV operators instead of enhancing road safety. They noted that it is better to have an alternative way to crack the whip on vehicles flouting traffic regulations.

The POWAK officials like the PSV operators complained that the enforced regulations were too many and confusing. The traffic police took advantage of the very many regulations to harass the operators and it also seems difficult for the operators to comply perfectly with all the regulations. The officials reported that when the crew are arrested, they are usually forced to plead guilty even when they are accused of committing offences that cannot be proved. When taken to court, the court procedures consume a lot of time and one can waste the whole afternoon doing the paper work, then the whole morning appearing in court, plead guilty for non-existent/minor traffic offence charges, and then finally pay very high fines. The long court procedures and heavy fines, have opened loop holes for corruption where some of the PSV operators prefer to buy their release by bribing the police when arrested. To them this act saves time and they pay less to get released and get back to work immediately. The money paid for the bribes is usually compensated by over speeding so as to make more trips, over loading vehicles and even by over charging the passengers. The POWAK officials and the operators suggested that 'on spot fines' should be introduced with official receipts. The suggestion is however, challenged/supported by a survey contacted by the Sunday Nation newspaper in September, 2007, that gathered public opinion on a one time proposal that traffic offenders should pay fines on the spot. Among the respondents interviewed, 50.9 percent opposed

the proposal while 49.1 percent supported it. The reasons given by those who opposed the idea were, first it will increase corruption among the police, secondly the drivers might not have money at hand to pay the instant fines and thirdly, the drivers should be given a chance to defend themselves. For those who supported the proposal noted that it will deter drivers from breaking traffic rules and it will also save the time spent in courts and further reduce congestion in the courts (Sunday Nation, 4th September 2007).

Although the Ministry of Transport was against the self regulation mode of management in the public transport industry, the POWAK officials however advocated for self regulation saying that the government has been hounding them out of business under the guise of enforcing safety regulations. The officials reported that self-regulation tried in 2004 was successful. However, in August of the same year the government ejected the teams from matatu stages after branding them cartels. The officials further noted that some vehicle owners have organized their own self-regulatory systems which are working very well to ensure comfort and safety to commuters. These include companies such as Chania Travellers, North Rift Shuttles, and Mololine Shuttles among others. Other public transport operators could also be encouraged to do the same. The POWAK officials also blamed some PSV owners who are not responsible in managing their businesses and have instead left it to their crew. An official interviewed said;

“we have owners who only stretch out their hands in the evening expecting to be given what the crew has made in the day. Such a person will not even know the condition of his vehicle.”

The POWAK officials also noted that the enforced regulations had failed simply because all stakeholders were not involved in the process of developing and implementing the regulations. They blamed the TLB officers (Ministry of Transport) as not working closely

with the traffic police (Office of the President) and on occasions where they have worked together some conflicts have been reported. It is important to note that, tackling of the long-running public transport problems may not be possible without giving substantial compromises among the parties involved. Indeed, it is not possible to talk about streamlining the industry without tackling the issue of corruption and conflict of interest on the roads, and civic education for the passengers. The officials pointed out that PSV vehicles belonging to traffic police officers or their relatives and friends were not impounded. In case of any arrest, they could just negotiate their release through phone calls. On civic education, the Ministry of Transport reported that they have been conducting a series of public awareness campaign where members of the public are educated on the need to ensure that they operate within the law. However, dismal outcome has been reported and therefore there is need for more emphasis.

5.4 Summary

This chapter has examined two objectives; first was to assess changes in the quality of service of public transport in Nairobi before and after implementing the ‘new’ road safety regulations and second was to identify the challenges and opportunities in implementing and enforcing the ‘new’ road safety regulations in Nairobi. It was noted that the mode of transport preferred changed after the regulations were implemented such that more commuters preferred minibuses than Nissan matatus; they were less expensive in terms of bus fare charged and had become more comfortable to travel in. Among the most improved public transport attributes included comfort, safety, over speeding, carrying excess passengers and failure to reach destination. A slight improvement was reported on;

customer care by the crew, frequency and reliability of service. No significant change was noted on the traffic jam but a worst change was observed on the increase in bus fare charged and time taken to travel.

The study found that, when the regulations were first enforced the compliance was quite high, but as time went by several challenges were encountered in enforcing the regulations, which compromised the compliance and hence increasing the number of road accidents reported. The traffic police apathy and corruption, the unscrupulous PSV operators and indifferent commuters have abetted the flouting of the regulations. In terms of motor vehicle inspection, while some operators may make their vehicles compliant for a day in order to pass the test, others buy the inspection and speed compliance stickers from illegal organizations without fitting the actual speed governors. The occasional crackdowns conducted by the TLB officials on the PSVs have not been successful either; some operators usually play a cat and mouse game with the TLB. They temporarily withdraw their vehicles from the roads during such times and just to return them once the crackdown operation is over. The local authority has not been able to fully take over its responsibility of designating and managing the parking places for vehicles. This laxity has created a vacuum which, is exploited by illegal groups who illegally extort money from the PSV operators. The traffic police complained that some PSV drivers tamper with the speed governors, drive recklessly, operate without valid driving licenses, carry excess passengers and play very loud music. Some PSVs have faulty seat belts while others do not have them at all and that passengers do not see the need to use them. Poor infrastructure and poor working conditions are among other challenges facing the traffic

police. The relationship between matatu associations and the government agents (Ministry of Transport, TLB and traffic police) was noted to be characterised by accusations, counter accusations and bare-knuckled attacks, hence compromising their operations and roles. It was also noted that the Kenya's road transport sub-sector is managed by different Government Ministries and Departments; leading to numerous accusations and counter accusations among the different bodies in the implementation of the regulations.

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This study has examined the effects of the ‘new’ road safety regulations on the operations of PSV in Nairobi. Specifically the study sought to, i) examine changes in the input and output of PSV, ii) establish changes in the working conditions of PSV drivers and conductors, iii) assess changes in the quality of service of public transport, iv) examine the challenges and opportunities in implementing and enforcing the ‘new’ road safety regulations.

Data for analysis were collected using questionnaires in which a total of 360 respondents were interviewed i.e. 120 PSV drivers/conductors, 120 PSV owners and 120 commuters. Data processing and analysis involved checking for completeness of questionnaires, verifying consistency, data coding and entry, computation and presentation of descriptive statistics. Test for significance have been done using the Student’s t-test. This chapter presents a summary of the findings, conclusion and recommendations.

6.2 Summary of Findings

The mean values for the input costs of the amount of fuel used per day and the cost of service and repair were higher before the regulations were implemented than the period after. These differences are attributed to both the use of speed governors that controlled speed and the reduced carrying capacity of the PSVs, hence leading to less fuel consumed and reduced rate of mechanical breakdown. However, the mean values for tyre duration, and driver and conductor wages were lower before the regulations were implemented than

the period after. This indicates that the tyres lasted longer and the PSV drivers and conductors were given better pay after the regulations were implemented. The differences observed were found to be statistically significant ($P \leq 0.05$) for all the input variables. On the other hand, it was observed that the average vehicle trips per day, number of passengers transported per trip and amount of daily collection were lower after the regulations were implemented. This was as a result of both reduced speeds leading to fewer trips made per day and the reduced carrying capacity hence less amount of daily collection. Higher averages were observed in vehicle output elements in terms of duration of travel per trip and amount of fare charged per passenger. The differences observed in all the output elements were found to be statistically significant ($P \leq 0.05$). Therefore, the null hypothesis (H_{01}) that there is no significant difference in the input and output elements of PSV in Nairobi before and after implementing the 'new' road safety regulations is rejected based on this analysis.

Some minimal changes were observed on the working conditions of the PSV drivers and conductors. The notable changes were in terms of shifts in the frequency distribution of the respondents when examined under different variables. These changes, however, did not have much effect on the mean values derived from the frequency distributions. Although these changes are said to be small, the difference noted were statistically significant ($P \leq 0.05$) for work starting and stopping time, number of hours worked per day, amount of wages/salary, terms of payment and benefits/allowances. Majority of the PSV workers confirmed that their working conditions had improved and were a lot better after the regulations were implemented; however, they were still not satisfied with them. This

is because of the poor pay, long working hours and harassment from both the police and vehicle owners. The null hypothesis (H_0) tested under this objective that there is no significant difference in the working conditions of PSV drivers and conductors in Nairobi before and after implementing the 'new' road safety regulations was rejected in respect to the statistical difference noted on the above variables.

The study found that the modes of public transport preferred generally changed after the regulations were implemented. More commuters preferred minibuses than Nissan matatus; they had become more comfortable to travel in and charged lower bus fare than Nissans. However, the fare charged varies spatially from one route to another. Among the most improved public transport attributes among the PSVs included comfort, safety, over speeding, carrying excess passengers and failure to reach destination. A slight improvement was reported on customer care by the; crew, frequency and reliability of service. No significant change was noted on the traffic jam but a worst change was observed on the increase in bus fare charged and time taken to travel.

The study further found that, when the regulations were first enforced the compliance was quite high, but as time went by several challenges were encountered in enforcing the regulations, which compromised the compliance, and hence increasing the number of road accidents reported. The traffic police apathy and corruption, the unscrupulous PSV operators and indifferent commuters are among the factors that have abetted flouting of the regulations. In terms of motor vehicle inspection, while some operators may make their vehicles compliant for a day in order to pass the test, others buy the inspection and

speed compliance stickers from illegal organizations without fitting the actual speed governors. The occasional crackdowns conducted by the TLB officials on the PSVs have not been successful either; some operators usually play a cat and mouse game with the TLB. They temporarily withdraw their vehicles from the roads during such times and just to return them once the crackdown operation is over.

The local authority on the other hand has not been able to fully take over its responsibility of designating and managing the parking places for vehicles. This laxity has created a vacuum, which is exploited by illegal groups who illegally extort money from the PSV operators. The traffic police complained that some PSV drivers tamper with the speed governors, drive recklessly, operate without valid driving licenses, carry excess passengers and play very loud music. Some PSVs have faulty seat belts while others do not have them at all and that passengers do not see the need to use them. Poor infrastructure and poor working conditions are among other challenges facing the traffic police. The relationship between matatu associations and the government agents (Ministry of Transport, TLB and traffic police) was noted to be characterised by accusations, counter accusations and bare-knuckled attacks, hence compromising their operations and roles. It was also noted that, the Kenya's road transport sub-sector is managed by different Government Ministries and Departments; leading to numerous accusations and counter accusations among the different bodies in the implementation of the regulations.

6.3 Conclusions

For a long time, road transport in Kenya has been afflicted by the problem of inadequate road safety measures. This contributes significantly to an inefficient means of public road transport characterized by high rates of road accidents. However, the implementation of the 'new' regulations has played a great role in streamlining the public transport industry and that these regulations are supported by the majority of stakeholders including the PSV owners, operators, commuters and the enforcers of the regulations. The notable changes have been in the ease of running and managing public transport business by PSV owners, better working conditions for the operators and improved quality of public transport service. The major challenge however, lies with the inconsistent enforcement of these regulations hence the situation has been worsening with time.

6.4 Recommendations

6.4.1 Policy Implication of the Research Findings

Although policies should be geared towards enhancing an efficient, reliable, safe and affordable means of public transport, the fore mentioned challenges and constraints have hindered comprehensive implementation of such policies. This study therefore recommends measures that fall in four categories:

a). Operational Costs

- In order to minimize the costs and time consumed in acquiring the numerous licenses among the PSV operators, the Ministry of Transport needs to introduce one composite license covering both the TLB and PSV instead of having them as separate licenses. The same should also be applied to the drivers and conductors

who are required to acquire various identification documents and licenses which include; driving, PSV and TLB licenses, and badges among other documents. It is important to have one document that serves as both a license and identification document. The details of this document should not necessarily match with those of the vehicle being operated by the particular driver. Instead, a universal document that allows the bearer to operate any PSV should be introduced.

- In terms of cost of fuel, the PSV owners should team up and establish their own filling stations. This will eliminate the middlemen and therefore lower the fuel prices. This will further go a long way in making transport services less expensive to the public.
- The Kenya Revenue Authority should consider reducing and waiving import and VAT taxes on speed governors and safety belts; these gadgets are too expensive to purchase yet very important in saving human life. On the other hand, the traffic police needs to ensure that only gadgets of good standards are imported and fixed on the vehicles.

b). Development and Implementation of Regulations

- The findings of this study shows that the process leading to the implementation of the enforced regulations revealed gaps in partnership and dialogue between the different agencies and stakeholders that include MoT, Traffic police, TLB, Local authority, PSV associations and PSV operators. This resulted to conflicts and confusion between the government and the PSV operators. This study therefore recommends that policies and regulations should at all times be developed in consultation with key stakeholders.

- Also, the Ministries and departments dealing with implementation and enforcement of road safety regulations should be harmonized as stated in the Integrated National Transport Policy. This will help minimize the accusations and counter accusations among the various government agents and therefore promote efficiency in their operations.

c). Self-Regulating System

- The PSV operators and the Ministry of Transport should enhance and develop the capacity of route Associations/SACCOs, so as to facilitate self-regulation and effectively solve some of the management problems in the public transport.
- The drivers and conductors should be employed by the Association/SACCO on behalf of the PSV owner in order to reduce the stress the owners go through in managing and paying them on daily basis.
- The numbers of working hours are still too many and needs to be reduced.
- The Association/SACCO should come up with a code of conduct, which will be made mandatory for all the PSV operators to subscribe to. On the other hand the PSV workers be trained in customer care.
- The government on the other hand should recognize and work with route Associations/SACCOs.

d). Passenger Awareness and Policing

- The Kenya Ministry of Transport had launched a hot line (SMS 2333) where the public/passengers could call/send a short message to report crew who were not complying with the regulations. The initiative worked for some time and seems to have faded out. This study strongly recommends that the initiative should be

revived, be managed in a better way and stern actions be taken against the offenders reported. This approach was successfully used in Uganda to enhance reforms in the public transport where passengers prevailed upon the crew to observe traffic regulations.

- There is also a need to create public awareness on the importance of observing road safety measures through seminars, posters and media information among others.

6.4.2 Contribution of the study

1. This study has contributed some knowledge on the implication of enforcing and implementing road safety regulations on public transport industry.
2. The findings and recommendations from this study can be used as the basis for developing transport policies so as to ensure a sustainable and efficient means of transport in the country.
3. The study has also found new avenues for further research, which can be utilised by other researchers.

6.4.3 Avenues for Further Research

The following are some of the areas recommended for further research;

1. To establish viability of self-regulating system in the public transport industry.
2. To assess governance issues in public transport industry.
3. To examine potentials and utility of competing modes and alternative options of public transport in Kenya.

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APPENDICES

Appendix 1: Sampled PSV Routes

Region	Type of PSV		
	Nissans	Mini-buses	Buses
North	Kahawa West-44 Gachie-108 Thika-237	Githurai-45 Ruiru-145 Kahawa-44	Ruiru-145 Githurai-45
South	Ngong-111 South C-12C Machakos	Hazina-11 Kibera-8 Ngumo-33	Ngong-111 Athi-River-110
East	Umoja-35/60 Mwiki-17B Ruai-39	Mathare-29/30 Kangundo-201/2 Umoja-35/60	Mwiki-17B Kayole-19/60
West	Kikuyu-102 Kangemi-22/23 Kawangware-46	Kangemi-22/23 Kawangware-46 Kikuyu-102	Kawangware-46 Kawangware-46

Appendix 2: Questionnaire for PSV Owners

IDENTIFICATION

I am a researcher/research assistant in a Master of Arts (Urban planning) project from Kenyatta University. The research seeks to gather academic information about the effects of the new road safety regulations on public transport in Nairobi city and is purely for academic purpose. I wish to assure you that you are completely free to decide whether or not you wish to answer any particular question. Any information that you may volunteer to give will be treated with a lot of confidentiality and for the purpose of this study. I kindly ask for your assistance.

QUESTIONNAIRE NO.....
 RESPONDENT'S SAMPLE NO,.....
 DATE.....
 PLACE OF INTERVIEW.....
 TYPE OF VEHICLE (Nissan/Mini-bus/Bus)..... (tick one).
 ROUTE.....
 PASSENGER CARRYING CAPACITY.....

A. OPERATIONAL COST AND PRODUCTIVITY ELEMENTS OF PSVs

1. (a) Below is a table showing types of input/operational cost incurred by PSV operators. Kindly fill in the costs appropriately.

Cost of Item (Ksh) per month	Before Introduction of the New regulations (Ksh)	After Introduction of the New regulations
Fuel per day Type..... Litres.....		
Maintenance, service & repair		
Tires per month		
Wages	Driver	
	Conductor	
Insurance		
Inspection		
Route expenses		
TLB fee		
PSV license		
Parking fee		
Car wash		

(b). Apart from the above, do you incur any other expenses in your business? If YES, specify and state the approximate amount you spent on each.

(c). Do you employ permanent or squad drivers and conductors.
Give reasons for your answer above.

2. Below is a table showing productivity element of PSV operators. Kindly fill in against each productivity element.

Productivity Element	Before Introduction of the New regulations	After Introduction of the New regulations
No. of vehicle trips per day	Normal hours	
	Peak hours	
Average time taken per trip	Normal hours	
	Peak hours	
Average number of passengers per trip	Normal hours	
	Peak hours	
Average profit per trip	Normal hours	
	Peak hours	
Fare per	Normal hours	

passenger	Peak hours		
Average profit per day			

B. VIEWS AND SUGGESTIONS

1. What do you consider as some of the benefits of the new regulations to your business?
2. What do you consider as some of the problems caused to you by the new regulations?
3. Suggest possible solutions to these problems?
4. Do you intend to remain in the public transport business for the next five years?
 YES NO I don't know
5. Reasons for your answer?
6. In general, what do you comment about the new regulations?

Appendix 3: Questionnaire for PSV Drivers & Conductors

I am a researcher/research assistant in a Master of Arts (Urban planning) project from Kenyatta University. The research seeks to gather academic information about the effects of the new road safety regulations on public transport in Nairobi city and is purely for academic purpose. I wish to assure you that you are completely free to decide whether or not you wish to answer any particular question. Any information that you may volunteer to give will be treated with a lot of confidentiality and for the purpose of this study. I kindly ask for your assistance.

QUESTIONNAIRE NO.....
 RESPONDENT'S SAMPLE NO,.....
 DATE.....
 PLACE OF INTERVIEW.....
 TYPE OF VEHICLE (Nissan/Mini-bus/Bus).....(tick one).
 ROUTE.....
 PASSENGER CARRYING CAPACITY.....

I. SOCIO-ECONOMIC PROFILES OF THE RESPONDENTS

1. What is your age?.....
2. Sex..... (male/female).....
3. Marital status... (Married/single/divorced/widow(er)).
4. Highest level of education?
 Primary (dropped/completed)

- Secondary (dropped/completed)
- Post secondary (dropped/completed)

II. OCCUPATIONAL PROFILE

Key: 'Before'- period before the introduction of the new regulations (before 2004)
 'After'- period after the implementation of the new regulations (after 2004)

1. In what capacity do you work in this matatu?

- Driver
- Conductor
- Owner/driver

2. How long have you been in the matatu/bus operations?years.

3. Do you work on this vehicle daily?

4. At what time do you start/stop working?

	Before	After
Start		
Stop		

5. How many hours do you work per day? (tick appropriately)

	Before	After
Less than 8 hours		
8-12 hours		
More than 12 hrs		

6. How many days do you work per week?

	Before	After
Less than 5		
6 days		
7 days		

7. Under which terms are you paid by your employer?

	Before	After
Daily		
Weekly		
Monthly		

8. How much salary do you earn (choose one format)

Daily

	Before	After
Less than 500		
500-700		
More than 700		

Weekly

	Before	After
Less than 3000		
3,000-4,000		
More than 4,000		

Monthly

	Before	After
Less than 10,000		
10,000-12,000		
More than 12,000		

10. Do you get any of the following benefits? (Tick appropriately)

	Before	After
Formal day offs/leave		
Insurance cover		
Medical care		
House allowance		
Pension		
Promotion		
Others (specify)		

11. Do you pay any of the statutory charges? E.g. NSSF, PAYE etc as stated by the new regulations.

12. How satisfied are you with your current working conditions?

- Extremely dissatisfied
 Dissatisfied
 Neither dissatisfied nor satisfied
 Satisfied
 Extremely satisfied

13. Compare the period before and after implementing the regulations, do you think your working conditions as a matatu/bus operator have gotten:

- A lot worse
 A little worse
 Same
 A little better
 A lot better
 Don't know

III. VIEWS AND SUGGESTIONS

1. Below is a table that attempts to assess the effects of the new regulations on PSV operators. Please fill in accordingly.

Regulation	Benefits	What problems do you experience in implementing these regulations?
Speed governors		
Seat belts		
Wearing badges		
Employment on permanent basis		
Indicate route details		
Painting yellow line		
Retesting drivers every two years		
Displaying drivers photograph		

2. Suggest possible solutions to the above mentioned problems?
3. Do you intend to remain in the matatu business for the next five years?
 YES NO I don't know
4. Reasons for your answer?
5. In general, what do you comment about the future of the new regulations? Are they sustainable? If not, what should be done to make them sustainable?

Appendix 4: Questionnaire for Passengers

1. (a) Which type of public transport did/do you prefer most?

Type	Before	After
Nissans		
Mini buses		
Buses		
Others(specify)		

(b) Give reasons for your answer above.

2. Below is a table that attempts to assess the effects of the new regulations on the quality of public transport service. Please fill in accordingly.

Regulation	Benefits	What problems do you experience as a result of the implemented traffic regulations?
Speed governors		
Seat belts		
Wearing badges		
Employment on permanent basis		
Indicate route details		
Painting yellow line		
Retesting drivers every two years		
Displaying drivers photograph		

3. Suggest possible solutions to the above mentioned problems?

4. Below is a list of quality attributes of public transport service. Indicate whether they have changed since the implementation of the enforced regulations.

Quality of Service Attribute	A lot better	A little better	Same	A little worse	A lot worse	Don't know
Comfort						
Bus fare						
Speed						
Safety/Accidents						
Time taken						
Frequency						
Reliability						
Rude crew						

Playing loud music						
Traffic jam						
Overspeeding						
Carrying excess passengers						
Driving defective vehicles						
Failure to reach destination						

5. Do you intend to remain in the matatu business for the next five years?

YES NO I don't know

6. Reasons for your answer?

7. In general, what do you comment about the future of the new regulations? Are they sustainable? If not, what should be done to make them sustainable?

Appendix 5: Interview Schedule for Traffic Police, TLB Officers, and MoT

1. What challenges do you face in enforcing the enforced road safety regulations?
2. What are you doing to manage these challenges?
3. Did the implementation of the enforced regulations enhanced your work as low enforcers in anyway? If YES, specify how?
4. Overall, what are your comments and suggestions about the enforced regulations?
Are they sustainable?

