Long Distance Bus Transport: It's Structure, Service Adequacy and the Role It Plays In Linking the Core to the Periphery of Ethiopia

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DEDICATION

This dissertation is mainly dedicated to the memory of my late father, Mr Kassa Ayichew Ondo, whom I lost in 2012 during my PhD field survey. Really, you invested so much in me, but you did not get the chance to see the fruit of your unreserved efforts. Therefore, you are always in my heart. Let your soul rest in peace.

It is also dedicated to my mother, Mrs Felekech Ashango. Bala, to my wife**,** Mrs Selamawit P. Gashala, and to my child, Abigiya Fekadu.

DECLARATION

Student number: 45434549

I Fekadu K. Ayichew hereby declare that the thesis, which I hereby submit for the degree of PhD in geography at the University of South Africa entitled as **'Long Distance Bus Transport: Its Structure, Service Adequacy and the Role It Plays in Linking the Core to the Periphery of Ethiopia'**, is my work and has not previously been submitted by me for a degree at this or any other institution.

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I declare that I have not copied and pasted any information from the internet, without specifically acknowledging the source and have inserted appropriate reference to these sources in the reference section of the dissertation or thesis.

I declare that where words from a written source have been used the worlds have been paraphrased and referenced and where exact words from a source have been used the words have been placed inside quotation marks and referenced.

I declare that during my study I adhered to the research ethics policy of the University of South Africa, received ethics approval for the duration of my study prior to the commencement of data gathering, and have not acted outside the approval condition. See on the annex 6 H & I.

Finally, I declared that the content of my thesis has been submitted through and electronic plagiarism detection program before the final submission for examination.

_____ _____

Signature **Date**

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Fekadu K. Ayichew

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List of Abbreviations, and Acronyms

Abbreviations

AACC: Addis Ababa Chamber of Commerce

AACRA: Addis Ababa City Road Authority

AATA: Addis Ababa Transport Authority

AAU: Addis Ababa University

APTA: The American Public Transit Association

BPR: Business Process Re-engineering

BT: Bus Terminal

CBR: Community Bus Regulations

CIA: Central Intelligence Agency

COC: Certificates of Competence

CP: Core-periphery model

CPC: Certificates in Professional Competence

CSA: Central Statistical Authority

EAL: Ethiopian Air Line

ECRTP: Ethiopian Commercial Road Transport Service Provision

EDHS: Ethiopia Demographic and Health Survey

EEA: Ethiopian Economic Associations

EFTA: Ethiopian Federal Transport Authority

EPT: Ethiopian Public Transport

ERA: Ethiopia Road Authority

ESRC: Economic and Social Research Council

FGD: Focus Group Discussion

FLDB: Formal Long Distance Bus

FPRT: Formal Passenger Road Transport

FTA: Transport Authority

GIS: Geographic Information System

HBL: Holroyd Bus Lines

HSE: Health and Safety Executive

INGO: International Non-Governmental Organisation

ITF: International Transport Forum

LDB: Long Distance Bus

LED: Local Economic Development

MoA: Ministry of Agriculture

MoD: Ministry of Defense

MoE: Ministry of Education

MoFED: Ministry of Finance and Economic Development

MoTC: Ministry of Transport and Communication

MUDC: Ministry of Urban Development and Construction

NSI: National Statistics Institute

OECD: Organisation for economic Cooperation for development

ORAAMP: Office of the Revision of Addis Ababa Master plan

PPRT: Public Passenger Road Transport

PRT: Passenger Road Transport

RSDP: Road Sector Development Programme

RUL: Rural Urban Linkage

SBPLC: Selam Bus Private Limited Company

S & D: Supply and Demand

SPSS: Statistical Package for Social science

SRS: Simple Random Sample

TCRP: Transit Cooperative Research Program

TIA: Transport Integration Act

TVET: Technical and Vocational Education and Training

UITP: International Association of Public Transport

UNDESAPD: United Nations Department of Economic and Social Affairs Population Division

UNECA: United Nations Economic Commission for Africa

UNEP: United Nations Environmental Programme

UNESCECA: United Nations Economic and Social Council Economic Commission for Africa

UNESCFA: United Nations Economic and Social Commission for Africa

UNISA: University of South Africa

UNPF: United Nations Population Fund

USDA: United States Department of Agriculture

Acronyms

VIP: Very Important Person

WHO: World Health Organization

Operational Definitions of the Study

An operational definition is called functional or working definition, defines concepts (e.g. a variable, term, or object) in terms of the specific process or set of validation used to determine its presence and quantity. One defines something in terms of the operations that count as measure and understand it. The operationalisation is practiced in order to avoid the troubles associated with attempts to define things in terms of some intrinsic essence and to be free the users to conceptualise the concepts (Estela A., 1995).

In the context of this study, it also represents the systematic study to solve the problems in the industry and make suitable conditions to understand the meanings of specific terms and phrases. In certain studies, some words or phrases are require to understanding them because of the meaning of some words or phrases is different with their context and theme. In the light of this fact, this study needs clear operational definitions to understand them in a logical way. Therefore, throughout this thesis the following words or phrases have consistent meaning.

Adequacy: It explained that something is enough or satisfactory for a particular purpose (Cambridge advanced Learner's Dictionary, 2003). It expresses the availability, sufficiency, capacity, scarcity and related ideas in the industry. In short, it mainly depicts the supply of the sector.

Association: An organisation that is established by persons and enterprises that are engaged in public commercial road transportation. It is registered in accordance with the proclamation. In this study, it is specifically reflects LDB Association but not other. Some time, it is synonymously employ with the word operators.

Bus: It is an inclusive name that discusses all forms of passenger road transport that begins from their seat starts from 12 and more. It also pointed to public transport service have an accommodation for more than twelve passengers. Throughout this thesis, it refers to the long distance bus transport only.

Bus Terminals: A junction serves for both the entry and exit of buses. Here, the word terminal expresses the place of commence and terminate the intercity journey. In this

study, it refers to the main bus terminal where most of the national buses arrive and depart. The area reserved for a station of road passenger transport used by road passengers leaves or arrives by long distance buses. Usually, it is notably the place that serves more for the practice of the intercity movement and load and unloads of the passengers. In Amharic language, it is termed as ‘Autobus Tera’.

Core: a central and often foundational part usually distinct from the enveloping part by a disparity in nature. In most of the time, it refers “the core of the city”. In this study, it also refers the city of Addis Ababa.

Cross-country PRT: It is any commercial passenger road transport services those conducts on-roads that link two or more states or regions of the nation. In rare case, it also stretches its service towards the adjacent neighbor countries. It is similar to coaching in advanced countries. It is synonymous with long distance Bus transport.

Dispatch: It shows the assign of buses from the terminal by turn, free dispatch, and franchise or by bids based on the consent that is made between Authority and Associations. It is similar in meaning with the operational plan of the Associations. Throughout the thesis, it has similar meaning.

Formal renters: It refers to people who have open hotels and pensions with license that are obtained from the city administration. However, the informal renters are those who rent their residential houses as a temporal and permanent rent rooms mainly for the passengers and other individuals for a while.

Franchise: It is a formal permission given by a company or government to peoples who want to sell goods or services in a particular area or company. It also notifies a company that sells its turn to the other companies; usually it denotes to sell them for a profit. In this study, it refers to those who sell their turn to other company’s usually for profit.

Free dispatch: It is a phrase signifies the government assigns a company that provides the service. In this study, it refers the company that assigned simply to cover the line that is jumped and lately create dispatch when the demand appears. In this context, its freeness is to magnify the dispatch that is free from claims.

Global south: is identified with the areas of the global South represent most of the Third World countries including all those from Africa, most from Asia and two Oceania provinces. These areas are collectively known as the Global South. It includes nearly 85 per cent of total recognised states in the world, and many have less developed or severely limited resources. Throughout this study, the phrase refers Third World countries or less developed.

Holiday: The dictionary meaning infers that a time, often one or two weeks, when someone does not go to work or school but is free to do what they want, such as travel or relax a camping holiday. It is commonly refers a national day that is a day for the celebration of the ceremony. It include a days that are considered in the calendar of the nation as a State holiday. In this study, it express the days that are used both as endorsed by a State i.e. major one and the minor holidays that are not supported by the calendar also seen in this study.

Illegal operators: It refers to non-formal operators that make the travel carried without the legal procedures and certificate. It also includes those operators, who are not illegible to make specific trip and route to drive or operate the bus above the permitted distance. It is synonymous with informal transport in the sector.

Literacy: There are no universal definitions and standards of the word literacy. Various documents define that the ability to read and write at a specified age. However, in this context it refers those who has a formal training that has an equivalent meaning with knowleagebility.

Illiterate: It refers those who are not able to read and write. In this context, the word illiterate refers to people who did not take formal training i.e. above grade 6 or not complete primary secondary cycle. This does not mean that the sector doesn't hold the literate part of the society that able to read and write.

Industry: Basically, it eludes the companies and activities involved in the process of trade and commerce. In this thesis, it refers to long distance bus transport. In some cases, it is interchangeability utilise with the word sector.

Knowledgeably: In this study, the word knowledgeably refers to a person who has formal training and is able that is eligible to operate the buses. It also eludes the qualified man power that was found and required for the system. It has synonymous meaning with literate class in the context of the sector, which has a specific skill to operate the bus.

Large Bus: A public service vehicle has accommodation for more than 45 passengers. In most cases, it also holds above 45 seats include drivers and co-drivers. In this study, it predominantly refers to the maximum loading capacity of bus or large bus that carried about and equal to 60 seats. Through this thesis, it is similar with Long Distance bus.

Large towns: In Ethiopian context, it is refers which has the populations of more than 50 000 to 100 000 dwellers CSA (2007), usually it is larger than a town but smaller than a city. Whereas in the world standard of major towns that is contains more than 5 million peoples (Barney Cohen, 2003).

Level: It is the status given to the commercial passenger road transport as per the rule and regulations of the Transport Authority. It is made based on specific criteria that are settled by the Authority. Properly, the present buses are classified as level 1, level 2, and level 3.

Long Distance Bus: It specifically refers to the bus that is assigned for long distance travel. In this study, it refers to the journey that takes 250 km and above. It is notably and usually known as the Cross-country Passenger Road Transport Service and large or maxi bus transport. In most cases, throughout this study, it discourses that the limit of distance and the carrying capacity of buses, loading above 45 passengers or seats and travels more than 250 km. It is commonly similar with large and Max buses.

Medium towns: are depicts the population lies within 10 000 to 50 000 (MUDC, Ministry of urban development and construction report, 2007). Therefore, in this study all medium towns are accommodates such amount of population.

Megabus: it is a bus which carries more than 80 passengers. In Ethiopia reality, this type of bus is involved in intracity movement but not used for intercity travel. To some extent, it is similar with max bus or large bus.

Metropolitan: A very large city, often the most important city in a large area or nation. In the context of this thesis, it designates the heartland-Addis Ababa. It also denotes the linkage of and flow of bus and its service provision from the city and links with other towns of the nation. It is also similar to the hub or pivot of the nation state.

Midbus: Public service vehicles have accommodation for more than 24 passengers. In most cases, it also holds 24 to 45 seats include the driver and the co-driver. In some cases, it is termed as a mid-type of bus. It is allowed to carry the passenger within the medium distance that is below 250 km radius (MoTC, 2011).

Minibus: A public service vehicle has accommodation for more than twelve passengers. In most cases, it is holds 11 to 14 include the driver and the co-driver. In some cases, it can be termed as a Mini type of bus. It is recognised to carry the passenger within short distance that is below 150 km radius (MoTC, 2011).

Modal change: is also a phrase that describes a possibility to make change or shifting of buses or other modes that to reach to their destination. In this study, represents the shifting of buses or other modes to reach to their destination. However, it does not infer the shifting of modes from land to air or water and others.

Off-seasons: It is refers the less crowded period of the industry. It shows the absence of demand but not the supply. This less congested nature of the terminals and the industry is termed as Off-journey seasons. It is the opposite of on-journey seasons.

On-seasons: It signifies the most overcrowded period of the industry. It is commonly refers the rise of the demand and lowness of supply.

Operators: Individuals or owners of the organisation that are registered to supply a public service to the passengers. It refers to those who have ownership certificate includes owners, Associations, drivers, co-drivers and conductors. For that reason, this word is an inclusive word.

Operational dispatch: It is a means of mobility gets flow of bus to provide the service to the passenger that is established on formal level (i.e. 1, 2, and 3), and special service that

is derived by registered vehicles. It also refers to a dispatch that makes and gets flow of the bus to different directions.

Operational schedule: It is a plan that is prepared by the operators at least for 15 days, 3 months, 6 months, and if necessary for 1 year and above. It includes the amount of tariff, and number of buses that are assigned. It refers to the Origin and destination as well as the time of the journey, types of the dispatch routes that exist along the working route and other. It is similar to the trip schedule.

Passenger: It is a key word that refers to any person ride in a bus, other than the driver, cashier or any other person is assigned to work on a vehicle. It indicates the person who uses the bus for the mobility of intercity travel. In this study, it refers to people who use long distance bus transport to the city and out ward from the city.

Periphery: it has a meaning of the outward bounds of something as distinguished from its internal regions or centre. However, in this study, it does not directly mean a border; edges and so on but it is used in different expression. All bus connections are not boarders or peripheries but near to the major towns found closer to boarder. Therefore, throughout this study the word periphery refers the long distance bus connections to destination places only. It is the one component to make the core to periphery interaction.

Policy gaps: it is the identification of certain gaps in the policy the listing of points like ("what should be"), and highlighting the gaps that exist and need to be filled by this study.

Private Commercial Passenger Road Transport: It basically denotes the ownership of the industry that is owned by private enterprise and used for carrying passengers or goods. It is the opposite of public Commercial Passenger Road Transport.

Public Commercial Passenger Road Transport: In terms of ownership, it is not classified as private or NGO property. It indicates the service delivery of the sector given for the public regardless of the ownership.

Route: It means any road, street, highway or any other travel roads, customarily used by vehicles other than private roads that not open to all traffic. It has similar meaning with road

that serves for the practice of bus dispatch. It is mainly depicts that the line the dispatch of long distance bus carryout. Specifically, this study focuses on the highway route.

Route of Operation: It is a place of departure and destination to be determined by the Authority where public commercial road transport vehicles are assigned to operate. It is a legally identified and determined the routes for dispatching buses.

Sector: It is versed as one of the areas into which economic activity of a nation is divided. In selected institutes or organisation, it is formulated for the provision of special events. In this study, it raises the PRT in general and long distance bus in particular. Thus, it mainly refers to the LDB. In some cases, it is interchangeability used with the word industry.

Small towns: again in Ethiopian context they are also have the population that ranges 2, 000 to 10 000. It is for about more than 730 towns. In this study, all small towns are selected in this guideline.

Special Bus Transport: It is a privately owned industry that is established in the form of company. It also refers to the company that provides relatively sophisticated service compared to formal industry. It is a bit advanced in service provision, facility and safety of the passengers and operators.

Structure: it is a system of arrangement or dispatch schemes, road networking, and other. Predominantly, it includes the especial roles of the sector like employment systems and bus flow or dispatch.

Trip Schedule: it is a trip programme that is prepared for a year, a month, a week, or a day for the movement of public commercial road transport vehicles; it is similar with operational schedule.

Glossary of Local Terms

Ambasha: Local bread made of wheat. It denotes the cultural food of northern part of Ethiopia mainly the Tigrian peoples but now it is common in other part of the nation as used. In this study, it has been distributed to passengers in the bus as a snack.

Arefa: is the holiest day in Islam and commonly performed once a year. Likewise the others religious holidays, this one has contribute a lot that peoples to make more travel by using LDB in particular and intercity PRT in general.

Astreo Mariyam: it refers the feast of Mercy, a day which honours the merciful power of St. Mary the blessed Mother. Again, it is an orthodox religious holiday and kept in the month of February. In this time, different peoples are moving place to place for that reason too.

Autobus Tera: It is an Amharic local name refers to the bus terminal where most of the national buses arrive and depart. It is an equivalent phrase with bus terminal. In this study, it states the dispatch of buses from Mercato bus terminal alone. This phrase is equivalent with the name Bus Terminal.

Bega: Ethiopia is a country lies in the tropical zone in northern hemisphere. The climatic classification is also undertaken based on this setting. It is the Amharic word which denoted the dry season and in Ethiopia it is commonly known as a 'winter in the tropics'. It is pertained in the months of December, January and February. Bega is denotes winter in Ethiopia. It is used to be named as "በጋ" in Amharic.

Belg: Belg (Autumn) or Meher**. I**t is a climatic features seen in September, October and November, These months are the spring **season** sometime known as the harvest **season** or it is termed called in Amharic as a"በልግ or መኸር". In this season, the flow of people is almost very high, because of they are free and get money.

Fereqasa: is a place located in Arisi zone in Oromia. It is also a common place that peoples are annually gathered to perform the ritual practice.

Irrecha: It is an Oromiffa's name refer to the ritual worship used as commonly considered as a thanksgiving celebration. It is performed twice a year (in autumn and spring). During this time, there is very high flow of passengers towards the ritual place (Hora or Bishofitu). Due to this ritual, a lot of Oromo's peoples across different walks of life come to this place from all over the world.

Khat: It is a plant that is locally consumed as stimulant. A leaf type is obtained from any local markets. In the context of this study, it is forbidden for the operators while they are on duty (MOTC, 2011). It is less equivalent with Mariwana, Ganija and other related type of stimulants.

Kiremt: it is the Amharic word which refers a rainy season or summer in tropics. It is termed as "ክረምት" in Amharic language. It prevailed in the months of June, July and August. This months are the sewing season in most part of Ethiopia. In this season, the flow of people is almost very low, because of pertaining agricultural activities.

Meskel: This is the Amharic word which refers the finding of true cross, and it is a national holiday preformed in Orthodox religious but highly practiced in all over the nation. It is celebrated in the month of September, and it is a time to celebrate as a new year for selected ethnic groups (Wolayita, Guragie, Kamibata, Hadiya etc). Therefore, this all factors make that this holiday contribute more for traveling of peoples and it is the busiest month for both LDB and other intercity travels by PRT.

Qulib Gebriel: it is again an Orthodox Christian holiday, which is performed annually in Harere, Eastern part Ethiopia. It is a place that awkward peoples are combed from different areas for the spiritual celebration. It is commonly practiced twice a year by the month of December and July. This makes that the holiday makes the transport industry busy specially towards the Harere route.

Sama Senbet: It is the name of Orthodox Church in the central part of Āmahara (Shoa) region. It is a place among the local holidays, and peoples are get-together to perform religious activities.

Selam bus: It is a name of a private limited company that is serves the society in special long distance bus transport. It is the first and modern type of bus in its kind for it delivers special formal LDB transport. It has similar role with Sky bus and Posta Bus transport.

Teff: it is a food which is harvested from a grass types of plant. It is a local food and notably used in Ethiopia as the whole.

Tseday (Spring) – it refer the season found between summer and winter in tropics in March, April and May. May is the hottest month in Ethiopia. It is called as "ፀደይ" in Amharic language.

Wereda: it is the Amharic term that refer the administrative classification of the government which is placed below the district, county, and region.

Woyala: it is a term depicts the informal man that acts as broker to load the passenger on both formal and informal operators. They are not had legal document to work in this industry. Their number is very high on informal sector because the special and formal transports do not as such require various brokers.

Ziquala: It is the name of the place which is located at a distance of 27 km southwest from Debre-Zeit (Bishofitu).It is a monastery of Ethiopian Orthodox Church. In this place, a number of peoples are gathered and performing religious activities too.

Abstract

My dissertation address is to describe the long distance bus (LDB) transport, its structure, service adequacy and the role it plays in linking the core to the periphery of Ethiopia. The study applied both qualitative and quantitative data analyses. The quantitative data was mainly collected by using questionnaires, from the selected passengers and operators by longitudinal survey, 384 passengers, or 10 %, from each bus took part in the survey. Of these, only 241 questionnaires (63%) were fully completed and used for this analysis. And 6 % of buses or operators (64) were selected by systematic sampling. The routes and towns were also selected by lottery method. The qualitative data was mainly collected by interview. Among these, 5 % (twenty-five) of experts from the City Transport Bureau; the heads of LDB Associations; the owners of LDB; the Federal Transport bureau; and the Mercato Bus terminal. An interview was analyzed based on their own explanations. FGDs were carried out with passengers awaiting departure in the terminal (off-journey). The secondary sources were taken from both the EFTA and Mercato bus terminal dispatch report. The analysis was made mostly by integrating method, and in some cases with separate analysis. Beside with other inferential statistical, Pearson correlation was also applied. The growth rate for level one and level two buses had risen more than 100 % per annum, whereas level three buses showed a decline of 18 % per year. The whole sector shows a 6.6 % growth rate, which is double that of the population growth (2.6 %). The rate of bus dispatch is very high, approximately 38 per day, on the Dessie and Mojo route. The average bus dispatch in all directions is about 32. In terms of service provision and area coverage, level one buses interlink about 23 major towns. Level two buses service more than 70 major towns, and level three more than 110. The highest record of both area and service coverage was occupied by first level buses servicing Dessie, Mekele, Shashemene, Hawassa, and Jimma. On average, the majority of towns are being serviced by one bus, irrespective of their levels. The area and service coverage is thus very high for level three buses, compared with levels two and one. The Dessie and Mojo lines enjoy the highest bus coverage. LDBs typically provide transport for distances of less than 400 kilometres. They contribute towards core to peripheral ties of the nation. This result is expressed by Krugman's (1991) core-periphery theory. The service adequacy of the industry indicates that above half of the operators would have to wait approximately one hour to pick up passengers and 1 or 2 days per week to get the turn too. This reveals that Levels one, two and three operators are dormant for 1 or 2 days per week. Supply is thus greater than demand, causing the emergence of an informal LDB service. The fact that about 60 % of passengers have to wait for approximately an hour to catch a bus, after collecting tickets, indicates the demand. The buses' downtimes in order to secure a full load on each departure are positively correlated with bus levels. The LDB provide more for mobility of goods and peoples that can be shape land use and development patterns, and it generate jobs. This enable more for economic growth. Thus, level one is more attractive than other levels. The study identifies the major challenges facing LDB transport. Integration within stakeholders, both internally and externally, is crucial to satisfy the passenger.

Key words: *Bus levels, metropolitan linkage, core-periphery linkage, bus dispatch, service adequacy, structure transport industry, policy gaps, and informality*

CHAPTER ONE
INTRODUCTION

1.1. Introduction

The importance of transport, in any country, is paramount to its development, social cohesion and integration (MoFED 2006). In the global south, where transport links and infrastructure play a vital role in the economic activities of a nation, transport is even more imperative. The general situation of long distance bus (LDB) transport in Ethiopia is explored in this thesis, with emphasis on the structure, service adequacy and the role this type of transport plays in linking the peripheral metropolitan area to the core city of Addis Ababa.

This chapter introduces the thesis, describing the background of the study area, general background of the study, research problems and research questions, objectives, the significance of the research, and the scope and structure of the study.

1.2. Background of Study Area and Sites

Ethiopia is located in the Horn of Africa at 3° to 15° N and 33° to 48° E, with an area coverage of approximately 1 221 900 square kilometers (Map 1.1 below). Comparatively, it is nearly the size of France, Germany and the United Kingdom combined (AACC 2009). It shares boundaries with Eritrea, Sudan, Kenya, Somalia, and Djibouti.

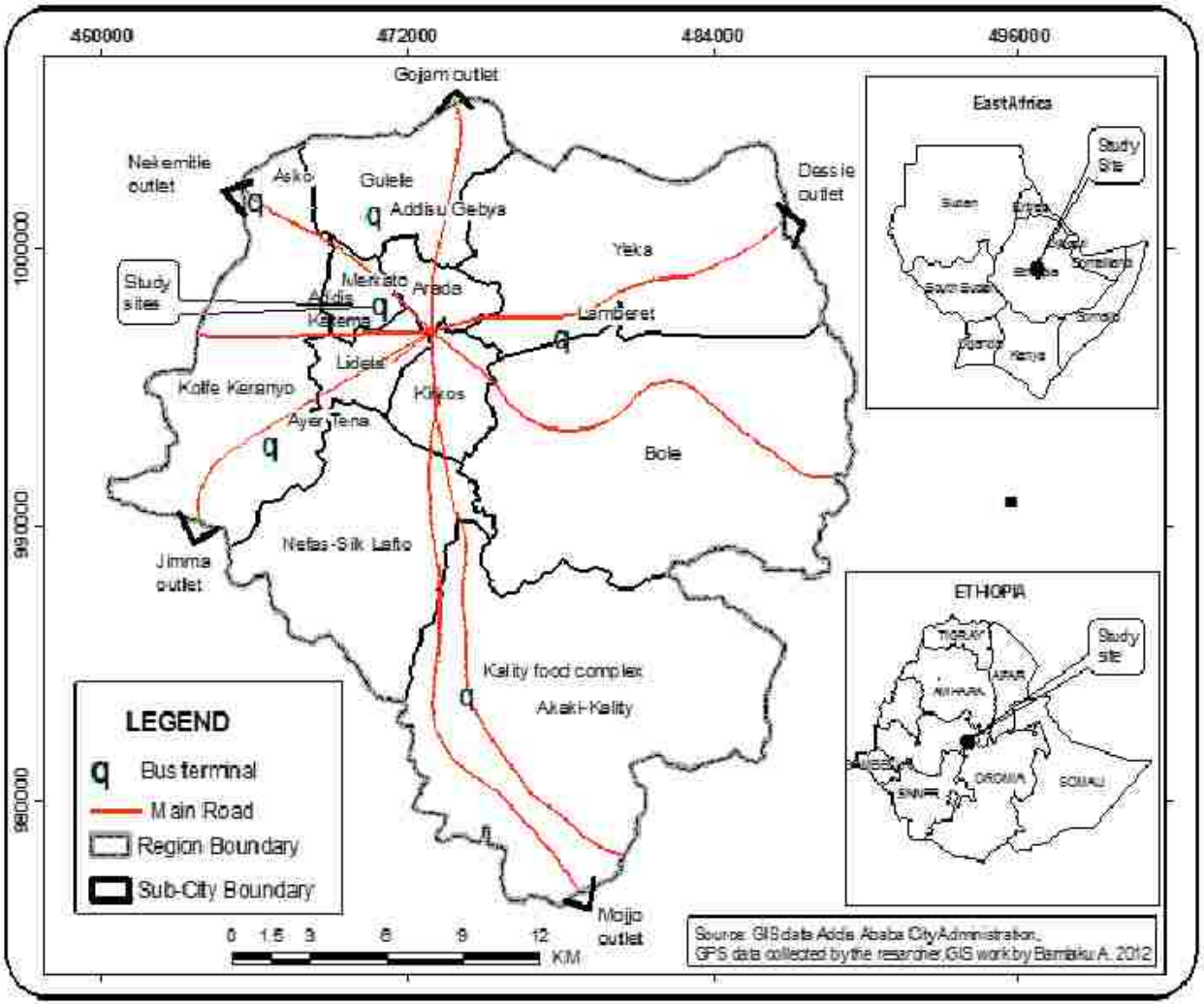
Ethiopia had a population of 79.2 million in 2009, reaching 83.5 million by 2010, 85 million in 2012, and an 86 million in 2013 (CSA 2013). The population size of Ethiopia should increase to more than 97 million by 2014. This makes the nation, after Nigeria, the second most populous in Africa, with the population projected to grow to 180 million by 2050 (Oladele 2010). This growth rate places Ethiopia on a path to become the ninth most populous country in the world. The CSA (2007) also reveals that the population growth rate of the nation is 3.194 % (2011 estimates). The current growth rate of the urban population in Ethiopia, which estimated at between 5 and 6 percent per year, is higher than the world average (Thomas & LaVerle 1993).

The rate and level of urbanisation shows that Ethiopia is under-urbanised, even by African standards (CSA 2007; Thomas & LaVerle 1993; MoFED 2006). In the late 1980s, the the majority of the population lived in villages, with towns and urban areas with less than 2 000 residents accounting for 11% of the population and urban places with more

than 2000 accounting for 16 % of the population. Thus, there are hundreds of communities with a population of between 2 000 and 5 000 people, but these are primarily extensions of rural villages without urban or administrative functions. The level of urbanisation is even lower if one uses strict urban structural criteria. Given this low rate of urbanisation, there was an accelerated growth in towns and cities during the 1960s and 1970s, when the average annual growth rate was 6.3 %. Urban growth was especially evident in the northern half of Ethiopia in areas such as Bahir Dar, where most of the major towns, such as Akaki, Arba Minch, Hawassa, Jigjiga, Shashemene are located *in central, eastern, and southern region* seeing much growth (United Nations 1989). However, despite this growth rate, Ethiopia has a relatively low level of urbanisation (MoFED 2006). According to Habitat (2000), the average level of urbanisation for Africa in 2000 was 38 %, while that of Ethiopia was 18 %.

Yet even with the low levels of urbanisation, urban centers are still a vital part of economic growth and centers for development (MoFED 2006). Linking the vast hinterland and smaller villages to the urban center is vital for promoting connectivity and enhancing growth. However, despite the need to develop these transport links, there is a lack of will within the administrative system and poor infrastructure within a complex and difficult landscape that links rural area and urban areas. With Addis Ababa as the most important city in the country, it plays an important in the development and structure of transport link across the country, essentially being the core of the country. The administrative system of the Ethiopian government is a federal state with nine regional states and two chartered and autonomous cities. The chartered cities are Addis Ababa and Dire Dawa, with Addis Ababa having the dual status of being both a city and the federal state capital (CSA 2007).

Addis Ababa is situated at the center of Ethiopia. The city lies between 09^{o} 02’ N latitude and, 38^{o} 45’ E longitude (ERA 2005, CSA 2007). The average elevation of the city is 2 450 metres above sea level and covers 540 square kilometres (208 sq. mi) (ERA 2005; CSA 2007; EDHS 2011). The city is situated at the foothills of the Entoto Mountains. It is the third highest mountainous capital in the world after those of Iran and Switzerland. The height of Addis Ababa above sea level presents a challenge for developing a transport network, hence this study aims to explore and examine the structure and service adequacy of the LDB service and the vital role it plays as a linkage to the core city of Addis Ababa.



Map 1.1: Maps of East Africa, Ethiopia and the study area

Source: (GIS data of Addis Ababa city administration and GPS data) 2012

With an estimated population of 3 384 569, Addis Ababa is a vital economic and demographic hub in Ethiopia (CSA 2007; EDHS 2011). Moreover, the rapid growth of this city, estimated to have seven million inhabitants by 2020, makes it a vital node of development that needs substantial transport links to the rest of the country (Ignis 2008; as cited in Mesfin 2009). At present, Addis Ababa contains 22.9 % of all urban dwellers in Ethiopia, making it by far the largest urban center (CSA 2007). Currently, the primary and most significant link to this metropolis is the LDB system. This places a huge emphasis on the importance, sustainability and role that the LDB plays in developing links and networks throughout the entire country.

1.3. Research Background

Transport and transport infrastructure have essential roles to play in the economic growth and social development of all countries, but particularly in countries in the global south. This is true for Ethiopia, which needs to develop and expand its economy to support its growing population. While there are many forms of transport, land transport in general, and road transport in particular, is the most widely used form of transportation across the world (Jean *et al.* 2006).

Road transport provides a base for local, national, regional, and international transfers of goods and passengers. The road transport sector plays a significant role in the national economy of any developing country and it does so by directly contributing to the primary and secondary economic characteristics, specifically for Gross Domestic Product (GDP) and linking workforces to employment (Asnake 2006). It also, provides services that are indispensable to the development of other economic sectors. Road transportation plays a vital role in the distribution, from place to place, of essential goods and services (Mekete 1997; Yayeh 2003).

Transport is a vital component, not only for sustaining an economy, but also equally for growing it. Transport routes between places facilitates the movement of goods and people between nodes; they often become linier nodes themselves (Asnake 2006). Road transportation is of particular importance, as it accounts for more than 95 per cent of inter-urban transport of goods and passengers in various African countries including Ethiopia (ibid). This study aims to examine the extent to which bus passenger transport is a contributing factor towards development in Ethiopia.

In general, the road transport sector has provided obvious roles for the society and it is widely used in most urban areas of the world (Jean et al. 2006). The public transport service has two components i.e. intra-city and inter-city transport services that have to be thoroughly obtainable by the private sector. In the context of this study, public transportation is a means of delivering to passengers a transport service that is available for use by the public, including inter-urban bus transport especially for long distance mobility (World Bank 2005). Public transport is of enormous importance as a cheap and efficient mode of transport, with bus transport in particular being the most patronized one (Crozet 2009). In some developing countries, and in most developed, countries, intra- and inter-urban mobility takes place by rail, air and road transport (ibid). The effect of inter-urban mobility can be seen in both government and private passengers using road

transport as their choice of mobility. However, in the Global South, including in Africa, the most important mode of moving goods and passengers is via road transport (World Bank 2005).

In most of Africa, road transport is the most dominant mode of motorised transport. It accounts for 80 per cent of the goods and traffic flows and 90 per cent of passenger traffic on the continent (United Nation Economic Commission for Africa, UNECA n.d.). This is despite the particularly low road density, which was recorded in 2005 as approximately 2.06 million kilometres of roads (UNECA n.d.). This results in a road density of 6.84 km per 100 sq.km, with an average road to population ratio of 26 km per 10 000 inhabitants in Africa, with various regional variations (UNESCECA 2009). Central Africa and Southern Africa have the highest road distributions, with 49.5 km and 56.3 km, respectively, for every 10 000 members of the population. In 2005, only 580 066 km, or 22.7 per cent, of the total African road network was surfaced (UNESCECA 2009). The relatively lowest road coverage and distribution of roads is found in the East African region, including Ethiopia. The Ethiopian road coverage was approximately 80 000 kilometres in 2013.

Yet despite this low road density, the rapid growth of urban population in Africa at large, and Ethiopia in particular, has generated an enormous need to utilise an efficient road public transport service, as it is the cheapest and most flexible and versatile form of public transport.

1.4. Problem Statement

Ethiopia, a relatively large and populous but land-locked nation in Eastern Africa, is one of the poorest countries in the world. Currently, it is also categorised as one of the fastest growing countries. The nation has a fast growing population, exceeding 3.2 % with rapid urbanisation of 6 % (Federal Democratic Republic of Ethiopia (FDRE) 2008).

An EFTA report (2011) has indicated that there is significant growth in the passenger transport industry in the country. The medium commercial passenger transport industry, in particular, grew by 15.7 %, and the small commercial passenger road transport (PRT) industry registered a maximum growth of 74.7 %. However, the minibuses (with 12 seats) showed a slight increase (9.6 %). The report further indicates that in 2010, the total passenger transport vehicles that rigorously served society amounted to 13 684 buses. Of these, 7.75 % were LDBs with 44 or more seats, and the other 12 623 (92.25 %), were buses with 24–44 seats. These bus transport systems play an enormous role in society

by integrating villages and towns, rich and poor, rural and urban. Therefore, this research aims to explore the structure and nature of bus transport in Ethiopia, and examine how efficiently this system links the core to the periphery of the country. Bus transport may contribute to sustainable economic development if the nation has safe, sufficient, reliable bus transport. At present, such systems in Ethiopia are inadequate, in the light of the rising demand.

The nation depends heavily on road transport to satisfy the growing demand in the transport sector. The development path of road transport has been seen in four linkages (forward, backward, service, and trade linkages) between and among towns, cities and even rural areas in Ethiopia. It is also important to take into account the metropolitan and rural urban linkage of the city with other towns. Mainly, there is a need to contribute to the economic growth and sustainable opportunities for the growing population. This can be achieved through transport, with the best option being LDB transport.

The actual issue that prompted the researcher to undertake a study is the problem that the majority of the population in the developing world countries rely on public transport (World Bank 2003), and such this is an issue for policy makers that needs research. In short, there is poor bus transport in the nation, and the bus transport system is the only way to link the core to the periphery. This study will illustrate the need to understand the system of transport linkage and how it aids for economic growth.

In terms of quantity, the growth of cross-country commercial passenger transport is relatively low, with inefficient service provision. The adequacy and quality of the service provision is too low (EFTA 2011). This poor level of service contributes to weakening the links between the core of the country and the periphery. This might show that sustainable economic development links are difficult to develop and maintain because the service links between them are inadequate. This study, accordingly, will serve to assess this existing service of the LDB transport and its contribution towards economic growth.

Due to the rapid growth of passenger road transport, there is a need to examine its structure and adequacy. The transport structure includes the road linkages, route networking, condition of the roads, and the direction that the buses are travelling. This study also considers the amount of employment, the policy framework, and the internal and external structure of the association and the bus terminals. The examination of the adequacy of the LDB sector has focused on the supply and demand situations: the demand, seen from the passengers' perspective, and the supply, seen from the

operators' perspective. It also shows the ease of use of the supply and demand of transport.

The current research on transport in Ethiopia does not link transport with development, which is why this research is necessary. For instance, the ERA (2005) which designed the national urban transport policy, examined the general situation of the quality of the road network, rather than the intercity/urban passenger transport systems and their contribution to economic growth. The knowledge of the structure and adequacy will also help to identify critical areas of intervention for improving the service. This structure and the bus flow would also be most important for bringing sustainable economic development and so contribute towards reducing poverty.

1.5. Aim and Objectives of the Study

The study focuses on LDB transport, its structure, service adequacy and the role it plays in linking the core to the periphery of Ethiopia with particular reference to the Mercato bus terminal that dispatches buses along four routes (Debire Sina, G/Guracha, Hossaina and Metehara).This will be achieved by the following five specific objectives, namely to:

1. Explore the structure of the LDB transport system and its contribution to econimic growth through transport networks by the rate of dispatch and its associated *factors.*
2. Define the present service supply of LDB and how it meets the existing demand of passengers, which impacts on passengers' ability to move from the periphery to the core in Ethiopia.
3. Investigate the inter-urban LDB system and the role it plays in linking Addis Ababa to other cities and towns and how tis contributies to economic growth.
4. Identify the major challenges that LDB transport encounter in the development of transport links and on the service provision of public transport.
5. Scrutinise the nature and gap in policy of LDB transport in Ethiopia.

1.6. Research Questions

The purpose of setting the research question was to give the study a clear and concise guide for the collection and analysis of data. The main question then was broken down from the main question into sub-questions.

1.6.1. The main research question:

How have the structure, service levels and transport linkages, developed by LDB in Ethiopia, contributed to linking the core with the periphery in the country?

1.6.2. The sub-research questions:

1. What factors influence the LDB transport network and effect the structure of the industry?
2. Does the supply and demand cycle of LDB have an impact on the ability for the movement of passengers?
3. How does the inter-urban LDB system and its role in linking Addis Ababa to other cities and towns, contribute to local economic growth, in terms of creating opportunities for employment and reducing poverty?
4. How have the challenges encountered by the LDB hindered the development of transport links and the service provision?
5. What is the status of the LDB transport concerning policy issues in Ethiopia?

1.7. Significance of the Research

The significance of the study is mainly in the academic contribution and policy implications discussed in the study. The overall goal of any scientific research is to generate a new body of knowledge, and to validate and refine the existing body of knowledge. This study would also bring epistemological input to the human geographical field of enquiry in general, and to the field of transport studies in particular. It also contributes to other disciplines such as sociology, psychology, and economics. Besides this, it provides information for academic institutions, policy makers and planners. The main contribution of this thesis is to fill the literature gap, and to be of use as a reference in academic institutions. It might aid academic institutions by providing information regarding potential areas (further problems) that could become an area of concern, needing further research. In addition, it works as a reference; it can be used as a springboard document for further research on public transport in the Globl South. More explicitly:

1. It contributes to the structure of the industry, by indicating the growth rate and role of LDB transport for local development and alleviating poverty. The government office, which works on LDB transport, should use it to improve the effectiveness and efficiency of the service.

2. It provides empirical evidence (data) showing the existing growth, the service provision of the sector, and the major challenges and policy gaps in the effective utilisation of the industry.

3. It contributes towards the theoretical and practical debates on the necessity of transport's role in interlinking the core to peripheral places, and demonstrates its pivotal role for society at origin, transition, and destination towns.

4. It could serve as an important source for passengers, owners, drivers, planners and investors when making decisions on policy and investment in areas of road passenger transport and LDB transport.

5. It helps in making and improving the existing policy of the sector, by informing the policy consultants and planners who are going to formulate and make improvements.

6. It throws light onto methods for understanding the general situation of LDB, and what service provision might be like in developing countries in general, and in Ethiopia in particular, and

7. It also contributes to the formulation of a link between the theory of transport and development and inter-city bus transport, which facilitates linking the core to peripheral places; it has also laid some groundwork for taking steps towards sustainable economic development.

1.8. Scope of the Study

The scope of the study attempts to narrow the focus of the research towards the topic, objectives and research questions to obtain the desired results (Kitchin & Tate 2000). Accordingly, the study has both thematic and geographical scopes. More spesfically, it focuses on the formally registered LDB terminals. It is also limited to the the inter-town/urban or intercity PRT. In other words, it excludes all special and informal bus transportation and all intra-urban road transportation, such as city buses.

The study does not deal with off-road transport, such as railway, air, water, and non-motorised passenger transport. With regard to the type of ownership, this study is

concerned with private, government and NGO owned buses, which are dispatched from the main bus terminals. Among the LDB terminals, Mercato has been used as the indicator for all including small, medium and long distance travel. The other intercity bus terminals found in the city, such as Shegole, Kality Akaki, Lamberet, Addisu Gebeya, and Ayer Tena, are excluded from this study (Figure 1.2 below). The schematic flow of the scope of the study is presented in Figure 1.1 below.

In terms of area scope, the study focuses on the city of Addis Ababa because there is a wider usage of PRT (passenger road transport) there than in other towns in the nation. This study was conducted at the Mercato bus terminal, as it is the only bus terminal that serves the LDB. The terminal is also the main and only national bus terminal for the whole nation. The remaining two terminals are excluded from the study because they serve mixed (mini, mid and large) buses. This study focuses on those LDBs that originate from Addis Ababa and not on those LDB that originate in other regions.

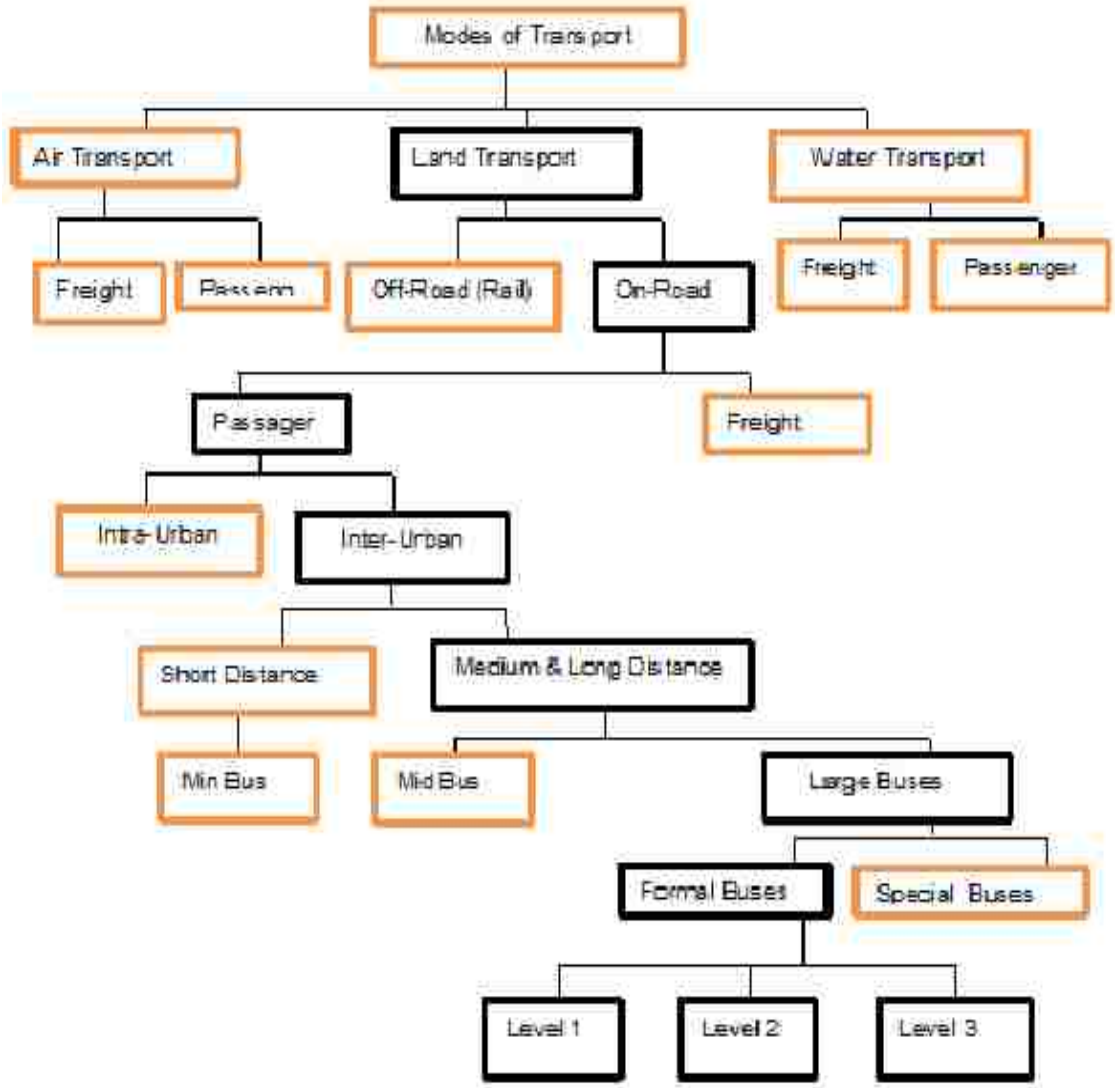


Figure 1.1: Scope of the Study

Note: Highlighted boxes in black frame show the specific scope of this study. In this chart, the large and LDBs have similar setting, but the formal and special buses also denote the difference in the service provision in the sector. In this study the service provision goes from very high in level one than two and three respectively.

Source: formulated by the researcher, 2012

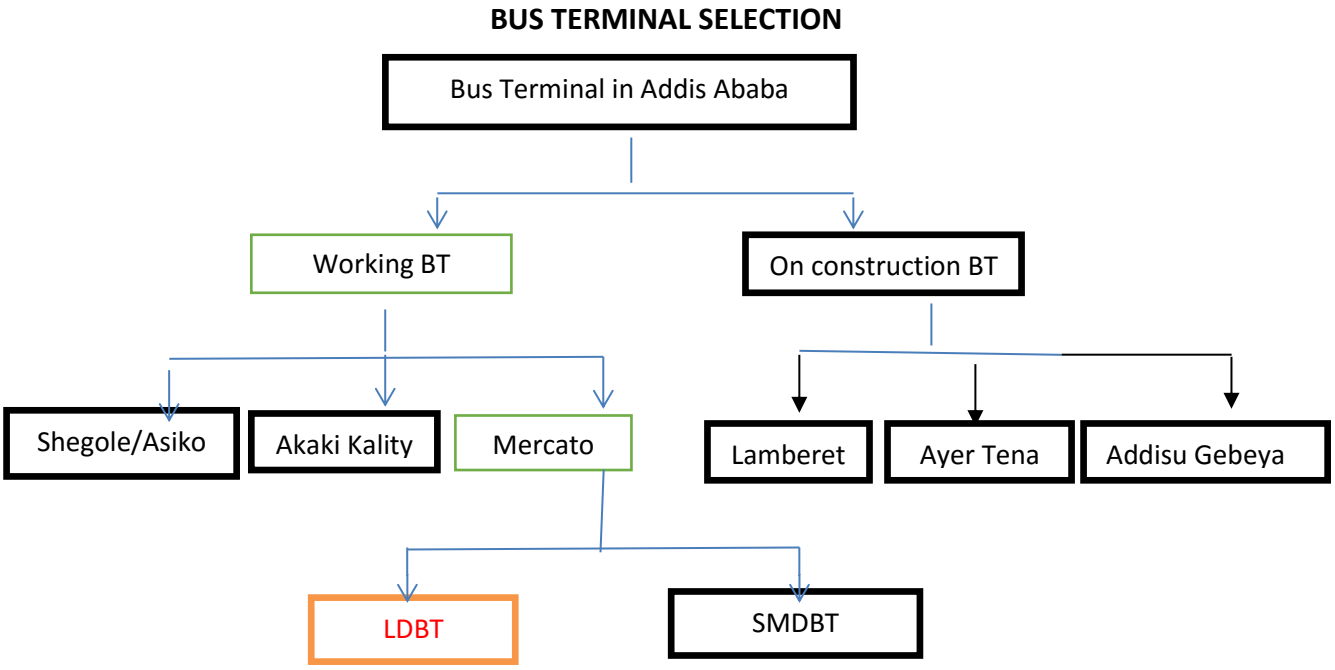


Figure 1.2: The Structure of Intercity Bus Terminal in the City

NB. The highlighted boxes in the red frame show the specific scope of this study.

Note: LDBT = Long distance bus terminal, SMDBT = Small and medium distance bus terminal, BT = Bus terminal

Source: The flow chart of the existingly working and underconstruction Intercity Bus Terminals in the City of Addis Ababa which formulated by the researcher 2012

1.9. Limitations of the Study

The research had a number of challenges impeding the researcher. The topic is complex and has a number of social and economic interdependencies. Studying transport requires the collection and usage of a great deal of primary data, through intense fieldwork with supportive technical personnel and an adequate budget. The PhD candidate has clearly poited out the major methodological challenges encountered as following:

Transportation has importance because it has a link with various things like economy, development, population settlement, politics, and demography. The researcher tried to find a study related to the transport theory and its importance to development and the reduction of poverty. Whilst the researcher assessed several pieces of literature, not many manuscripts explain clearly the application of the theory on intercity LDB transport. Because of this shortage and gap in the literature, the challenge was how to apply these

theories. However, the researcher attempted to view this study through direct and indirect transport theories, although the shortage had an adverse effect on this study.

Most of the heads of bus associations, owners, and targeted offices (EFTA) and the heads of bus terminals did not arrive at the interviews at the agreed time. Therefore, repeated calls, appointments, and visits were made in order to interview them. This inconvenience consumed a lot of the researcher's time and slowed the pace of fieldwork and analysis. Furthermore, data on the effects of LDB was not specifically examined in this study.

The operators (mainly the heads of associations, bus drivers and owners) were often suspicious of the motives of the study. Most of them were worried about taxation and did not want to offer genuine information about their income and the overall nature of the business. Therefore, the amount of income reported in this study must be seen in light of these circumstances. The officials in the federal transport office, Mercato bus terminal, and the bus associations were unavailable for most of the day. When they were free for an interview, they were reluctant to provide information during the field survey. This was another obstacle, which extended the time (duration) of the research. This limitation affected obtaining data about the economic contribution of buses on a national level; this data was not included, which limits the scope of the study to local places.

In some cases, some drivers/owners and passengers did not want to answer some of the questions for various reasons, so the researcher had to fill this gap in different ways. For instance, the researcher estimated their reactions. Filled the gap by estimating their reflections. This was a challenge for the researcher and the data encoder. Accuracy was therefore in some cases compromised. As this study was predominately a longitudinal survey, it was carried out in time series, therefore and it consumed much energy, finance, and duration of fieldwork or primary data collection (the time of both the researcher and respondents). Poor organisation and lack of formerly prepared periodic secondary data in all concerned offices was also one of the big challenges. The researcher tried to organise the data by himself and paid other individuals to make them suitable for analysis. The effect of this was to limit in-depth study on the effect of informal operators on formal LDB and PRT in general.

Moreover, the secondary and existing data obtained from respective offices were incomplete and therefore unreliable. The researcher has attempted t to extract and use data as best he cannot. This limits the ability to address accurate levels and rates of

conurbation (city, metropolise, and capittal) and Urban sprawl in Addis Ababa and the service provision of special LDB transport in comparison with formal LDB.

The survey and report focused mainly on the networks & structure, changes in the number of people (passengers) moved and means of movement, long distance buses in this case, challenges in addressing the demand for, problems of the sector and policy issues. However, the report did not consider impacts of the core-periphery links realized via long distance buses. The socio-economies of places at origin and destinations was not considered as well as the type and magnitudes of socio-economic benefits grown by the regions at the two ends? This could be addressed by a separate survey in future study.

A further constraint of the researcher was getting the written agreement from passengers and operators and getting questionnaires back. This is partly because Ethiopians are not accustomed to this and were suspicious. They were also in a hurry to catch buses, or have a meal or rest during breaks. The researcher and data collectors were obliged to move with them to retrieve questionnaires. Most often, data collection relied to oral responses which delayed the fieldwork. In some case, the researcher and the data collectors asked the both the operators to wait for us until we had collected the information and the passengers also to provide the information.

1.10. Organisation of the study

This study is organised into nine chapters. The first chapter is an introduction and states the background of the study area. The background of the study, gives the statement of the problem and the objective and research questions, and describes the significance, rationale and scope of the study. Chapter Two, focuses on the conceptual definition and theoretical approaches of PRT, an overview of PRT, the concept and distance limit of LDB transport, and types of PRT service. It also deals with concepts of metropolitan road networks and rural–urban linkages (interactions), and of supply and demand of PRT. Moreover, the chapter contains an analysis of the present policy of LDB transport in Ethiopia. Chapter Three provides an explanation of the methodology used in this thesis.

Chapters Four to Eight are entirely devoted to the presentation of data and discussions. Chapter Four focuses on structure and includes the growth rate of buses by levels, status of service provision and coverage of the industry. Chapter Five explores the service adequacy of the industry, and deals mainly with the supply and demand situation of the

industry. Chapter Six emphasises the role of LDB transport for the metropolitan linkage of Addis Ababa with the hinterlands, noting the main outlets and the role for the prevailing linkage, and describes the role of LDB in the linkage for metropolitan areas in the nation. Chapter Seven describes the major challenges in the industry. Chapter 8 then focuses on the policy of LDB transport in Ethiopia and proposes an alternative policy strategy.

Finally, Chapter Nine, gives a summary of the major findings and conclusions, the contribution of this thesis, its limitation, and future areas for research. Lastly, the thesis sets out references and appendices.

1.11. Summary

This chapter is the base for the other chapters, and it has set out an introductory discussion on the general situation and framework of this study. It focuses on LDB transport, its structure, service adequacy and the role it plays in linking the core to the periphery of Ethiopia. It also has a detailed description of both the background of the study and statement of the problems. This chapter has also highlighted the research question, the objectives and the significance of the study. The most important significance of this study is its contribution to the existing body of knowledge and its contribution to the theory of transport and development links, as well as in providing substantial input for policy makers and planners. The study focus on LDB transport, its structure, service adequacy and the role it plays in linking the core to the periphery of Ethiopia with particular reference to Mercato bus terminal that dispatches buses along four routes (Debire Sina, G/Guracha, Hossaina and Metehara). This chapter gives an overview of the thesis.

The next chapter proceeds to examine the rationale issues and empirical evidence of LDB transport.

CHAPTER TWO
LONG DISTANCE BUS TRANSPORT: RATIONALE ISSUES AND EMPIRICAL EVIDENCE

2.1. Introduction

In chapter one, the researcher set out introductory aspects, including the background of the study, problem statement, objectives and significance within the scope of the whole study; finally it indicates how the thesis is organised.

This chapter explores the conceptual and theoretical issues specifically focus on the structure, service levels and problems of LDB transport linking the core to the peripheral areas that contribute to both local and national development. This will be achieved by the five specific objectives, mentioned in the first chapter.

The chapter reviews the relevant literature on the spatial variation of LDB transport in particular, and PRT in general, from local, regional, national and international perspectives. It includes the concepts, and an overview, of passenger road transport. Moreover, it includes a description of the role, nature, and structure of long-distance bus transport; linkage of metropolitan areas, for linking road networks and rural-urban linkages (interactions); the supply and demand situation of LDB transport; major difficulties of the sector; and the overall policy strategies of LDB transport of Ethiopia.

2.2. **Intercity Bus or Road Passenger/Public Transport**

The concept of public transport refers to passenger transport that any member of the public may pay to use (Vuchic, 1981; as cited in Martha & Ronald 2000). Thus, public transport is a conveyance that operates along the fixed routes, with regular stops, on frequent schedules, and with a set rate of fare (Hood 1996; as cited in Martha & Ronald 2000). It also includes subways and large or cross-country buses or coaches for long distance travel. In Ethiopia, the large bus, which carries more than 44 seats, is a key transport development tool for the government, and it is vitally important for the accessibility and social policy agenda of the nation, particularly in assisting with the development of peripheral areas. Due to the high levels of poverty and poor access to other modes of transport, public transport remains the most dominant form of transport in Ethiopia.

To clearly understand the intent of this study, it is important to ascertain the distance limits of LDBs. As LDBs play a vital role in the transfer of goods and people, their limits

in scope and distance play a vital role in the overall spatial distribution of the transport system. The limits of LDBs vary from country to country. For instance, in Sweden, the long distance coach services, defined as buses, run over 100 km and cross at least one county border (Kageson 2009). In Britain, long distance is defined as a route that is longer than 45 km. The distance is often the main criterion for the regulatory regime applicable to LDB or coach services; however, these distances differ immensely. The maximum limit of LDB passenger transport is considered as connecting two places located 500 km apart (ibid). This serves as the distance limit of long distance LDB travel, which lies between cities located 400 to 600 kilometres from each other (EFTA 2011).

Countries often adopt a distinction, defining long-distance bus services as those crossing regional transport borders (Didier 2009). However, in developing world countries, such as Ethiopia, the definitions of LDB are less well defined and are set out as maximum route limits found between origin and destination. Within this context, LDBs often do not have specific distance limits, but move between regional areas where there are needs, and no other alternative mechanisms exist to transport goods and people between places. In short, the LDBs interlink both regional and urban links, and region and inter-urban links. In Ethiopia, this long distance transport does not necessarily cross international borders, but they cross the boundaries of administrative regions in the country. Thus, the sector is aptly named, ‘cross-country bus transport’ (EFTA 2011).

However, in this study it also has a similar meaning with passenger road transport. Most of the types of public transport discussed here are those of inter-urban, LDBs or road passenger transport. Throughout this thesis, the word ‘public’ refers to road passenger transportation. In view of this, an overview of LDB transportation is narrated in the subsequent section.

2.3. The global importance of intercity bus transport.

PRT has been commonly used in both developed and developing countries. However, in most developing countries it plays a considerable role in intercity mobility and facilitating the movement of goods and people, and is a vital tool for local and regional development. The widespread effects of the importance of bus transport should not be underestimated. Some developed countries have seen an increase in bus usage, these from a diverse range of countries, Spain (nearly 20 %), Azerbaijan (9.4 %), Croatia (7.7 %), Iceland (5 %), France (4.9 %), and Ukraine (3.9 %) (European Commission, 2009). This mode of transport has increased almost seven-fold between 1970 and 2007 (ibid).

Asian countries, prior to the arrival of mass car ownership, saw a high proportion of urban to urban travel using public transport, which is a similar trend found in many large cities of the developed world (Barter 2000). This indicates that public transport plays a very large role in Asian cities that still have relatively low levels of car usage in terms of development and mobility. In some Asian cities, there is a high level of public transport usage, but this only seen in cities that do not have alternatives to LDB access. Moreover, there is a high level of dependence on road-based public transport in Asia. In many developing countries at large, and those in Africa in particular, the principal means of PRT undertaken by road is by bus (Willem 1999). This form of transport accounted for 53 % of journeys completed throughout the world in 1995. In South Africa, the total amount of PRT only represents 25 to 30 per cent of the total vehicle population. Of these, bus and coach transport consists of only 24 %. This implies that the interurban transport sector, is supplied with buses and coaches, and it is slightly marginalised by taxis in the rest of the world (ibid). Thus, bus transport has been the most important means of mobility everywhere.

In the Ethiopian context, the growth rate of bus transport and its service provision is clearly increasing. According to the ERA (2010) report, the growth rate of bus transport in general, and by LDB in particular, showed a steady rate of increase from 1998 to 2008, with an increase of 13 % per year. The average growth rate of the sector was between 10 % and 20 %, although general dips of -1 % and -7 % in growth rates in 2000 and 2001 were seen. This aggregate growth demonstrates the importance of LDB transport in the movement of people and goods across the country. Currently, the total number of operational maxi-buses in the nation is approximately 1 130, catering for more than 77 million people; an average of one seat serving more than 1 136 people (Selam Bus Private Limited Company, (SBPLC 2009). This amount of buses is insufficient to accommodate the population growth of the nation.

The EFTA (2011) report showed that in Ethiopia, there is a slight growth (approximately 15.7 %) in the transport industry. The report further indicated that in 2010 the total number of buses serving the country numbered 13 684. Of these, 7.75 % were LDB with 44 or more seats, and the rest, 12 623 (92.25 %), were those which have 24–44 seats and small-scale buses. Nonetheless, studies conducted in Ethiopia, mainly by ERA (2005).

A 2011) indicate that 99.31 % of all passengers have used road transport, mainly for their intercity or place-to-place mobility. Airline travel is used by 0.65 % of travelers, and

0.04 % use railway transport. This indicates that people depend more on road modes of transport than on any other form.

2.4. The theory of transport and its importance for development and reducing poverty

Transportation is important because it is relevant to issues such as the economy, development, population settlement, politics, and demography. Although the researcher read and assessed literature, few manuscripts were found which clearly explain the theory of transport, and intercity bus transport specifically. Therefore, the researcher has endeavored to narrate the issue under investigation in two ways, by considering the theory that directly links with transportation, and the theory that is indirectly tied to transportation. Described below is the theory that directly links with transport.

2.4.1. Transport Links Economic Development: Emphasis on Theories

Transport has multi-faceted features and various links with other disciplines. The purpose of this study is to show how transport links with local economic development. According to Charles (1894), transport has strong links with economic development. This theory is particularly true in respect of the location of cities. Not much attention is given to the analysis of the territorial relations offered in society, which is an important field of social research.

In addressing the relationship between transport and regional development, the study of the Goodbye Economic Consultants (GEC) pointed out evidence that has to be found with transport and regional development. They examined the roles of transport in economic development as a whole. That is, it looks at the extent to which transport contributes to ‘making the cake bigger’. This is followed by a discussion of what role transport has in determining the distribution of those benefits, or ‘how the cake is shared’ regionally. The role of transport in the distribution of economic gains between countries, and regions within countries, is a topic that has received renewed interest in recent years.

However, the idea of transport and development can be seen directly from various theories, such as endogenous growth theory, core-periphery theory, central place theory, and the location theory by von Thunen in 1826 as cited in (Jean et al. 2006, 2009) and by Walter Christaller in 1933 as cited in (Romer 1994, Amanda 2012; Krugman 1991). Firstly, interest is reflected in growing literature relating more to endogenous growth theory than to exogenous growth. Endogenous growth theory holds that economic growth

is primarily the result of endogenous, and not external, forces. The theory holds that investments in human capital, innovation, and knowledge are significant contributors to economic growth. The theory also focuses on positive externalities and spillover effects of a knowledge-based economy that will lead to economic development (Romer 1994).

Transport and economic development is explained as the size of the cake, and there can be little doubt that well-judged transport investments will have a positive effect. Therefore, this concept has an influence on the location behaviour of the transport sector by giving rise to the interior expansion of service into different towns and neighbouring countries. With regard to regional distribution impacts (how the cake is shared), the role of transport is less certain. This is because transport investments are a 'two way street', so that, for example linking a core to a peripheral region, might benefit the former rather than the latter. Geography theorists seek to illuminate this theory, and transport plays a role in linking the core to peripheral regions (ibid). This is an economic issue. This linkage by itself contributes to local economic development (Gunter 2014a).

The second most decisive theory is core-periphery (CP) theory. The core-periphery theory is a central model of 'new economic geography' by Krugman (1991). He has also stated that the core-periphery model formalises the role of agglomeration and dispersion in the dynamic formation of a monocentric urban system, of which a prominent feature is the emergence of a hierarchy of cities based on market potential, featuring especially a symbiotic relationship among cities. It must be noted that in Krugman's (1991) core-periphery model, economic and geographic integration could affect the locational set up of industrial activity. It indicates that the long-run growth and industrial location are jointly endogenous. (Fujita & Krugman 1995; Fujita, Krugman & Mori 1999) indicate the shape and correlation between the distance to the core and local market potential. It has nonlinear correlation that exists in relation to the geographic distance of cities to major ports and economic growth, as shown in China's urban systems. In short, the spatial interaction has partly verified the CP model and the role of agglomeration forces the urban systems, more or less finding that closer is better. This linkage is clearly shown in Figure 2.1 below.

Beside this, Ottaviano et al. (2002) stated that the central region can also present location disadvantages, and that price competition can make economic activity move to two or just one of the peripheral regions. Again, Zhao Chen et al. have shown a non-linear core-periphery model of urban growth in China (1990-2006). They explained this by using the

graph theory, which represents two simple and extreme topologies of a spatial network, with the former characterising a neutral or homogenous topology, where no region has a (first nature) geographical advantage, while the latter characterises a non-neutral heterogeneous space, where the center presents a privileged location.

Wallenstein in 1974 and Frank in 2001 explained the concept of CP is also from the perspective of the world-systems theory. The basic principle of the core-periphery theory is that, as general prosperity grows worldwide, the majority of prosperity is enjoyed by a 'core' region of wealthy countries, despite being severely outnumbered in population by those in a 'periphery' that are ignored. The core-periphery theory differentiates the DCs (core) from the LDCs (periphery). The theory highlights the inequality in levels of development between core and periphery. Typical characteristics of core and periphery countries: The way in which a core country and a periphery country interact is known as the core-periphery relationship. In this argument, for example, as the core develops, it gets richer while the periphery may take a longer time to develop. However, this is not always the case. Advantages to the periphery are known as the Spread Effect, while disadvantages to the periphery are known as the Backwash Effect.

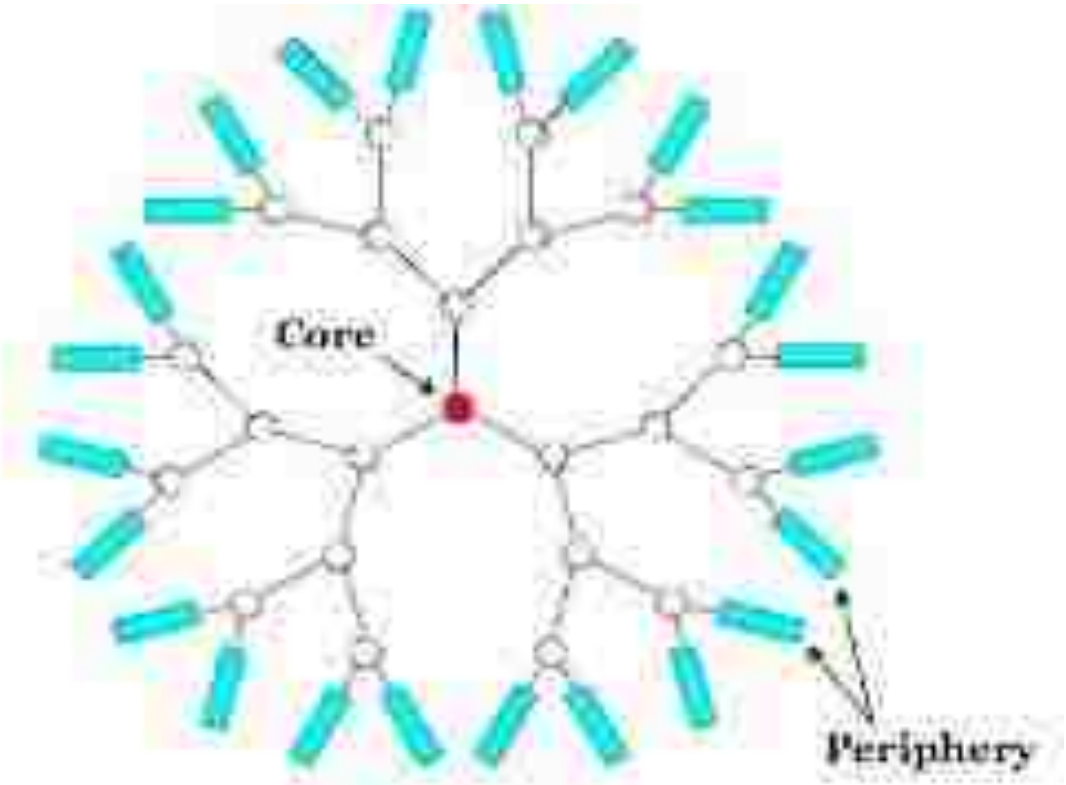


Figure 2.1: Shows core-periphery model

Another theory indirectly linked to transport and development is the central place theory (CPT) of Walter Christaller, described in 1933. This theory has a slight linkage with transport and development, which focuses on central places, surrounded by towns that are situated in between the large (central place) city and at least one other supply city (Michael 2005; Oliver 2012). The theory is an attempt to explain the spatial arrangement, size, and number of settlements. Christaller noticed that towns of a certain size were roughly equidistant. By examining and defining the functions of the settlement structure and the size of the hinterland, he found it possible to model the pattern of settlement locations using geometric shapes. His thesis is about the transport and development linkage. The theory does a reasonably good job of describing the spatial pattern of urbanisation and transport development (Michael 2005; Oliver 2012). Heilbrun wrote: "A hierarchy is a systematic arrangement of the classes of an object." In this case, the 'object' comprises economic centers, large and small. The central place hierarchy provides a description of the relationship between central places, which constitute a higher order place, and its tributary areas are lower order places (Oliver 2012).

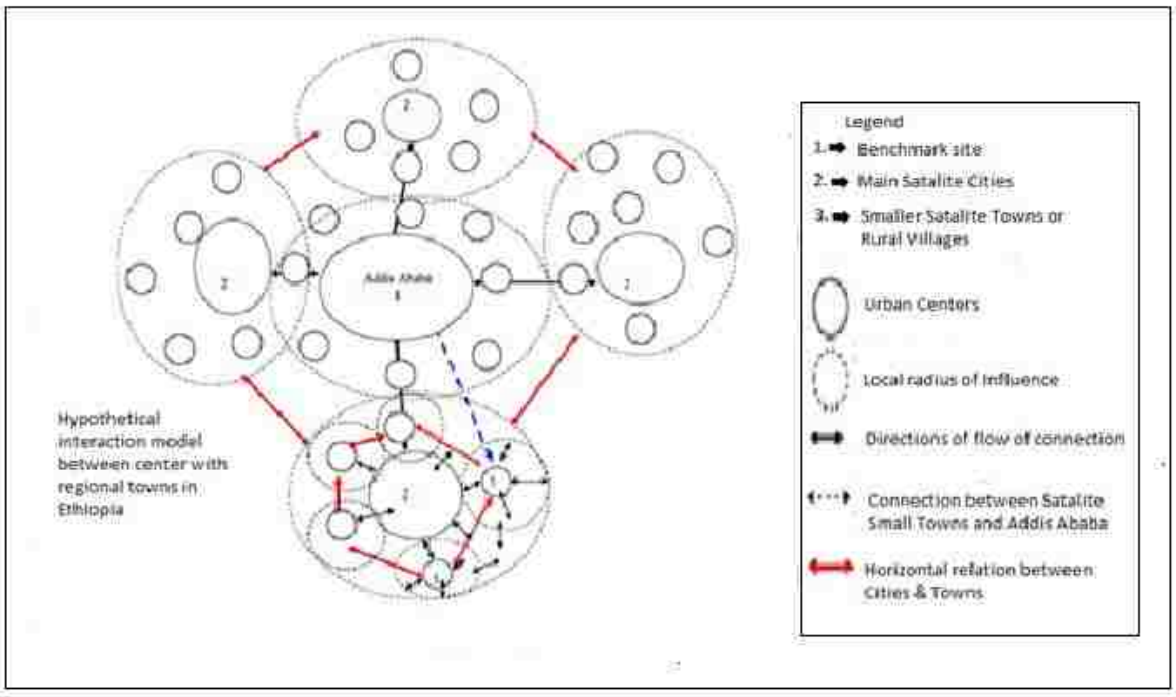


Figure 2.2: Hypothetical interaction model between rural and urban system in Ethiopia

Source: Adapted from the Global Mountain Program (GMP) by Zeleke et al. (2006),

With regard to the application of the theory for economic development, the central places depend on factors such as transport costs. Mushinski (2002; as cited in Jochen et al.

2010; Michael 2005) concludes that “incorporating explicit geographic interdependence between establishments in a place and sources of supply and demand in neighboring areas” exists, and is “particularly significant on the supply side.” This theory, to some extent, applies to bus transport and it fastened the link among cities and towns to create a large tie with the central hubs. In this regard, the city of Addis Ababa has played a great role in forging a link with various geographic places. For example, the markets in the small towns have a link with the surrounding central places by supply and demand linkage. It is because of large cities are occupied different services and it is also played as a source of market centers, it has also taking political attention of the societies and it would play as core role, and a center of population distribution.

The fourth theory focuses on location theory, stated in the work entitled “*The isolated state*”, issued in 1826, by a German economist Johann Heinrich von Thunen (1783-1850). He defines that LT (location theory) is a theoretical step in the study of the spatial aspects of economy, and at the same time generates a field of the economy, named the spatial economy (Block & Dupuis 2001). The isolation means an isolated market included in an isolated state, which means that it has no links with the outside; and in a place where there is no transport infrastructure, that means no roads. The location theory addresses questions of what economic activities are located where, and why. The topic of location theory has generally been associated with the descriptive characterisation of observed patterns across geographic space typically associated with human settlement, industry siting, service competition, and more generally, consumer behaviour. Part of this was driven by wanting to better understand why places were where they were, but ultimately the goal was to gain a sound grasp on the factors associated with location decision making and what makes for a good location.

In general, both direct and indirect theories have been applied in this study. Among those theories, core-periphery theory, central place theory and location theory bring valuable advantages to transport and development linkage. The location theory for the city of Addis Ababa is preferable for human settlement, for siting of industry, a center for service competition, and infrastructure, which are advantages that other cities and towns do not have. Bus transportation has played a leading role for the prevailing link and the service provision.

2.4.2. Intercity Bus Transport Nexus Poverty Reduction

The inadequacies of intercity public transport and poor delivery are damaging the interaction between people and the urban economy, which also harms both rich and poor. However, the poor are affected more than the rich are because their day-to-day activities and inter-urban mobility are highly dependent on it. The LDB transport policy can step up to reduce the rate of poverty, and contribute to economic growth. The transport research support programme, TRSP (2011) illustrated a similar reduction strategy in that public transport service contributes towards alleviating poverty by introducing a conscious focus on poverty reduction, to infrastructure investment, to public transport service planning, and to fare-subsidies and finance strategies. There is a rich agenda of urban transport policies, that are both pro-growth and pro-poor, yet they are consistent with the fiscal capabilities of even the poorest countries.

The “income poor” classes of the community might make a trip for both their intercity and intra-city travels. The pro-poor economic growth and poverty reduction strategies make the urban poor very conscious that access to employment is critical in their fight against poverty, and that having a good transport infrastructure and service is one way in which this access can be achieved (World Bank 2002). The lack of basic road transportation access and other infrastructure is seen as a defining characteristic of poverty, but the relationship between the urban transport infrastructure and poverty reduction is complex. Hence, intercity transport policies that improve the general economic viability of the city are very important to poor people. For example, in Cairo, Egypt, the lives of the poor have been improved by peoples’ relocating their residences in order to gain better access to transport links, which are not primarily designed to alleviate poverty (Christine 2005).

2.4.3. Road Network and Core Periphery Linkage

Transport is a key factor in determining the price of goods and services (World Bank 2002). An efficient transport system can help to minimise transport costs and therefore support growth directly or indirectly promote trade and higher productivity. This can, in turn, enhance competitiveness in the economic sectors. It has obvious and substantial importance for the socio-economic and physical linkage of different vertices in different countries. In light of this, in most parts of developing countries roads are the most important and commonly used mode of transport. As a basic form of infrastructure, roads are very important for economic development, both local and national.

Reality reveals that most urban transport is road based. The availability of adequate road infrastructure is a prerequisite for efficient movement (World Bank 2002). Of course, in advanced countries, railway lines, shipping lines, airlines and other modes of transport are the most common mechanisms for people to use when travelling. However, roads are the dominant mode and are essential for all activities on land. Road infrastructure is one of the key factors determining the efficiency of transport operations and it has a vital significance for socio-economic development (Vasilis et al. 2008).

Addo-Abedi (2009) also conducted a study in Sub-Saharan Africa that clearly points out that infrastructure plays an essential role for bringing about sustainable development. A well-established road network is essential for promoting trade and commerce, as well as furnishing easy access to social infrastructure such as schools, shops and health centers. It also provides the necessary links between markets and centers of production for the economic sectors such as agriculture, mining and industry. It provides access to employment, education, health, recreational, and social facilities. It also facilitates the movement of goods along trade corridors and between coastal ports and land-locked countries for regional development. Therefore, the transport infrastructure is the most essential component for the socio-economic development of nations.

Core periphery linkages (interactions) comprise a multitude of spatial linkages (flows of people, goods, services and information) and sectoral interactions (employment and occupation, such as rural non-farm employment and urban agriculture) which take place between and/or within places defined as rural and urban (Zeleke, Trutmann & Deneke 2006). While rural–urban linkages are not recent phenomena, researchers and policy makers have often treated rural and urban areas, and their respective populations, as distinct from each other with unique problems that should be studied and solved separately. This approach overlooks what happens to the population of one spatial unit that affects the other.

The rural–urban linkage neglects the fact that the livelihoods of different groups of people found at the artificial rural and urban boundaries are affected (George 2005). For many rural households, rural–urban linkages are part of the local reality for household members carrying out the diverse tasks of producing an income, on and off the farm, maintaining a living space in the village, going to local and even distant towns to shop, market, work, and seek specialised services. This is also true of some urban residents who on a regular or irregular basis seek employment opportunities in rural areas or engage in rural (or non-

urban) based activities. Due to a number of factors, the concept of rural–urban linkages has gained increasing recognition and attention in practical and theoretical fields in recent years. Either factor like in combination or individually have questioned the definition and implementation of policies on rural and urban development (ibid).

In Ethiopia, the style of rural–urban linkage is expressed in four major classifications, being forward, backward, market linkage, goods and service linkages (Tegegn 2011). Furthermore, Aynalem & Assefa (2011) show that there are certain types of linkages found in Ethiopia, which include production and consumption linkages. Human mobility also brings linkages, such as internal migration and functional linkages. The researcher of this study has confidence that road networks are good for the physical linkage of rural and urban areas. At the same time, the Road Sector Development Program of Ethiopia (RSDP) (2009) has also proved that in the 1990s the government of Ethiopia planned that a major expansion of road networks was necessary to meet its development goals, advancement in the private sector, expansion of essential infrastructure, and conservation of the environment.

The transportation linkage ties in more easily to the physical landscape. The function of the port in Montevideo, for example, has generated tangible and dramatic evidence of a nodal pattern of accessibility (David 1962). In an exchange economy, supported by agricultural surpluses, wagon roads, railroads, and highways have provided overland access between the port facilities of the capital city and the productive agricultural hinterland. The inter-urban transportation in China has shown growth in both vehicles and human population, thus the construction or expansion of roads is unquestionably necessary for those countries that are ‘stuck’ with roads. For instance, the capacity of the inter-urban network was limiting mobility far more than the availability and the price of energy used for cars.

It is very important for developing countries, like Ethiopia, that an inter-city linkage facilitated the mobility of people and goods within the city where passenger transport usages are able to be very high through using bus terminals. Transport terminals are becoming increasingly important in transport networks, making a physical connection among nodalities (Jean *et al.* 2006). The actual inter-urban connection, however, is seemingly very low. By comparison, in developed countries every node is connected to more than two adjacent areas. However, in the third world areas and countries like Ethiopia, these are not yet connected in road networks, and even existing roads are in a

a terrible condition, needing maintenance. Some lowland and inaccessible areas also seem to be marginalised from the rest of the nation. Finally, by taking some lessons from both metropolitan and rural–urban linkages, it is beneficial to understand and analyse the accessing and connecting of nodes.

2.4.4. Travel Demand Management (TDM)

The Bangkok Declaration for 2020 Sustainable Transport Goals (BDSTG) for 2010-2020 expresses transportation demand management measures including pricing measures that integrate congestion, safety, and pollution costs, aimed at gradually reducing price distortions that directly or indirectly encourage driving, motorisation, and sprawl. The intention of this study is to ascertain the general situation of supply and demand in the transport industry. Therefore, this literature survey will focus on the travel demand management systems of different countries.

Two types of theory or policy frameworks for public transport explained by TDM is. The ‘hard’ transport policy measures have been introduced: improvements to infrastructure and the management of public transport services, increased costs for car use, and the prohibition or rationing of car use. Alternative ‘soft’ transport policy measures have been developed to motivate individuals to voluntarily reduce car use. This thesis also reviews the effectiveness of soft transport policy measures. However, the variety of the results makes it difficult to infer why the measures are effective (Jochen et al. 2010).

In general, the car clubs that individuals are encouraged to join, give them access to a number of cars that are parked in their neighbourhood, which they pay for when they use. Thus, with no complementary hard transport policy measures, soft transport policy measures could reduce traffic levels by 4–5 % at the national level (Jochen et al. 2010). This theory is beneficial to know for bringing change in the travel demand management of public transport, specifically inter-city bus transport.

2.5. The Roles of Passenger Road (Long Distance Bus) Transport

In both developed and developing countries’ experience are forwards different roles of the sector. The role of LDB is not just to move people around; it plays a role in development and in linking the periphery to the core. Inter-city bus transport plays a leading role in serving and connecting the society. In selected cases, it is feasible to extend the bus route to reach the rail network.

In most cities in the developing world, bus transport is the backbone of the economy and social ties (World Bank 2002) and it has advantages for all walks of life in the regions, particularly for the poor. It helps to prevent the effects of motorisation on the environment, it decreases traffic congestion, and more passengers can be transported than on other inter-city PRTs (ibid). In selected countries, like Austria, France, Germany, Great Britain, Italy, the Netherlands and Sweden, bus transport is partially substituted by rail-based passenger transport (Beckers et al. 2010).

Firstly, bus transport ensures safety and saves money. Public transportation continues to be one of the safest modes of travel in the United States. As indicated by the American Public Transport Association (APTA 2006; OECD 2010), the various benefits of PRT in America are conclusively established. Nearly half of all Americans believe that where they live traffic is a serious problem. In Ethiopia, bus transport provides relief for the crowded network of roads by offering alternative transportation choices and it has so far stimulated economic development. Secondly, it improves the quality of the air and reduces energy consumption. Public transportation helps promote cleaner air by reducing automobile use, which exacerbates smog and public health problems. For each mile travelled, fewer pollutants are emitted by the transit vehicles than by a single-passenger automobile (buses emit 80 % less carbon monoxide than a car) in each year. The use of public transportation avoids causing the emission of more than 126 million pounds of hydrocarbons, a primary cause of smog, and 156 million pounds of nitrogen oxides, which can cause respiratory disease.

Thirdly, it fosters more liveable communities and reduces the risk of injury. Public transportation facilities foster more liveable communities and the outlets are natural focal points for economic and social activities. These activities help to create strong neighbourhood centers that are more economically stable, safer, and more productive. Public transportation provides opportunity, access, choice, and freedom, all of which contribute to an improved quality of life. The risk of injury is well known per unit of distance travelled, but differs greatly among the commonly used means of transport. Collings (1990; as cited in Allsop & Robertson 1994) shows that when travelling in Britain, the risk of injury when travelling by car is higher than when travelling by bus or train. The risk of travelling for vulnerable road users (by pedal cycle, on foot, or by motor cycle, in increasing order of risk) it is to be contribute more for the magnitude of mobility is higher than for travel by car.

Fourthly, it is the dominant mode of public transport used by the poor and it is a feeder service, linking to inaccessible areas. Commonly, public and paratransit transport modes perform many roles for the poorer parts of the society. As Transit Cooperative Research Program TCRP (2002), Fravel (2003) illustrate, the intercity bus transportation system is integral to American surface transportation networks, and is particularly important to smaller urban areas and rural areas. It also links smaller communities within a region and links those communities to larger urban areas that offer services and opportunities that are otherwise unavailable. Intercity bus transportation plays a critical role for smaller rural communities that do not have access to air or rail travel, and is a more affordable option.

The World Bank Urban Transport Review Report, (WBUTRR) (2002) states that in Africa, bus transportation has been the dominant mode of public transport for the poor. In Latin America, intercity bus transportation provides a range of services, including feeder services linking inaccessible areas to the main transport routes; local distribution to inaccessible areas not served or underserved; and direct longer-distance services on routes. It is thus undeniable that the sector plays a great role in the bigger picture of this study.

2.6. The Nature and Structure of Passenger Road Transport

The main theme in this literature, the structure of PRT has reflect the first objectives of this study. See more on chapter four. It focuses on the structure and roles that the LDB plays in local economic development in terms of creating employment opportunities. The issues of structure focus on the growth and dispatch of buses and bus associations and the nature of dispatch.

In this part of the literature review, the focus has been on the contribution of intercity bus transport towards both the linkage of metropolitan areas and local economic development of the region. This is narrated in two basic sections. The first one described the general situation with notions of metropolitan linkage, and major types of linkage of metropolitan areas with the intercity bus transport. The second part focuses on the road network and core-periphery linkage (Gunter 2014b).

2.7. Intercity bus transport for linkage of metropolitan area and development

David (1962) affirms that there are at least two or more major types of linkage in a metropolis, mainly dendrite, radial and orbital. It is essential to explain the definition of these elements as there is radial linkage from the node or core area. Passenger vehicles

in the radial type of route structure flow in a radial form from the primacy city. For instance, in Uruguay the linkage prevails in the relation to distance from Montevideo and the sum of similar curves for individual routes that radiate from Montevideo to the hinterland. The dendrite route structures in the areas of Montevideo have been observed articulately. On the other hand, an orbital road takes traffic around a city, rather than through it. This is seen more commonly on city bus transport. The orbital route flows in a circular manner. This pattern is a similar phenomenon in most parts of Third World countries; all individual routes radiate from hub to the hinterland, or they merge towards it.

Of these, the roads and rail modes of transport need high maintenance, with particular emphasis being given to road sectors. Ofyar (2005) notes that in Indonesia, Bandung buses are confined to utilising the road route in radial and orbital routes, which connect the metropolitan areas, and leave the paratransit vehicles (Angkots) to use the secondary roads as feeders to the buses. It appears that Angkots are not be permitted to use the same roads as the buses. Lastly, an orbital type of route is similar to a circular network, usually a road, which takes traffic around in a city, rather than through it. It is most commonly applicable around metropolitan areas like hubs and capitals. In most cases, buses will also practise this type of orbital flow, commonly in the intra-city mobility areas.

The subject of the nature and extent of metropolitan areas clearly shows the new geographic settling. Fleming (2008) explains that we are now ‘everywhere and nowhere’ at once: in between on the border, restlessly travelling, migrating in and out of virtual communities, and living out our fragmented lives in a space of events and a flow of bits. Linkage between urban areas with metropolitan areas is explained by the changing conditions of residence, work, and play in our lives. The changes that have allowed us to think that we are less dependent on places that we once were and the physical proximity is no longer relevant for cities have become obsolete in in 20th century. Those units are the metropolitan area and the urban district. In addition, regardless of their local affiliations, people typically treat the metropolis in which they reside as a single place. It is true, as Banerjee, Baer and Jacobs explain that many people move freely across multiple sub-metropolitan boundaries in their everyday lives and think little of it (Fleming 2008). Moreover, metropolitan boundaries are finally, to match the boundaries of the political world with the geography of everyday lives. Clearly, the other ways in which we might inhabit and share the earth, and admittedly, the metropolis does not currently play a prominent role in our social and political consciousness; it has no legal status

whatsoever. Nonetheless, it plays a key way in which we organise our everyday physical relations with one another and with nature (ibid).

The aforementioned facts show a good link with the prevailing theory of transport and development, and they have more links with the overall study. It is also similar feature that to curves for different routes, which starts from the metropolis, and that radiates to the hinterland that would create a better opportunity for the local and regional development. The transport sectors especially LDB transport has contributed more for the the raise of urban sprawling due to expanded transport that links two different city leading to the possibility of conurbation between towns in the region (Fekadu 2013b; 2014) .

2.8. Supply and Demand of LDB Transport (Service Adequacy)

In any service sector, there are always issues of supply and demand, which is a concept commonly, used in economics. Actually, these two terms are inseparable and are actually interlinked or intertwined with each other. If demand increases directly or indirectly, the supply either increases or decreases (Hubert 2004). This supply and demand concept also appears in the transport industry. According to a report of the United Nation Economic Commission for Africa (UNECA), indications are that supply and demand is a common concern because of population pressure, urbanisation, modernisation, and quality of service provision, availability, accessibility, affordability, and the purchasing power of users. In general, the following variables are the paramount aspects that affect demand and supply in the public transport sector: population pressure, urbanisation, and economic concerns. Therefore, let us see the effect of a growing population, leading to a rise in demand for transport.

2.8.1. **Population Growth and Demands**

Wherever there is growth in population, the need for everything rises. In the world, nothing escapes the effects of a rise in population. This study looks at the growth of population and its effect on demand. World Development Indicators (2010) show that in the 1960s, the growth rate of population in the world was 2.53 % and it dropped to 2.2 % in 1963. It continued to decline and reached 1.17 % in 2008. The growth rate further declined to 1.10 % by 2009. The current projections show a steady decline in the population growth rate of the world, with the population expected to reach between eight and ten and a half billion between the years 2040 and 2050. However, in developed

countries, the growth rate is declining, and in some cases, it will reach nil. However, in developing countries, a significant rise has been noted.

Therefore, the presence of population pressure has contributed to the rise in the demand for transport. For instance, John & Nisha (2004) state that there has been an especially rapid growth of population in large metropolitan areas in India, such as Mumbai (Bombay), Kolkata (Calcutta) and Delhi, which now exceed ten million residents each. Chennai (Madras), Hyderabad, Ahmedabad and Bangalore each have more than five million residents. Thirty-five metropolitan areas in India have populations that exceed one million, almost twice as many as in 1991. Large cities with population pressure are far more dependent on public transport than the small cities; therefore, the need for intercity public transport services has increased faster.

In the United Nations' World Population Prospects report in (2010), it is stated that during the years 2005–2050, it is anticipated that nine countries will account for half of the world's projected population increase: these are India, Pakistan, Nigeria, Democratic Republic of Congo, Bangladesh, Uganda, the United States, Ethiopia, and China. Ethiopia is mentioned amongst these countries as one that has shown the highest record in population growth rate. The 1994 population and housing census recorded that the annual population growth rate in Ethiopia was 3.1 %, with a projected slight increment to 3.21 % (2008 est.) and 3.208 % (2010 est.). Accordingly, the population increase causes a similar increase in the transport industry, by activating the demand for mobility, specifically intercity mobility. The population size of Ethiopia should be updated to 97 million as reported by official statistics.

The evidence of a rise in population is expressed in the World Development Indicators, it mentioned that the world population growth 240 countries was listed by ranking order in 2005. Ethiopia stood 18th in the world with 73.1 million people and 3rd in Africa in terms of population numbers, with Nigeria being first with 128.8 million and Egypt second with 77.5 million. The same source reveals that in 2008, Ethiopia ranked 15th in the world and 2nd amongst African countries, after Nigeria. In Ethiopia, the population growth rate was 3.2 % per annum in 2008 (CSA 2007). In spite of these facts, the growth rate of road passenger transport has risen from 4.1 % to 6.7 % currently; the total number of operational maxi-buses in the nation is around 1 130 for more than 77 million people, which is an average of one seat shared between more than 1 136 people (SBPLC 2009).

Thus, the growth rate of transport is not enough to accommodate the existing supply and demand.

Similarly, with regard to its application that sighted with the industry, Jean et al. (2009) highlight the mismatch between demand and supply experienced by transport because of population growth. The available public transport is inadequate, particularly during peak seasons, and passenger density creates discomfort for users as the system tries to cope with a temporary surge in demand. However, the rate of national growth expressed as a percentage for each nation commonly lies between 0.1 and 3.1 %, annually. In general, therefore, population growth is a good indicator for the need to provide for the rise in demand and it has also ties with the increase in economic activities.

2.9. Major Difficulties of the Sector

This part of the literature is important in answering the fourth objective of the study, which is to identify the major challenges of LDB transport in Ethiopia. Therefore, the following literature is explained from this perspective.

In any service provision sector there are challenges, and nothing is free from challenge. It is also almost impossible, in any service, not to face complaints. These challenges might impede the roles, linkage, and growth in investment, numbers of associations and buses in the sector. In this study, the challenges of the sector have been viewed from three perspectives; passengers and operators; owners, drivers, co-drivers and conductors; and associations. With regard to this study, the challenges of the sector are classified crudely as being external and internal. The external challenge includes road-related issues, policy gaps, and problems within bus terminals and passengers. While the internal challenges focus on those found in buses, including technical errors, those related to operators, drivers, co-drivers, and those within associations. This literature review will address these challenges, particularly those related to operators and passengers.

As literature reveals, there are different challenges in different countries. In India, transportation systems are criticised for their low quality of service, which is reflected in the growing number of standing passengers, lack of punctuality, bad roads, and substandard amenities (Mishra & Nandagopal 1993; as cited in Syed et al. 2007). The public transport systems in the Third World are plagued by chronic corruption and inefficiency, overcrowding and unreliable service, congested roads that slow down the speed of buses, and an operating environment that is often chaotic and completely

uncoordinated. All of which are caused by low quality of services and poor management (ibid).

In India, the challenges of PRT have been aggravated by the privatisation of public transport. Publicly owned and operated systems were accused of being inefficient and highly unprofitable, of providing insufficient, low-quality services, and failing to respond to market demands. Unfortunately, the new private operators are not adequately regulated and coordinated, leading to complete chaos. The new private services aggravated passengers with lengthy, zig-zag routes, long waiting times, completely unreliable service, extreme overcrowding, and unqualified drivers; speeding and reckless driving, and fighting amongst competing buses. This all increases the time that passengers spend waiting at bus terminals. Moreover, the private buses, which contribute to the high pollution in Delhi, are often poorly maintained, unsafe, and noisy. Finally, the other problems in both the intercity and city traffic system in Asian countries include a lack of clear traffic regulations and their poor enforcement (Syed et al. 2007).

It has also been shown that the prevalence of illegal operators in developing countries is the other strong challenge in the sector. More recent studies in Brazil show the surge of illegal transportation in the inter-city and regional transportation market. Here, the use of older and badly maintained buses and coaches is more frequent, but these precarious vehicles actually run routes longer than 2 500 km, transporting people between the metropolitan centers of the Southeast to the main centers of the North and Northeast regions.

Particularly in Brazil, illegal bus operators were detected in more than fifty illegal coach terminals, which are used by coaches that run to the different corners of the nation, thus indicating the number of illegal bus operators in the city. Besides the coaches, illegal inter-city transportation is increasingly practised by microbuses, which leave São Paulo City for the inner part of São Paulo State or even for the Northeast. In some Brazilian States, the regional transport authorities has already been accepted and regulated vans utilized for inter-city road transportation.

The other challenge in the sector is, for the most part, the nature of the terrain or landscape of a nation, which makes road construction is challenging. It is a major factor for the speed and comfort of travellers, and it also reduces the connectivity of the major hubs or core area within the regions via road infrastructure. For instance, the research carried out by Al-Senan et al. (1995) in Saudi Arabia demonstrates that the intercity road

network is sparse, due to the geography of the nation. Direct links between hubs is almost impossible due to the rough terrain. Meanwhile, the same problem has also been seen in Africa, because all African countries have similar landscape features. Some studies have shown the extent of challenges. As Filani 2002, cited in Raimi (2007) stated relating to a study conducted in Nigeria, the extent of the challenges in passenger transport operators are enormous. These vehicles are unbalanced and ill-maintained, due to the very expensive price of spare parts. They are unable to purchase new vehicles to expand their fleet, once again leaving queues of passengers waiting at major terminals and along routes, which grow longer and longer every day.

2.10. Conclusions

This chapter has focused on different features of both the conceptual and the theoretical framework of the study. The focus is mainly on the global importance of intercity bus transport**.** Bus transport has been the most important means of mobility, everywhere. It is the decisive means of mobility, from MDCs to LDCs. Like other countries, in Ethiopia, 99.31 per cent of the total passengers use road transport for their intercity or place-to-place mobility; 0.65 per cent use airlines and 0.04 per cent use railway transport (ERA 2005; EFTA 2011). This indicates that the mobility culture in society depends more highly on the road mode of transport than on other modes.

However, von Thunen can directly see the concept of transport and development from various theories and perspectives, such as the endogenous growth theory by Romer (1994) and Amanda**, (**2012.), the core-periphery theory by (Krugman 1991), the central place theory by Walter Christaller in 1933, and the location theory in 1826. All these models describing transport have played a great part towards achieving a sound spatial pattern of urban places, and contributing towards it also contributes to local and economic development (LED). The World Bank Group's report defines the source from which the LED is comes into existence. It requires the active participation of local government, the private sector, the not-for-profit sectors and the local community to work together to improve the local economy. The transport sector has a link with the aforementioned theories. However, amongst these theories, the most relevant to this study, and in the Ethiopian scenario as a whole, are the core to peripheral and location theories. The metropolitan linkage by itself contributes to local economic development. In short, the transport sector, particularly road passenger transport, plays a leading role in serving and connecting society (Gunter 2016). The role of PRT is an essential part of peoples' daily

lives. It also fosters more liveable communities and lessens the risk of injury. It is the dominant mode of public transport for the poor and provides feeder service links in accessible areas.

The route structure and flow of buses is likely to be in a radial manner, and not dendrite or orbital. In a metropolis, the node or core area usually has radial linkage. Thus, a radial form of linkage connects the hinterland and the prime city. This radial linkage also brings about a symbiotic inter-dependence with the metropolis. This linkage is also highly supported by the aforementioned four theories. However, the linkage is any system of bonds that are homogenous, within some explicit range of variability that focuses upon some detached area, which constitutes the node or core of the region.

In general, this and other features are dealt with in this chapter. After considering the detailed features of the survey of this literature, we proceed to describe the methodology of the study in the next chapter.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

The previous chapter presented a review of the key literature on transport in the global south, and LDB transport, with Ethiopia being the specific geographical context under examination. This review has set a context for further study and the methodology presented will provide a framework for this research. This chapter presents the research strategy and the techniques that were used in the collection of data; it also includes the method of analysis and the ethical criteria for the research. This study relies on the collection and analysis of both empirical (quantitative) and qualitative data to explore the role of LDB in Ethiopia, as a contributor to the movement of goods and people within a developmental context.

3.2. Research Approach and Paradigm

The research design for this study is fixed and is based on the nature of the research problems and the issues being addressed. Different research problems lead to different research designs and methods, which in turn results in the collection of different types of data, and the relevant method of interpretation that this data requires (Creswell 1994; Leedy & Ormrod 2001). However, this study is conducted using numerous designs, such as surveys, exploration and descriptive designs.

In light of this research design, this study employed both qualitative and quantitative approaches. With regard to the approach, the quantitative approach best represents the whole population; it uses standard instruments employed for prediction. The weakness of the approach is that it does not give room for descriptive techniques. On the other hand, Leedy & Ormrod (2001), Grey (2009) explain that the qualitative approach is very specific to a particular context and not generalised to other contexts.

The main reason for using a multiple stage approach is to maximise the depth and breadth of the data obtained (Byrne & Humble 2007). Since each approach has its own limitations, the use of multiple methods neutralises or cancels out some of the disadvantages of a particular method. Of course, the strengths and weaknesses of each approach also complement each other, which make it sufficient enough design to apply in this research. Since social phenomena are so complex, different kinds of methods are required to best understand this complexity. This approach is used because of the

multifaceted nature of the study, which includes surveys, interviews, Focus Group Discussions (FGD), and observation.

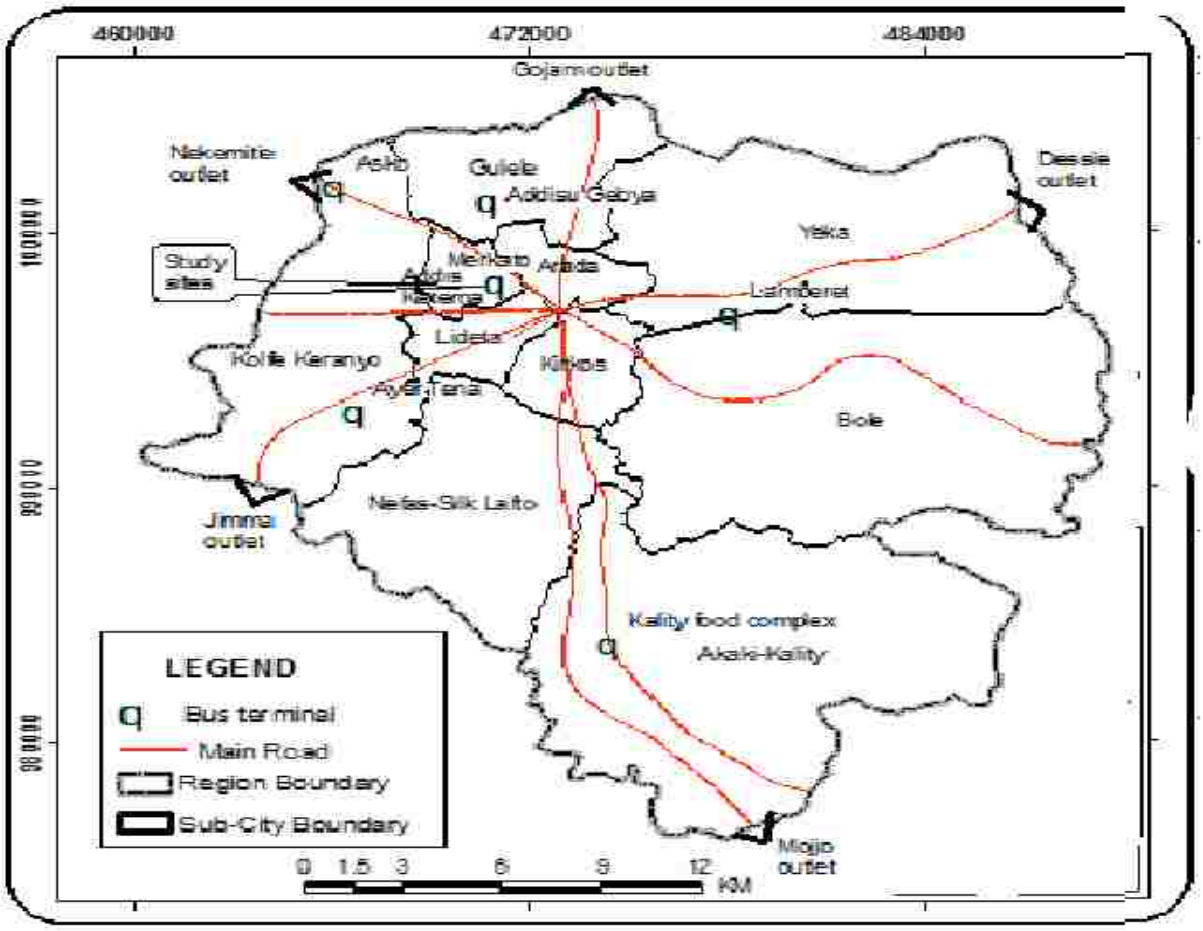
With regard to the research paradigm, this study follows certain paradigms (Kitchin and Tate 2000; Armitage 2007; Byrnes & Humble 2007). Particular schools of the philosophical view of science and methodologists have been engaged in a long-standing epistemological debate about how best to conduct research in a definite area. This pragmatic approach mainly focuses on a problem or reality, rather than on a theoretical analysis. The positivist approach deals with the quantitative mechanism, while the phenomenological approach focuses on interpretative methods (Byrnes & Humble 2007). However, one approach was not adequate for this study; because of it is mutually Exclusive nature. In this study, the researcher preferred the pragmatic view that includes both positivist and interpretive approaches, together. The accuracy of information in one type of data source should be verified by using both simultaneous and sequential triangulation of additional sources (Creswell 1994; Kitchin and Tate 2000). In this study, therefore, simultaneous and sequential triangulation of mixed approaches is applied. This process is used as a mechanism to verify the accuracy of both qualitative and quantitative data.

3.3. Site Selections and Sampling Techniques

In any field of study, an investigation of a wide area and broad aspects is challenging. It has to be specified in terms of area. The purposive sampling method used to select subjects is believed to be useful for a particular research/topic. Thus, the researcher intentionally selected the city of Addis Ababa and Mercato bus terminals. The logical rationale for the selection of Addis Ababa is that it has a greater number of bus commuters than any of the other cities in the nation. The city is geographically located in the center of the nation, and therefore it has good linkages to the other parts of the country. Addis Ababa is the capital of Ethiopia and the seat of many international organisations and embassies. For these and other reasons, the internal mobility towards Addis Ababa, and out of it, is very elevated and it takes place along five major highways, as seen in Map 3.1 below. It is the core part of the country for performing all types of economic activities that are basic for stimulating the economic development of the nation.

The main method used to select the sites and routes of the dispatch of buses was carried out by using random sampling technique. Out of five major highway routes, four were selected. Simultaneously, the four lines and towns were also selected for this survey.

These were Addis Ababa to Harare at Metehara, to Mekele (to the north) at Debre Sina, to Gojam line (to the north-west) at Gebre Guracha and to Arba Minch (to the south) at Hossaina. The instruments were applied on a daily basis on four sampled towns at Metehara, Hossaina, G/Guracha and Debre Sina towns. These towns are situated along the four highways of the nation that connect with the capital, Addis Ababa. It is important to ascertain the roles and linkage of these highway routes, and how they interlink with Addis Ababa. Therefore, only the passengers and operators who were using the selected routes were questioned in the study.



Map 3.1: The Map of Addis Ababa with sub cities, the major outlets and expansion sites of Bus terminals in the city

Source: (GIS data of Addis Ababa city administration and GPS data) 2012

The study was conducted mainly at the main Mercato bus terminal, as it is the only working bus terminal that serves the community for long distance travel. The terminal has been the main and only national bus terminal for the whole nation. The remaining two

terminals (Akaki and Shegole) are excluded from the study because they serve mixed (mini, midi and large) buses. The other three terminals, Lamberet, Addisu Gebeya, and Ayer Tena, were under construction while this survey was conducted. These terminals were also excluded from the study (Figure 1.1 above).

3.4. Sampling Techniques to Select Total Population of Buses, Operators, and Passengers

It is feasibly impossible to use all the targeted population (LDB drivers, operators and passengers) for this study, so a sample was taken from the passengers, operators, routes, places and buses. In this study, a multiple stage selection of bus terminals, routes, buses in each route and selection of passenger and operators was done.

3.4.1. Total Population and Size of the Buses, Operators, and Passengers

According to information from the Federal Transport Authority, there are between 25 to 32 LDB associations, which serve the community from the Mercato bus terminals only. The sample size of the buses were selected systematically at the survey sites. Systematic sampling is a good mechanism, if there are recorded lists (Grey 2009). Thus, based on the monthly dispatch lists of buses along each route, 6 % of buses were examined. It was also applicable to use the systematic approach taking the K^{th} bus alongside the sampled routes. The required information from the selection of buses were the number plates, side reference numbers, and name of the association.

With regard to the sampling of bus terminals, in Addis Ababa, there are six bus terminals. At the time of this study, the Mercato, Shegole/Asiko and Kality bus terminals were operational. The Mercato bus terminal was selected for this study using purposive sampling. It was selected due to its geographical setting and because it is the only national bus station that serves the whole nation. Meanwhile, the remaining two bus terminals; Shegole/Asko and Kality, were excluded from the study. However, it must be noted that there is an expansion of bus terminals in Addis Ababa because of their importance in transport networks (Figure 2.1 above).

A study conducted on mobility is not as easy as is a study on a non-mobile component. However, this does not mean that it is impossible to research it. This study required certain conditions for writing on the questionnaire, necessitating a writing position that was free from jerking in order to perform the task. Because of the nature of bus mobility, the survey took place during the time when passengers were resting, having breakfast

or lunch along the journey. Therefore, the information was collected using the questionnaires during these times.

To ascertain the total number of operators, it was necessary to determine the number of buses that are dispatched from or to the terminal. It was found that there are between one hundred and one hundred and twenty large buses departing from the terminal, and a similar amount enters the terminals, each day. Out of these buses, 6 % were selected (sixty four). This amount is sufficient for this study, because the information is homogeneous. This meant that on each route, about eight buses were selected from both out-going and in-coming buses along four routes. 8*4*2=64 buses. Therefore, sixty-four drivers and operators were selected for this study. It was felt that this was sufficient for analysing the condition of the industry. Moreover, from the sample of sixty-four bus operators, only sixty-two questionnaires were fully utilised for this study; the remaining two were rejected because they were incomplete.

With regard to the selection of passengers, it was necessary to determine the estimated total population of the LDB commuters; this ranged from a minimum of two hundred passengers, which multiplied by each LDB occupying sixty passengers, multiplied again by four terminals and multiplied by a two-way flow or trip, equals ninety-six thousand. This calculation in short, 200*60*4*2=96, 000, gives the minimum total population of informants. The maximum range of total population is 240*60*4*2=115, 200. However, the minimum number of the passengers (100 000) selected was sufficient for this study. Out of these, the researcher took 10 % of passengers from each bus and asked these individuals to fill in the questionnaire. Six passengers from each sampled bus multiplied by eight buses and again multiplied by four routes at two survey seasons, i.e. 6*8*4*2=384. In this survey, three hundred and eighty-four of total passengers were addressed. Of these, only 241 questionnaires (63%) were fully completed and used for this analysis and the rest 37% were rejected because they were uncompleted. The target population or users of buses, operators and passengers, are homogeneous in their nature but heterogeneous in other aspects, such as age, sex, income and profession, which helps the reliability and validity of data. Therefore, a sufficiently sized sample was drawn for homogeneity of information.

In general, to cater for questionnaires and questions that were not returned, the researcher added 2 % of the sampled population onto each class of participants. The

questionnaires were subsequently encoded in the Statistical Package for the Social Sciences, (SPSS) software, for utilisation in this analysis.

Concerning the selection of passengers, this was carried out using a simple random sampling method within each sampled buses. For triangulation purposes, the researcher also included 5 % (twenty-five) of experts from different offices. Out of these, five were from the offices of the City Transport Bureau; five from the heads of LDB associations; five from the owners; five from the Federal Transport bureau; and five from the Mercato Bus terminal. In addition, certain owners and operators, various experts from federal and regional transport offices, heads of LDB association, and people from certain bus terminals were interviewed. Their opinions are sought after, because they have first-hand knowledge of the present levels of service.

The FGD members were also selected by convenient sampling because of proximite to the researcher (Grey 2009)**.** The most FGD was carried out in areas where selected passengers were comped in the closet place**.** See annex 3d**.**

3.5. Data Collection Sources and Instruments: Qualitative and Quantitative

For quantitative approaches, closed-ended questionnaires were included as the data collection instruments. For qualitative approaches, open-ended questionnaires, qualitative interviews, standardised observation schedules and focus group discussions were included.

With regard to quantitative data, questionnaires were used as the main data instrument; this helped to answer the first two objectives of the study, those of the structure and service adequacy of the LDB transport industry. It incorporated eighty-seven questions for operators and seventy questions for passengers (See Annex 2a & 2b). The questionnaires were built from the qualitative interviews, which focused on the main themes that emerged from the interviews. These included the demographic and socio-economic conditions, the nature of driving and training, conditions of the buses, waiting times at bus terminals to get full loads, the roles and challenges of LDBs, the safety and satisfaction of the passengers, the conditions of the bus terminals, the schedules of operation or dispatch, and future demands in the sector. The preparation of the questionnaires was originally developed in English, translated and then retranslated several times to obtain an appropriate Amharic language version, which is the official language of the nation. It was also piloted on a few randomly selected respondents, from

every line in the sample study sites. It was then revised in order to ensure the conciseness, objectivity, and clarity of the questionnaires.

In most qualitative work, certain tools, like interviews, focus-group discussions, and observations tools, are used to triangulate and check whether the data is reliable or valid for the study. Interviews are a powerful tool for helping people to make things explicit that have hitherto been implicit (Grey 2009: Arkesay & Knight 1999). Information concerning the other two objectives, involving roles, policy issues and challenges of the study, was collected using the qualitative process of interviews. Accordingly, face-to-face interviews were conducted with leaders from the offices of the federal and regional transport authority, Addis Ababa City Transport, Addis Ababa City Bus terminal, owners, and different heads of the LDB Association. Among the interviewees, six were from the transport offices at selected destination towns; ten were heads of associations' from destination towns. Interviews were also conducted and secondary source collected from both the EFTA and Mercato Bus terminal.

Interviews were also conducted with inbound and inbound passengers, particularly those involved in the FGD and outbound passengers, only filled out outbound passengers of the LDBs questionnaires. Other than the passengers, data was collected from operators (drivers, owners, and Associations). The survey was conducted on the study sites which were randomly selected.

Additional data collection tools focused on observation techniques. Various types of observation, such as straight and participant, via overt and covert ways, were used (Ranjit 1999; Kitchin & Tate 2000; Grey 2009). This study used the participant observation method by both overt and covert strategies, based on the particular situation. The survey was undertaken in the terminal and was conducted four times on two different travel sessions, such as off-on journey seasons. Two days were spent at off-journey seasons, and the other two days of observation and enumeration of buses took place during on-journey seasons. This was carried out early in the morning, before the commencement of travel by the LDBs.

The focus group discussions (FGD) were recorded by taking notes. Trust was built up between the researcher and the informants during multiple visits. Video and tape recorders were not used during the FGDs, as informants were not comfortable with the interviews being recorded. Following the interviews, the researcher immediately expanded the notes, marking observations and themes. Each FGD comprised six to

seven participants. The FGDs were carried out on two consecutive occasions, during the early to late evenings by the researcher and assistant researcher. The observations were focused and guided by thematic areas, mainly on the structure, service adequacy, roles, and challenges of the LDB system. The FGDs were also used to substantiate and triangulate the questionnaire and interview data.

Direct observation was an additional tool used for data collection; it helped to assess the two objectives of the study, such as the roles and challenges of the LDB system. Observations were also carriedout focused on the techniques and the condition of buses at the terminal as the whole. Most of the direct observation was made in parallel with the administration of the questionnaires. While the employed assistant researchers were engaged in interviewed and mapping, the researcher spent a considerable amount of time directly observing. This was done simultaneously whilst carrying out the physical mapping of the terminals, roads and study area. It was mandatory that the questionnaires and interview questions in all areas follow a sequence of short, easy questions first, moving on to more complex questions. Care was taken to avoid leading and vague questions. The data was collected through a longitudinal survey, and it was more important to examine the existing problems of this study than to survey them cross-sectionally. The longitudinal survey is important to this study in terms of time, appropriateness, access to data, applicability, and representativeness. The data collection was made mainly by using a longitudinal survey, four times at two in- and two out-journey sessions. This was carried out during September 2011, particularly on national holidays, mainly at Ethiopian New Year and Meskel. The next survey was conducted from December 2011 to January 2012 while people were travelling to celebrate Epiphany, and students were on semester leave. The other two survey times were undertaken between October to November 2011 and April to May 2012, both of which are off-holiday seasons. Each survey in this study took about five days, and the total survey time of the study was about twenty days, over two sessions.

The survey data collection was divided into three phases. The first phase was a reconnaissance visit or pilot study. This was done from 1st to 30th August 2011, along selected routes and bus terminals. In this phase, the situation in the areas was visited, the key informants contacted and the general background information was collected. The second and third phases were conducted at two month intervals, from 1 September to 15 January in 2011. During the second phase, both quantitative and qualitative methods of data collection were used to collect evidence. Following the encoding of the data into

the software, it became clear that certain missing and uncompleted data needed to be obtained. Consequently, such data was recorded during the third phase of collecting evidence, using both techniques, during April and May 2012, which is an off season, after which the data was then refined using a questionnaire survey.

Besides the collection of primary data, a number of secondary sources were used. The secondary data focused on sources gathered from the annual reports by the Ministers of Transport and Communication, ERA, ORAAMP & EFTA. Data was also collected from related published and unpublished documents. Analysis was done on reports, minutes of meetings, government policies, guidelines, rules and regulations, articles, government census, proclamations, recordings and maps acquired from the various sources. Additional data source and collection was undertaken using phone interviews and photographs. Travel diaries and traffic logs were used for their importance in social science research. For people who were unavailable for meetings, such as government officials, heads of transport, and the mayor, interviews were conducted over the phone.

Additional data was collected by taking normal photographs, and utilising maps and software. The photographs, taken by the researcher and assistant researchers, were used as primary data to capture the situation and extent of the problems. A GPS device was also used to collect the point data of the bus terminals in the city and towns along the study route. Various categories of software were used, such as Microsoft Excel and SPSS (Stastical package for social science) and GIS software.

3.6. Data Analyses

Data analysis involves the categorisation and tabulation of the evidence – both the qualitative and quantitative data collected in the field. In qualitative work, there is no clear boundary between the data collection and analysis. The researcher engaged in chain data gathering process. After the fieldwork, systematic reflections and analyses were carried out. Different conceptual models, formulations of research questions are also supported by the general analytic strategy.

The analysis of both sets of data, done by combining these into one analysis (integrated), and in other cases using separate analysis, both made by connecting and converging data. This study relied on mixed design and concurrent triangulations and gave emphasis to the qualitative, and less to the quantitative, analysis techniques (Kitchin & Tate 2000; Creswell 2009; Creswell & Plano Clark 2007). Triangulating of the data sources was done across qualitative and quantitative data. It also embedded smaller data within another

large data collection in order to analyse the questions. The large data is the data that was collected by survey from various informants, and the small data comprises those like Focus group discussions (FGD) and interviews, as used for analyses.

The qualitative analysis was made based on an open-ended questionnaire, using questions for formal interviews and FGDs. Triangulation also verified that the data collected in the qualitative process and it was lessor applies in quantitative approach to cross check the reliability of the information. The results were obtained through questionnaires, information collected from reviewing the documents, and photographs used and analysed. GIS software (ArcGIS and Arch view) was utilised to analyse the road network and the flow of buses. SPSS software was used for quantitative analysis in the study. The number of large and medium towns were counted manually from the EFTA data, and Google Earth shows the distance between towns along transport routes.

The questionnaires were transcribed to represent a visual impression and the qualitative findings were analysed by using descriptive exploration. The quantitative analysis techniques include inferential statistics tests, such as analysis of linear regression, and logistic regression and Pearson correlation was also done. Linear and logistic regression models were best suited for this analysis. It is also preferable to use descriptive statistical analysis, such as percentages, graphs, tables, Mean and Standard Deviations, and Variances, as part of the analysis mechanisms.

The variables that used the Pearson correlation are related with the operators are: Level/type of bus, not working days of the operator per a week, the number of days leave the terminal without a full load, the time to wait to get your turn to load, the time to wait to get full load, and others. The passengers related variables that are used to indicate the demand of the industry are: Access to got the Bus when you reach Bus station, waiting time to get bus, waiting time for bus to get full load, time of taking ticketing and preference time for long journey.

The other analysis technique used was calculation and estimation applied to certain figures based on pertinent evidence. The vehicle to people ratio was calculated by taking the current total population of Ethiopia, divided by the total estimated number of vehicles. Ethiopia has a population which was estimated at eighty-six million in 2013 (CSA 2013) and the recent estimated number of vehicles is five hundred thousand in 2013.

3.6.1. Analyses on Questionnaires (Quantitative) and Interview Data (Qualitative)

The analysis focused more on descriptive and inferential statistics. The frequencies and cross-tabulation techniques were also used to examine the distribution and relationship between variables. In addition to the analysis of interviews, questionnaires, maps, photographs, and secondary documents were interpreted in relation to the key issues of the research questions, and incorporated as part of the report.

Interpretive studies seek to explore peoples' experiences and their views on the area of study. Therefore, the interpretations of this study also undertook to do this. Analysing of interviews were done and FGD data was recorded in the interviews whilst simultaneously taking notes. However, as some interviewees requested that they not be recorded, some interviews were conducted using only notes. The recorded interviews were transcribed as soon as possible after each interview. The technique used to analyse the interviews followed Kvale's (1996) five possible methods of analysis: 1) condensation-paraphrasing long interviews into succinct statements or shorter formulations; 2) combining narratives to create a coherent story out of the many facts reported in an interview; 3) interpretation-contextualising the statements within a broader frame of reference; 4) applying condensation of the interviews from the fieldwork by clearing out unnecessary and redundant information; and 5) rendering the narratives to correspond to the predetermined research question which were presented in Chapter One.

3.7. Variables of the Study

At the end of each chapter, I explore the analysis and output of the data shown. This focuses on the relationships between various variables of the study in light of the objectives presented in Chapter One. The general model seeks to address the overall outcome of the study, whereas the specific models focus on each specific objective. The models are important for explaining the whole concept of the thesis.

A theory presents as a visual model, or translates variables into a visual picture or by interconnecting independent, intervening, and dependent variables (Creswell 1994; Kitchin & Tate 2000; Grey 2009). Creswell (1994) has also explained the importance of models used to explain the interaction of variables in social science research. Therefore, based on this, the general model includes the independent variables and focuses on policy issues, structure, dispatch type, rural–urban linkage, the supply and demand situation, and the rate and nature of informality. The intervening variables focus on accessibility, connectivity and the satisfaction of customers served by the industry. Again,

the dependent variables, which consist of the factors for the provision of quality service of LDB and the role of transport for area growth. However, the remaining three objectives are expressed as specific models in Chapters Five, Six and Seven. These models are prominently focused on the outcomes of the study.

This study mainly focuses on the investigation and analyses of LDB in Ethiopia, its structure, sufficiency of service and its role for metropolitan linkage from the periphery to the core of the country. The importance of the conceptual framework is to make the discussion on the issue earlier, explain how the variables are interwoven with each other, and to indicate how one variable affects the other. Thus, it is a good instrument to analyse this research and organise it in practice, because it provides space for views and thoughts about information and relationships in a different way.

The first variable is the structure of the industry. It prominently promotes the distributional flow of LDB, the patterns of bus dispatch, bus growth in levels and their accommodation capacity. Therefore, these factors combine to act as one of the determining independent factors of the industry and a key input for adequacy and service provision for the sector.

The second key aspect is adequacy. Adequacy is seen from both supply and demand perspectives. It encompasses the availability of buses, choice of travel, and waiting periods to board a bus as determining factors. The service provision of the sector has to regulate supply and demand. In short, service adequacy defines supply and demand within the industry. The detailed aspects of adequacy are explained in more detail in Chapter Five.

The rural–urban linkage (RUL) is the other component of the model. The RUL emphasises the physical linkage between the metropolis and hinterlands, mainly by providing road infrastructure, which is beneficial for bringing about connectivity of the regions and creates conditions favourable for population mobility. This road infrastructure linkage has the potential to open up physically inaccessible areas, and the linkage facilitates a favourable environment, connected by different levels of buses. For this practice, the presence of transportation is a predominant, and is highly observable in developing areas. Rural and urban areas are found everywhere, whether they are in more- or lesser-advanced societies, although rural areas predominate in developing regions, including Africa as a whole and Ethiopia in particular. In general, rural–urban linkage plays an immense role in the growth of local, regional and national development. The detailed aspects of rural and urban linkage are explained further in Chapter Six.

Informal PRT are operators who function illegally in the industry, using mainly minibuses, midibuses and other modes of transport that are often lumped together as service options. They provide accessible service to passengers at any time. Accordingly, this informal service is working to deflate the existing demand in the city and in the formal terminal. Therefore, the rate of informal transport may affect the system of LDB transport, which makes it a challenge. On other hand, it also contributes to balancing the supply and demand. The detailed aspects of the rate and effects of informal PRT are explained in Chapter Seven.

It is important to have a policy in place to regulate the various transport sectors. It is likely that this will have a direct link with traffic management, dispatch allocation, service provision and degree of passenger satisfaction, the establishing of fares, inspection process, and travel safety. The research suggestions being provided should inform the policy on how best to utilise the LDB service. It also makes a distinct link between the models' contribution to the improved service delivery of the system and its link with the existing policy in Ethiopia. The details of policy issues and the policy direction of the study are clearly described in Chapter Eight.

The growth of population and economic development are the base for the rise in demand. The rate and level of urbanisation cause a rise in population, which in its turn brings a rise in the demand for transport. Urbanisation is also viewed as a prerequisite for growth and development at local and regional levels (UNDESAPD 2011). Therefore, both population and urbanisation play key roles for the structure, roles, adequacy and challenges of the industry. The detailed aspects of population growth with urbanisation were described in Chapter Four.

Accessibility and connectivity issues are among the intermediate variables. It is linking variables between independent and dependent. For good mobility, accessibility and connectivity are prerequisites. Accessibility is where the user must be able to get bus transport on time, from origin to destination. Whereas, connectivity is conform the service provision and the physical interaction between nodes and it is the rate of route link, even some times the road nature and an expansion of bus terminals. Both have an impact on a passenger's choice and time of use; moreover, if the service is not accessible or well connected, this can cause unnecessary costs to passengers and operators. Thus, connectivity contributes meaningfully to local and regional growth and accessibility to

good mobility. The detailed aspects of accessibility and connectivity of the roads in the nation are described in Chapters Four and Five.

Again, passenger satisfaction is an important issue. Therefore, feedback from passengers helps to determine the standards of the sector by enhancing service provision and area growth. Detailed features of the conditions are determined by the levels of comfort, quality of service provision, co-passenger behaviour, security, terminal facilities, and perceived government supervision in the sector. This study has not addressed this issue, because it is not part of the main theme. However, this might be a potential area for further research.

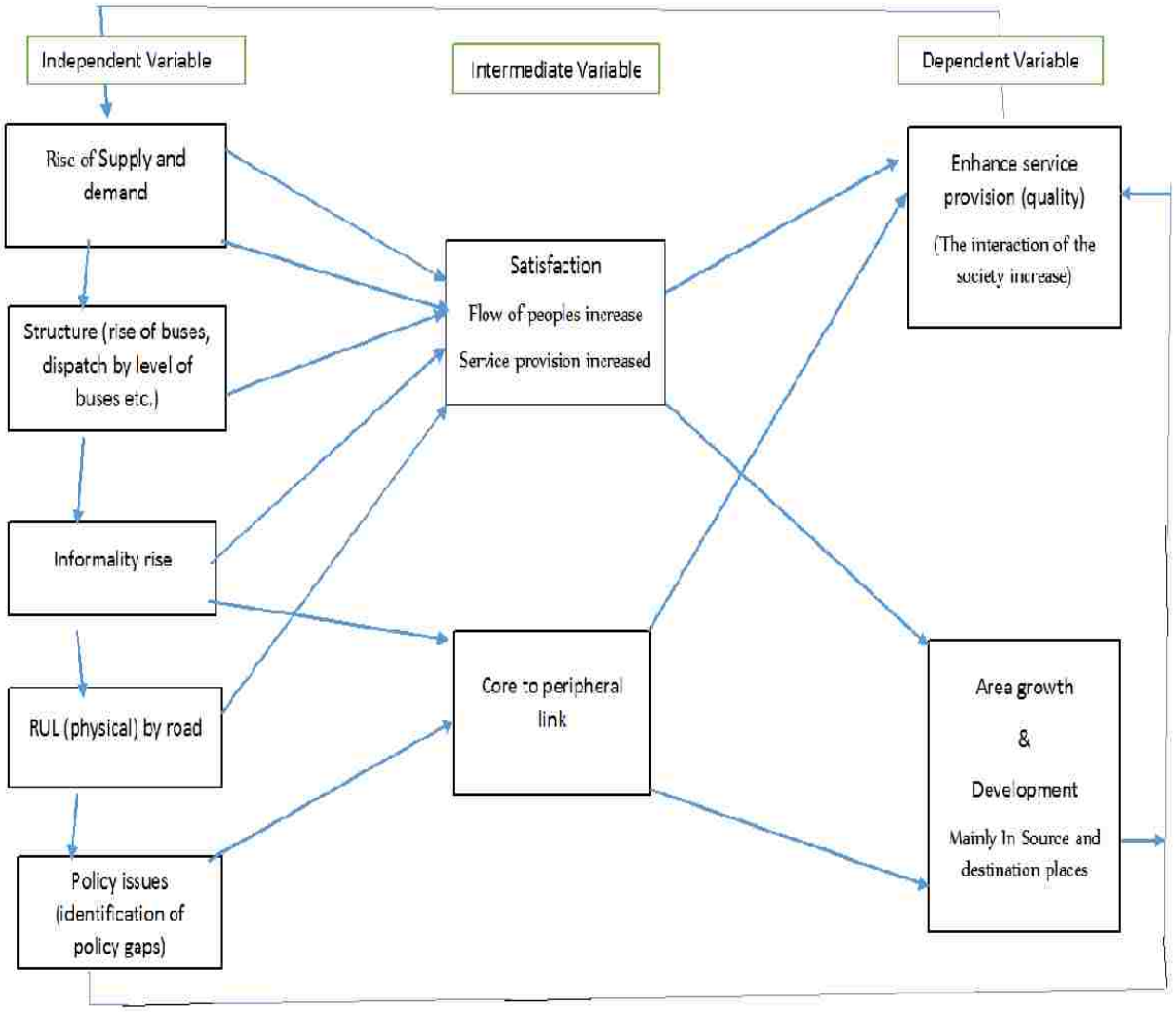


Figure **Error! No text of specified style in document.**3.1: Conceptual model of LDB Transport

Source: Formulated by Researcher in 2012

Note: LDB= Long Distance Bus and RUL=Rural Urban Linkage

Growth and development comprise a multifaceted phenomenon that includes social, economic, and infrastructural features. The mobility of the LDB service can also stimulate the rate of interaction between vertexes: it is a base for connectivity and accessibility. Jean et al. (2006) describe centrality of the node as being attractive for the service provision of the industry. Centrality and connectivity also contribute to the metropolitan linkage of the city. Figure 3.1 above indicates the cumulative interlinks of the structure and flow of the industry; it also shows the connectivity and the provision of service as opening the way for the existence and occurrence of growth and development. Finally, it advocates for less ruralisation and increased urbanisation. Urbanisation is viewed as a prerequisite for growth and development (Harris 1990). The detailed aspects of growth and development are described in Chapter Six.

Lastly, the conceptual model explains the way for enhancing quality and service provision. The notable feature for bringing about quality is the integration of all independent variables. Quality is a perceptual, conditional, and somewhat subjective attribute, which is understood differently by different people. The appearance of quality is interwoven with all the variables in the model. This implies that it plays a prominent role in the system for sustaining the industry. In general, this model clearly explains the overall features of the industry.

3.9. Ethical Consideration

The concept of research ethics refers to the moral principles, which guide research work. The economic and social research council (ESRC 2004) describes it as a science of morality, for conducting research in a responsible and morally reliable way. Kitchin & Tate (2000) explain that in all professional activities, there are ethical considerations, and the same point applies in research areas. The researcher has a duty to be informed of the requisite ethical codes and standards, and informants have the right to expect informed consent, privacy, and honesty with professional colleagues. It also places emphasis on the ethics of research involving human subjects, such as respect of persons, generosity and justice, and not allowing any harm to befall the respondents.

Some key points considered in the study were:

1. Leedy & Ormrod (2001), Grey (2009) recommended that the researcher does not begin the study until (a) the relevant ethical clearance committee has approved it, or (b) the researcher has made any required modifications to the overall aspects of the research methods by getting the consent of the committee. Therefore, an ethics application was

submitted to the ethics committee of UNISA's College of Agriculture and Environmental Science, and to the Head of Research and Publication in the Department of Geography and Environmental Studies at Arba Minch University.

2. During the research, an effort was made to allow for a fair distribution of questionnaires in order to include in the data group, various cultures, populations, situations, geographical places and different language groups. Confidentiality was given to all informants and interviewees, and informed consent was obtained at every stage of this study from all participants.

3. Starting from the development of the questionnaires, up to the end of this study, the researcher endeavoured to use language, which was not emotive, offensive, socially exclusive, or politically incorrect.

4. The results of this work were complex enough and subject to multiple interpretations without misinterpretation, susceptible to differing and unintended usage.

5. Finally, the researcher was committed to utilising the results of this work in an appropriate fashion and to disseminating the results through appropriate and timely journals, conferences, and proceedings.

3.10. Validity and Reliability of the study

The validity of the research study was considered according to the issues of both internal and external validity, respectively. Ranjit (1999), Leedy & Ormrod (2001), UNISA (2007), and Grey (2009) have stated that internal validity of a research study is needed to draw accurate conclusions. While external validity is needed to draw comparisons with other contexts, validation is a tool to view something beyond the specific situations, which were actually studied, such as a real life setting and a representative sampling. For this study, the validity and reliability measurements were made by using both face and content validity. Face validity, by looking at the characteristics of participants, helped to make a subjective judgment; content validity focused on content areas of the topic. Sections of experts were harmonised on the content validity of the English and Amharic versions of the study, thus confirming their compatibility. Data collectors were selected from recent graduates and students at diploma or degree level, who were trained for two days. The researcher then intended to obtain relevant, accurate and reliable data through them. Again, the design of the questionnaires comprised different components, mainly

demographic and socio-economic details. Lastly, this study was tested initially with a pilot study.

In qualitative research, the idea of validity is frequently used by triangulating multiple data sources in search of common themes to support the validity of the findings. This used to take an extensive time in the field, sometimes more than a year, continually observing by using a checklist on the selected phenomenon, and looking for evidence. Prolonged engagement explains the extended duration of the survey, which has to show accuracy and consistency. It is important to test the validity and reliability of the study. See Table 3.1 below.

The other ways of measuring validity are as follows:

1. An in-depth description for section of headings and sub headings was implemented, which guide the reader to understand the theme of study and draw their own conclusions from the data presented.

2. Feedback was received from authoritative individuals working in the field of transports and scholars were asked for their opinions, to determine whether they agreed or disagreed that the research interpretation is appropriate.

3. Validity is not an issue that can be seen only from the scholar's point of view, it also requires the views of respondents. Therefore, the respondents' perception of validity is a good means to judge whether the presentation and conclusion is acceptable or not. For this reason, the researcher sent the document to the selected respondents, to acquire either their agreement or disagreement on the interpretation and analysis.

4. A draft copy of the research and one of the research outcome were sent to the interviewees at the various offices, mainly EFTA & MOTC, for their analysis. In addition, a copy was sent to the Arba Minch University Research and Publication Office, for the staff in the Department of Geography to check and comment upon. These comments were used to refine the analysis of the study.

3.11. Pilot study

A pilot study can be undertaken two ways: the first way is to evaluate the effectiveness of the strategy used, the clarity of the questions asked, and the sampling techniques. The second way is to ask the interviewees to evaluate the questionnaire. Therefore, the quality of the questionnaire was controlled by daily follow-ups and a pilot study was

carried out on a few sample individuals from selected sites at Metehara, Hossaina, G/Guracha and Debre Sina towns. The pre-testing was carried out on 2 % of the passengers and operators along selected routes, and it included a few officers from the Bureau concerned. The Focus Group Discussion (FGD) was conducted at the Mercato bus terminal. By taking this input into account, the questions in the questionnaire and in interviews were pre-tested. In consequence, the researcher effected certain amendments to the questionnaire. This gave considerable input to the researcher as to whether the research methodology was suitable, and how long the full questionnaire would require to complete. The information received was revised and filtered, which helped the researcher to modify the status of questionnaire instruments and inconsistent questions were omitted. The pilot study also helped the researcher to determine how much of the sample population should be taken from the owners, operators, association heads, and traffic officers. However, the sample size of passengers and operators were already determined.

Table **Error! No text of specified style in document.**.1: Summary description of each objectives and the way of data collection, sampling and analysis of the study

Objectives	Information require	Sources of Information	Sampling technique	Data Gathering Techniques	Reliability/Validity	Data Analysis
Explore structure of the LDB transport system and its effects contributing to econimic growth through transport networks by the rate of dispatch and its associated *factors.*	The Linkage structure (road nature), employment, job opportunity, and other	operators, passenger, experts, heads of BT, Association and other,	Systematic, SRS, lottery sampling method, longitudinal survey	- FGD, participant observation , Key informant interview, Questionnaire	- Prolonged engagement	Content, descriptive statistics, document analysis & software application
Focusing on the present service supply of LDB meets the existing demand of passengers, which impacts on passengers' ability to move, it have the stimulating factors and the future threat to the sector that links from the periphery to the core in Ethiopia.	Observing the- nature of supply and demand within the bus & bus terminals & Other.	operators, passenger, experts, heads of BT, Association and, other	Systematic, SRS, lottery method and longitudinal survey,	- Questionnaire, FGD, participant observation with check list	Prolonged engagement	qualitative and Quantitative Analysis like descriptive statistics and others

Investigate the inter-urban LDB system and the role it plays in linking Addis Ababa to other cities and towns contributies to economic growth. It is plays a pivotal role for the society that dwells at origin, transition, and destination.	The roles of LDB inter linking with hinterland at origin, transition and destination towns	operators passengers, experts, heads of BT, Association and other	Systematic sampling – SRS	FGD, participant observation, Key-informant interview & Questionnaire	Triangulation - participant checking	-Thematic content analysis -Qualitative analysis
The major challenges that LDB transport encounters in the development of transport links and its service provision.	-Main challenges of the sector	operators, passenger, experts, heads of BT, Association and other	Purposeful sampling, longitudinal survey & other	- FGD, participant observation, open ended questionnaire, interview with head of traffic officer, head of bus terminals & key experts of EFTA	Triangulation - participant checking	- Content analysis - Qualitative analysis
Examine the Policy gap of LDB transport in Ethiopia	Policy issue of LDB	operators, experts, heads of	Document & interview	FGD, participant observatio		Content &

		BT, Association and other	data's were analysised	n, open ended questionnaire, interview with head of traffic officer, head of bus terminals & key expe1rts of EFTA		Document analysis

3.12. Conclusions

The Second Chapter reviewed the conceptual and theoretical literature, with the emphasis on the rationale issues and empirical evidence of LDB transport. This chapter provides the platform and sets the stage for investigating the objectives outlined in Chapter One. A multiple-stage design of qualitative and quantitative approaches was employed. The pragmatic approach is dedicated more to problems or reality and is less inclined to theory. The researcher preferred to integrate pragmatism, positivist, and interpretive approaches.

The primary data source investigated the demographic and socio-economic situation of the passengers and operators. The sample techniques of data collection strategies were conducted in Addis Ababa at the Mercato bus terminals. The four outlets, Metehara, Debre Sina, Gebre Guracha and Hossaina, were selected by simple random sampling. In aggregate, three hundred and eighty-four passengers and sixty-four operators were selected, both when leaving and arriving.

Analysis was made, placing high emphasis on qualitative, and less for quantitative, analysis techniques. SPSS software was used for quantitative analysis. The quantitative analysis techniques include inferential and descriptive statistics. The results of this study consist of complex aspects and are subject to multiple interpretations. Ethical considerations were also given due attention in all aspects of the research and the researcher has an obligation to respect the right, values, and desires of the informants.

In general, this and other features have been described in this chapter. After considering the detailed features of introduction to the overall research, this study proceeds in the next chapter to examine the structural changes of buses by *levels* and the roles that these play in facilitating movement and in forming transport networks through the nature of dispatch.

CHAPTER FOUR

STRUCTURE OF THE TRANSPORT INDUSTRY IN ETHIOPIA

4.1. Introduction

In chapter three, the researcher explained the methodology of how the whole study was conducted. In this chapter, the first objectives of the study are answered. The objective is to explore the structural change of buses by its levels, and the role that it plays in facilitating movement and forming transport networks through the nature of dispatch. In this study, PRT (passenger road transport) is a generic term, which refers to all forms of passengers in road transport who provide the services by using LDB. It also includes the levels of buses, and priority of service provisions.

In this study, the word structure mainly shows the nature and rate of growth of buses and the dispatch of buses, so structure focuses more on the quantity aspect and less on the quality. This chapter concentrates on the nature and growth rate in the number of LDBs, the structure of the industry, and the growth rate of PRT and LDB. Moreover, in this chapter both the increase of buses and their linkage in order to enhance the local economic development is analysed.

This structure and service levels of LDB transport also connects the core of Addis Ababa to the periphery. (Periphery meaning all LDB connections from Addis Ababa to the major towns that are found outward bound of the country and their role in creating networks for development). However, it does not imply inaccessible parts of the country (Krugman 1991; Fujita, Krugman & Mori 1999; Fujita & Krugman 1995).

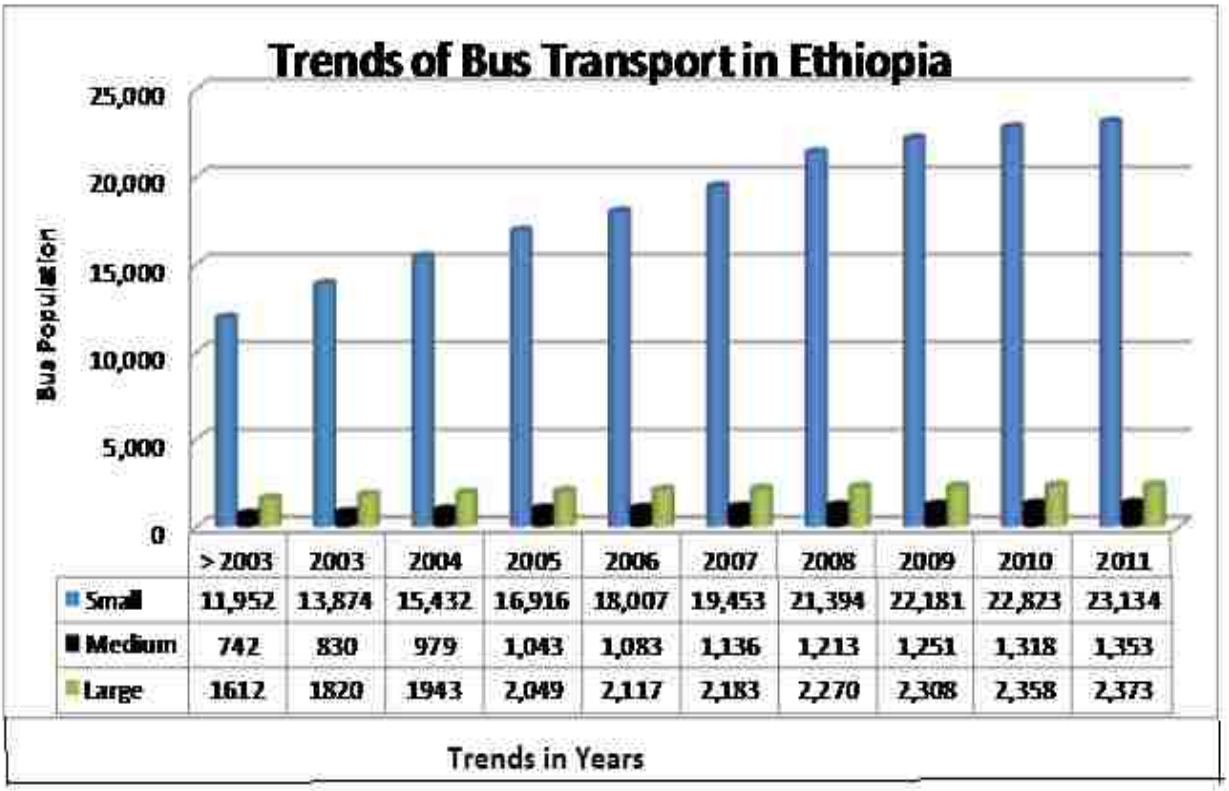
4.2. Growth Rate of Formal Passenger Road Transport (FPRT) and LDB in Ethiopia

4.2.1. Quantity and Growth Rate of FPRT and LDB

Similarly, to analyse the overall nature and growth of large bus transport, let us focus on the small and medium buses first. In the years between 2003 and 2011, there was a slight growth in the use of medium PRT in general, and in the use of large buses particularly. The maximum growth in this industry was in the use of small PRT. Figure 4.1 below shows that at the end of the first decade of the millennium (2011), small bus transport reached more than 23 000. This infers that there were more than 1000 small buses added to the industry annually. The growth of small PRT, was very high and has dominated the industry with small-scale buses constituting 89.4 % of the total industry, with a smaller percentage being covered by medium (4.9 %) and LDB or large buses

(6.1 %). In aggregate, these two types of buses contributed only 11 % growth for the whole PRT. Comparatively, the Ethiopian Federal Transport Authority (EFTA 2011) studies, indicate that in 2010, 13 684 buses were engaged to serve passengers. Of these, 7.75 % were LDBs and the rest (92.25 %) were small and medium buses with 24-44 seats. This depicts that the growth of medium and large buses was relatively low. The LDB has occupied 8 % of the average growth rate of PRT in the years between 2003 and 2011.

The numerical growth of small PRT is accredited to the ease and simplicity of operation and minimum initial investment cost compared to large and medium sized buses. The high purchasing price of long-distance-operating buses resulted in a low development of new routes and fewer numbers of buses. The growth of both medium and large buses has not declined; rather it is growing steadfastly whilst the growth of small buses is increasing alarmingly. This dominance of small buses has pushed many bus companies into the informal transport sector. Even some LDBs have migrated to the informal sector, as many of them could not qualify for formal permits.



	> 2003	2003	2004	2005	2006	2007	2008	2009	2010	2011
Small	11,952	13,874	15,432	16,916	18,007	19,453	21,394	22,181	22,823	23,134
Medium	742	830	979	1,043	1,083	1,136	1,213	1,251	1,318	1,353
Large	1612	1820	1943	2,049	2,117	2,183	2,270	2,308	2,358	2,373

Figure 4.3: The trends of PRT before 2003 and after 2003 to 2011

Source: Annual report of Ethiopian Federal Transport Authority (EFTA) 2012

This significant growth is due to the role of large and small sized buses, which have certainly contributed towards local economic development. This implies that small bus transport is just as important to the industry as large bus companies. All types of buses contribute to the local economic development of the nation. Charles (1894), who stated that transport has high links with economic development, supported this.

In terms of the availability of buses, out of the total PRT and LDB in the country, more than 91.3 % are based in Addis Ababa and the remaining 8.7 % are stationed in other major regional cities (EFTA 2011). Economic agglomeration, diplomatic and political seat, and local and regional office locations are concentrated in Addis Ababa, which is where major road networks radiate from to the rest of the country. The main rationale for the rise of PRT in general and LDB in particular, is due to Addis Ababa's economic might in the economy, its geographic placement and the economic and logistical networks that link the periphery of the country to the core. In fact, the city's large population size and its diverse economic sector, compared to the rest of the country, is a significant pull factor. The transport sector has contributed to development. It correlated with the Central Place Theory (CPT) of Walter Christaller. This linkage of transport focuses on central places, which are surrounded by towns that are situated in between the large (central place) city, and at least one other supply city (Michael 2005; Oliver 2012).

The ratio of vehicles to population in Ethiopia is very low, below three per thousand in 2007 (World Bank 2011). The current estimate of Ethiopia's vehicle to population ratio has doubled by approximately 5.8 per 1000 people (0.0058). This ratio was calculated by the current total population of Ethiopia divided by the total estimated number of vehicles. Ethiopia had an estimated population of eighty six million in 2013 (CSA 2013). Such a significant increment may contribute to the rise in bus dispatch towards most areas, providing one of the safest ground transportation services to the community. However, in one way or another, these buses yield the local economic development of the nation.

4.2.2. Rate and Amount of Long Distance Buses (LDB) by level

4.2.2.1. Concepts of Making Buses in Levels and Criteria of Levelling

The term "level" refers to the status of the commercial PRT as per the rules and regulations of the Transport Authority. Generally, there are two major categories of LDB transport: Special (extra ordinary status) and Formal LDBs. The formal buses are classified by levels. These levels are classified into three classes namely; level one, level

two and level three. The concept of levelling is a new system in the industry; however, a remarkable change in the industry has been brought about since the establishment of the nation-wide business process re-engineering (BPR) in 2009. The idea of categorising buses into three different levels started in 2009. This new concept has flourished due to the fact that of the old system administers all very out dated and they used unsafe buses for user so that the government get rid of from the LDB.

The government of Ethiopia introduced a new system of levelling buses, based on service year of the bus, the year that the bus was manufactured, its service facilities and safety (EFTA 2011). In this concept of levelling, these three components have equal importance, and each criterion is approximately 30 % or one third of the whole. The first criterion focuses on the year the bus was manufactured. As the age of the bus increases, its performance and facility decreases. Approximately 30 % of the whole criteria such as the service year, facility and safety features.

According to Transport State Transit (TST), motor vehicle emissions are the main source of air pollution in major cities, making a substantial contribution to greenhouse gas emissions. The new buses introduced into our fleet emit less than one-tenth of the particular matter emitted by older buses. Old buses also contribute more for the supplying of emitted substance because of them used both diesel and compressed natural gas (CNG). This implies that the old or level three buses make more of an impact on the environment than level two and one buses.

Secondly, the facilities available within the bus, is another significant factor in the levelling process. This includes the overall condition of the bus, seating, air conditioning, neatness and cleanliness of the roof and floor, electronic entertainment devices and refreshment services. The last component taken into account during the process focuses on safety devices, including the availability of fire extinguishers, insurance, first aid kits, emergency exits and safety belts. These safety aspects are the most important elements in the bus levelling procedure, as the transport industry is more susceptible to accidents than any other sector.

Every bus must go through this process, and a score is awarded accordingly. A total score of between eighty and one hundred points qualifies as level one. A score of between sixty-five and seventy-nine point nine, nine, qualifies as a level two. The level three category must score between fifty and sixty-four point nine, nine points. All the buses, which scored below the fifty threshold points, are given the opportunity to upgrade

and improve the facilities and have a re-inspection. If they pass the inspection, the government issues them a level 3 status. Any buses that fail the inspection will be unable to operate until they do pass inspection.

According to EFTA regulations, the level status granted, is only valid for the duration of a year. The inspection of all buses is repeated annually. The law enforcement departments constantly monitor the standards of all buses. The Associations and the owners of the buses work to maintain the status level they have been granted. This process helps to keep owners maintaining the buses and therefore their status.

The other identification technique used for the levelling process is coating the buses, in different colours. Operators must coat buses using selected standard colours. The number plate of the bus in conjunction with the colour helps passengers to distinguish which bus they want to take. This colour coating is particularly helpful for passengers who are illiterate because 60 % of national dwellers are illiterate in 2009 (MoE & MoFED 2010). The Ministry of Transport and Communication has specified that all special buses, which provide very advanced service compare with formal buses and it should makes them special.

Level one, two and three buses are coated white on the main body, with the top half-coated green, blue and yellow respectively (Photograph 4.1 below). In general, the policy of the sector was adjusted as per the MOTC (2011) to ensure a level of standards that worked on all PRT. Thus, creating these divisions is the most decisive component in rendering the service provision of the industry more effective.

Photograph 4.1: Buses are identified by colour according to their levels

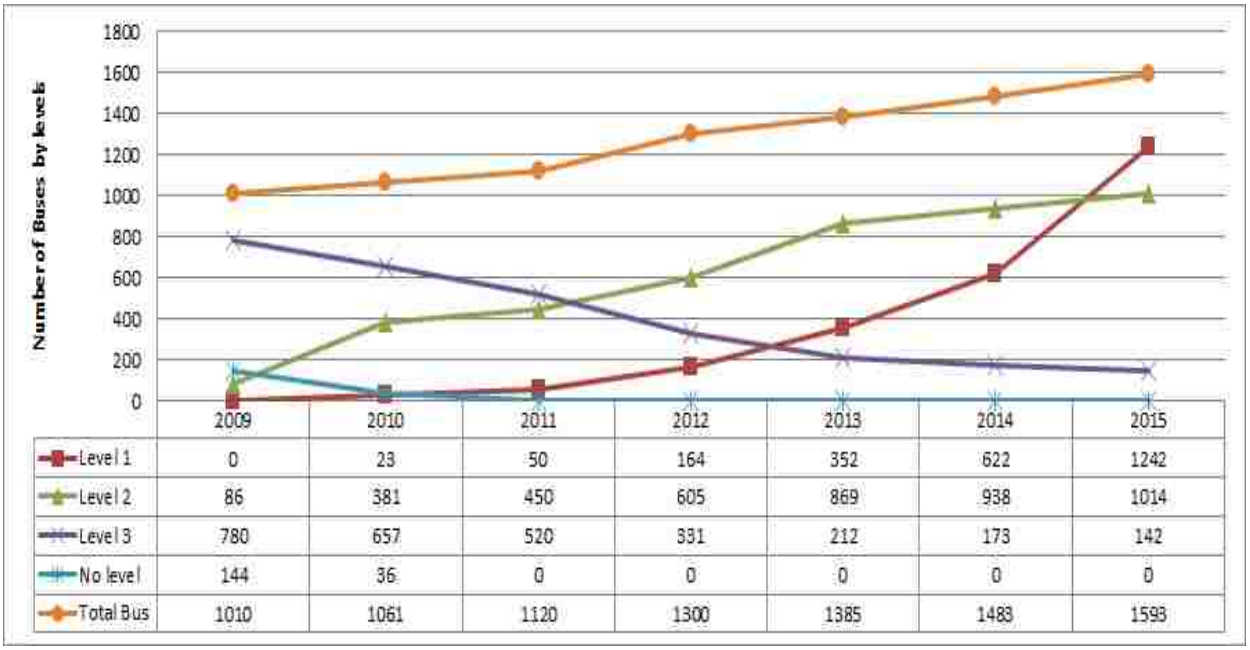
NB: The first, second and third levels of buses are coated in green, blue and yellow respectively.

Source: Own images.

The process of assigning buses levels has brought about significant progress in the industry's service provision; ticketing, dispatching, selecting routes, deciding trip fares, extending the service to all parts of the nation have all improved. If the levels goes up which mean level 1 buses are provided better service than level two and three respectively. Therefore, throughout this thesis and this chapter in particular, the levels reflect the rank of service provision. The advantage of this for the operator is that it creates a healthy competition between operators and owners. The levelling process is determined by age, technical standard, mechanical fitness, types of colour coated and others.

4.2.2.2. Amount of LDB buses in Levels and Effects

This section explores the overall nature of LDB transport and effects on environment and social ties. The numerical growth of the industry can be seen with the prevailing division of buses by levels. However, the prevailing growth has affected certain things such as the environment, socio-economic ties, and psychological. The growth of LDB transport has shown an increase, with a very high escalation in levels one and two buses. The commencement of awarding grades or levels to all PRT vehicles, started two to three years ago and it applied fully to buses used for intercity travel.



	2009	2010	2011	2012	2013	2014	2015
Level 1	0	23	50	164	352	622	1242
Level 2	86	381	450	605	869	938	1014
Level 3	780	657	520	331	212	173	142
No level	144	36	0	0	0	0	0
Total Bus	1010	1061	1120	1300	1385	1483	1598

Figure 4.2: Total amount of LDB by levels

NB. The figure shows the cumulative rise in LDB

Source: Federal Transport Authority, 2012

During the time of this survey, the total number of LDBs in the sector was 1010. Of these, nearly 780 (76.4 %) were categorised as level three, while 86 (8.5 %) were level 2 and 144 (14.2 %) were below standard (Figure 4.2 above). In 2009, right through to the middle of 2010, no buses were classified as level one. In this year, although there are still no level one buses, the amount of level two buses are increasing. The amount of level three buses was high, yet the numbers are declining, the reason for which one can only conclude is that the service provision is poor. This implies that the service provision in all types of buses is very poor.

As indicated in Figure 4.2 above, after mid-2010 the amount of large buses with level one status reached 23 (2.1 %), the remaining 657 (62 %) and 381(35.9 %) were given the status of level three and two respectively (MOTC 2011). The reason being, that the majority of large buses were old (Table 4.2 below). From this data, one can infer that buses have been serving for more than fifteen years, are contributing to the low quality of service. This would also influences the socio-economic effect on society (Charles 1894). The fact that these buses were rejected and passengers did not want to travel on them has a negative socio-economic effect, which affects the income of owners and operators. However, it does not mean that the levelling process is not necessary. That is why the researcher argues that it has a seemingly negative effect on level three buses

and level two buses will be affected in the future. In the end those do not qualify for level three are engaged to provide a taxi service in the city. This implies that below level three buses are discarded from the long distance traveling.

The environmental effects are seen because older buses release more carbon into the atmosphere. However, Ethiopia scored the least recorded emission rate the world. The CO2 emissions generated by combustion motor driven transport (a million metric tons) in Ethiopia were last measured at 2.87 in 2011, according to the World Bank. This applies to all modes of transport, whether sky, land or sea.

A review in EFTA (2011) states that among the total PRT, the majority of buses existing in the industry were level two and three; which accounts for 51 % and 40 % respectively. These two levels comprise 91 % of the total industry. In the meanwhile, level three buses were declining in number. In 2009, for instance, level three buses that constituted 76.4 % of the whole LDB industry, shrank in 2010 to 62 %, in 2011 it dropped to 51 % and in 2012 to 30 %. This implies that passengers were unhappy with the quality of service, age and safety of level three buses. These buses may be prohibited for long distance travelling, and some that did not qualify for level three statuses, are used as taxis in the cities. This then ensures that all buses are checked according to the standard criteria set by the Federal Transport Authority.

In terms of quantity, there is less level one bus compared to other levels. Level one buses account for only 6 % in the sector. Because the number and coverage of level one buses is small, the quality of service in the sector is poor. Approximately 4 % of buses included in the levelling system were unable to cope with the new standard and old buses that were incompatible with the new technology.

In Figure 4.2 above, there was a gradual escalation of first and second level buses in the years between 2009 and 2011: this was because the government invited some investors into the industry. There were no level one buses until the middle of 2010, and an insignificant number of level two buses. EFTA (2012) indicated that level one and two buses increased between 2009 and 2012. However, 2012 is a remarkable period to observe the growth of level one buses that further constituted 115 % in the years 2011 and 2012. In 2012, the growth of level one buses took a remarkable time, and when the government indicated a big transformation in the sector, when the government resolved

to increase the efficiency of service provision, by applying Business Process Reengineering (BPR). Michael & James (2006) stated that the concept of BPR, is the analysis and redesign of workflows within and between enterprises in order to optimise end-to-end processes and automate non-value-added tasks. However, in this sector it is also a system that the Federal Transport Authority is going to make changes to, in order to optimise its service and satisfy the traveller. This transformation enabled passengers to choose the best available services based on their preferences and income level. Passengers' preference is determined more by the affordability of the ride than the services. Thus, levelling has brought about a visible change in the industry.

The growth of level two buses has been high in the budget year of 2009/10 and 108 % in 2011/12. The service coverage of levels one and two buses is growing at above 100 % per year. This again implies that almost all buses that fall into the level one category take priority over levels two and three, when it is being dispatched to selected routes. Therefore, level one buses get priority when selecting routes, followed by levels two and three.

Out of these, in terms of quantity, the lions share took level two and three respectively. However, fewer numbers have also been seen on special and first level buses. Figure 4.2 above shows that levels one and three buses contributed less service. However, level two rose in 2012; on aggregate its coverage extended to 1350 (EFTA 2011). This implies has the operators been provided an optimum service. The levels of buses changing brings an increase in the cost of each trip. During the period this survey was conducted, it was found that levelling makes a difference to the cost of transport. For instance, the transport cost or tariff stated by the government for a level one bus from Addis Ababa to Arba Minch is 150 birr and it will show on average 5 to 10 birr reduction in level. The difference in the fare between level one and level three is ten to fifteen birrs per trip. The costs for trip would be put into as more on level one than two and three buses respectively. Therefore, it is advantageous for commuters, to use the buses that they can afford.

It may happen that the government decides to follow the ideas of Neoliberalists, who advocate extensive economic liberalisation and free trade. The government could also let this sector for the private sectors only. However, the survey showed that the private sectors are more worried about how much money they are making than providing good

service and therefore, satisfying their commuters. However, this does not mean that the government should stand to one side; it must be involved in the sector, formulating policies and administering them in an effort to satisfy passengers.

In 2012, the total number of all formal and special LDBs in the city, was approximately 1350. However, the EFTA (2011) report, explained that there had been a slight growth in the total number of large buses, and that there were more than 14 234 in the nation. Of these, the city of Addis Ababa accounted for 91.3 % of all the large buses in the nation. The other 8.7 % were working from cities that radiate from other major towns in the country. The high availability of buses in the city of Addis Ababa shows that the city tried to provide a radial service to the peripheral areas in the nation. This on its own, contributed towards core and peripheral linkage of the nation, as explained by Krugman (1991).

4.3. The General Dispatch of LDB by Levels and Its Major Factors

4.3.1. The General Dispatch of LDB by Levels

These dispatches are structured according to the level of buses with its stimulating factors why the flow of buses high in selected routes and low in others. The study focuses mainly on the factors that stimulate the flow of buses along the outlets. In this survey, the rate of dispatch of buses off-road before 2009, was seventeen but after 2009, it has continued to increase. The survey clarified that the Mojo and Dessie lines have a high flow of LDB and the Jimma, Gojam and Nekemite lines have less flow (Figure 4.3 below).

The survey also shows how the flow of buses has contributed to local economic growth, and the application of the core to periphery theory.

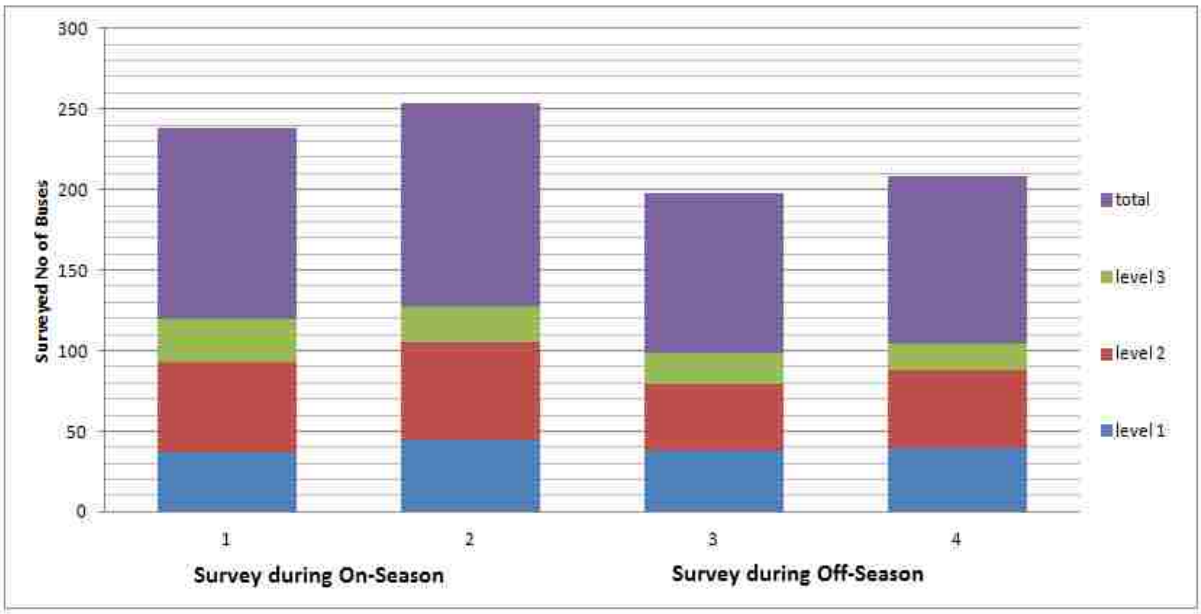


Figure 4.3: The amount of Buses dispatched per day from the Mercato Bus terminal during the survey

Source: Researcher's field survey in 2011/12

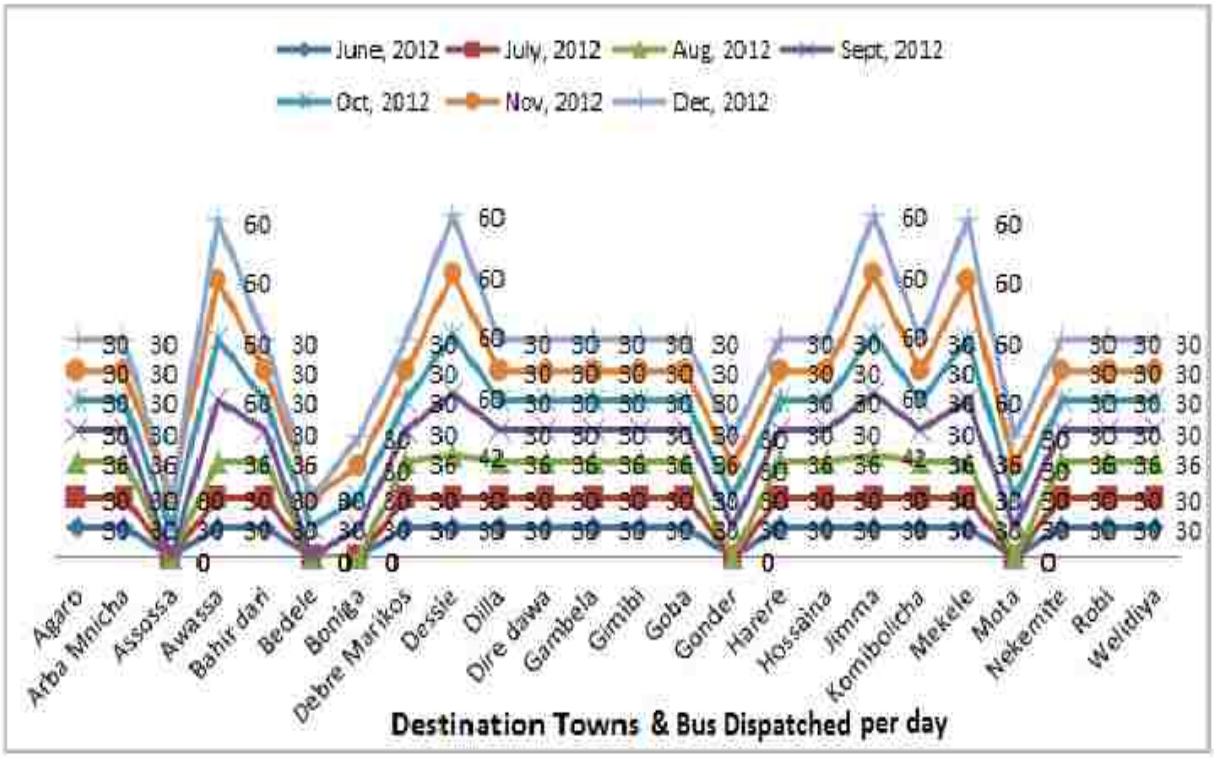


Figure 4.4: The dispatch of Level one buses

Source: (EFTA 2012)

The survey that took place at Mercato terminal was to establish the flow of the different levels of buses. The terminal can accommodate around sixty buses at a time. The result of the survey, shown in Figures 4.4 above and 4.5 below indicates that the number of buses distributed per town is almost equal at approximately one to two buses. Figure 4.4 above shows that the highest flow was recorded from September to December. In terms of the dispatch of buses according to their levels, level two was 45 % and level one was 36 %. Level two buses covered almost half the total dispatch of all buses. The combination of levels one and two constituted 80 % of the whole industry.

On average, there would be some difference in terms flow between off and on seasons in the industry. The average flow during on-seasons is approximately 123 buses per day, whereas in off-seasons, it was approximately 101. However, the total accommodation of buses in long distance travel range from ninety-nine to one hundred and twenty seven per cent. On average, 111 buses per day utilise the terminal. During on-journey or peak seasons, journeys from the centres to other parts of the country or visa-a-vis, or core to peripheral linkages of towns, are undertaken.

4.3.2. Factors influencing expansion of LDB transportation

The study revealed that various factors make a difference to the bus flow along the route. The stimulating factors for increased bus flow along the main outlets have a high correlation with the population density, economic activities, social and political variables, the rate and level of urbanisation, topographical and infrastructural facilities. These factors are considered the main factors for increasing or decreasing the flow of buses on the various routes. Among these components, the size of the population and socio-economic variables, have the most influence on the rise of bus flow. The socio-economic factors are inseparable variables, but in most cases, these two phrases are termed as a single word. The type of economic sector in which the community are engaged such as agriculture, forestry, manufacturing, industries and raw material locations, trade and tourism activities are among the foremost reasons for the rise in bus flow on certain routes. Therefore, the socio-economic factors contribute a lot for the linkage of areas and for the local economic development as stated by Charles (1894).

In third world countries like Ethiopia, the agricultural productions are a base to make the flow of peoples in the nation. The Ethiopian population is predominantly agrarian, which accounts for 85 % of the total population (MoFED 2006, 2010). The country has one of

the highest concentrations of cattle in Africa. Ethiopia is a major producer of cash crop products such as, coffee, pulses and oilseeds, cotton and flowers, and food crops such as wheat, barley, sorghum, corn and enset (Jordan & Emily 2011). Depending on the ecological zones in the country, the Amahara and Ormoya regions are major producers of food crops and the South, south West and Eastern parts of the country are predominantly cash crop producers. The advantage of the location of a place is that it contributes to the spatial aspects of economy, human settlement, service competition and, more generally, consumer behaviour on LDB transport. It has strong ties with the location theory (Block & Dupuis 2001). Thus, the flow of buses and other road transport is frequent on the routes between the source of the raw material and the location of the market places.

The social features include the presence of public institutions such as health centres, schools, law firms and courthouses, administrative offices and entertainment destinations, are major contributors in determining the level of bus flow. For instance, in 2011 there were thirty-one government universities distributed relatively evenly over the nation. These universities and colleges enroll more than 1.5 million students every year Ministry of education (MoE) 2010). Of these, one-fourth of them need to get the LDB service during the entry, exit, and holiday weeks.

This survey concluded that most interurban long distance journeys have primarily taken place for education and training (33 %), followed by government work (14.1 %), entertainment and social functions (14.1 %), trade activities (22 %) and other (14.1 %). The other includes the occasional travel of passengers. Of these reasons, education and training have more than a one-third share of the whole industry. The maximum flow of buses is seen between Septembers through to December. Thus, one can infer that from August to September the flow of all levels of buses show a slight increase. September is the beginning of the school year and it is a month of various holidays such as the Ethiopian New Year (Enqutatash (New Year), Berhane-Meskel (Finding of the True Cross). September is considered the both the busiest and holiday month of the year This season is called a Meher season in which sorghum, corn and long-cycle crops are harvested in the south and central Ethiopia and teff, wheat and barley are harvested in most parts of the country. This high harvest season enables the producers to transport their products to the market and get cash money, which is used to travel for pleasure and make busy to visit their relative in elsewhere in the nation. Thus this special time of a year, may contributes to the socio-economic development of the nation.

The climatic in Ethiopia ranges from arid, semi-arid, tropical, sub-tropical, and temperate to afro-alpine. The country experiences four clear seasons in the year. The summer is known as 'kiremit', and runs through June to August. Followed by the spring (Tseday or meher) and is known as the harvest season, which goes from September to November. It is replaced by a dry season known as Bega (winter) from December to February. The 'meher' season is the main crop-producing season, producing 90–95 % of the nation's total cereal output, and the Belg harvest provides the remaining 5–10 % of cereal output. Any crop harvested between September and February (USDA 2008; Walter & Mathewos 2001) defined the Meher crop season.

The political factors are also sometimes a reason for the emerging and expansion of regional, Zonal, and Wereda capitals and it took as an input for the rise of bus flow. The political attention is an attribute for the flow of people. Addis Ababa is the first modern headquarters in the nation, which has been serving as the political, economic, geographic, and social capital of the nation since its establishment in 1896. According to AACGO (2011), ERA (2005), CSA (2007) and EDHS (2011), Addis Ababa is one of the most important international cities and it is popular for use as a centre for tourist conferences. It is known as the diplomatic capital of Africa, as it comprises over one hundred embassies and diplomatic missions from all over the world. Addis Ababa is the only city that has not been established at the port; unlike other African cities, which were primarily designed as a raw material storage centre for colonial masters. Thus, the city becomes an outlet and an inlet to the national domestic and international community. Beside with political aspect the social issues are also plays more for the rise of bus flow in all corners of the nation regardless of its seasons (off and on).

In terms of its geographic setting, Addis Ababa is located at the heart of the country, which covers a total area of 540 square kilometres (208 sq. mi) (ERA 2005; CSA 2007; EDHS 2011). The city is almost half the size of New York City in the United States. The city's location at the centre of a compact country like Ethiopia plays a significant role when it comes to connecting to other major cities. This reduces the length of travelling time for passengers and keeps unrefrigerated goods and commodities as fresh as possible (Map 1.1 above). Moreover, the LDB make the city of Addis Ababa is usually get and provide radial linkage with various towns and cities in the nation because of it is the headquarter of the nation, and it has also less role is to be play as a springboard that helps to pass to other areas. The study found that on average the distance covered by buses was approximately six hundred kilometres. The geographic placement of the city

is advantageous because it is right in the centre. This idea is, to some extent, supported by the geocentric model or geocenterism and commonly made observations supported the idea that earth was the center of the universe (Kuhn 1957). The benefits of being at the center are reduce the passengers time, easy access to fresh materials, fast connection to air cargo specially floricultures, apiculture horticulture, vegetables, and meat from the hinterland and periphery.

The other factors that makes the city has an exceptional linkage with the hinterlands is due to the predominance of other modes of transport such as air and railway. In addition, it is the concentration of different federal offices, international NGOs, and embassies. This makes all the international mobility was carryout from and into Addis Ababa. Therefore, it plays a leading role for the growth of towns by making both direct and indirect links and contributes more for the emerging and rise of towns along the route. Moreover, it contributes a lot for the metropolitan linkage of the city with the hinterland closest to the city. Even to some extent, it can create more for the formation of urban sprawl and conurbation (Fekadu 2013b).

The infrastructural facilities include road, rail and other modes of transport that play a great role in linking the city with the hinterlands. Of course, the concept of infrastructure has generic words including roads, bridges, tunnels, water supply, sewers, electrical grids, and telecommunications. However, in this study the concept of infrastructure focuses on modes of land transport such as road and rail. However, the access or frontage roads linking to the highway roads are not yet asphalted (ERA 2005). Therefore, this factor has relatively little input for the increase of bus transport compared to social and economic factors.

MOFED (2010) proclaim that in the coming five years, a 2 395 kilometre railway will be built, reaching in all directions of the city. The railway from Dire Dawa to Addis Ababa already existed but it will be maintained and stretched to Mekele, Bahir Dar, Hawassa, and Nekemite. For instance, the direct link is to Dire Dawa, Hswassa, and Nekemite; the other lines Mekele, and Bahir Dar, have an indirect link. Formerly, the nation had a small distance of rail coverage, from Addis Ababa to Dire Dawa, which is only five hundred kilometres away and has limited service. However, for the future, the government plans to construct a railway five times of the existing railway amount up to 2015/16 and it will be relatively evenly distributed throughout the nation. The infrastructural facility seen in the nation is the expansion of railway transport. If there were a little bit infrastructural

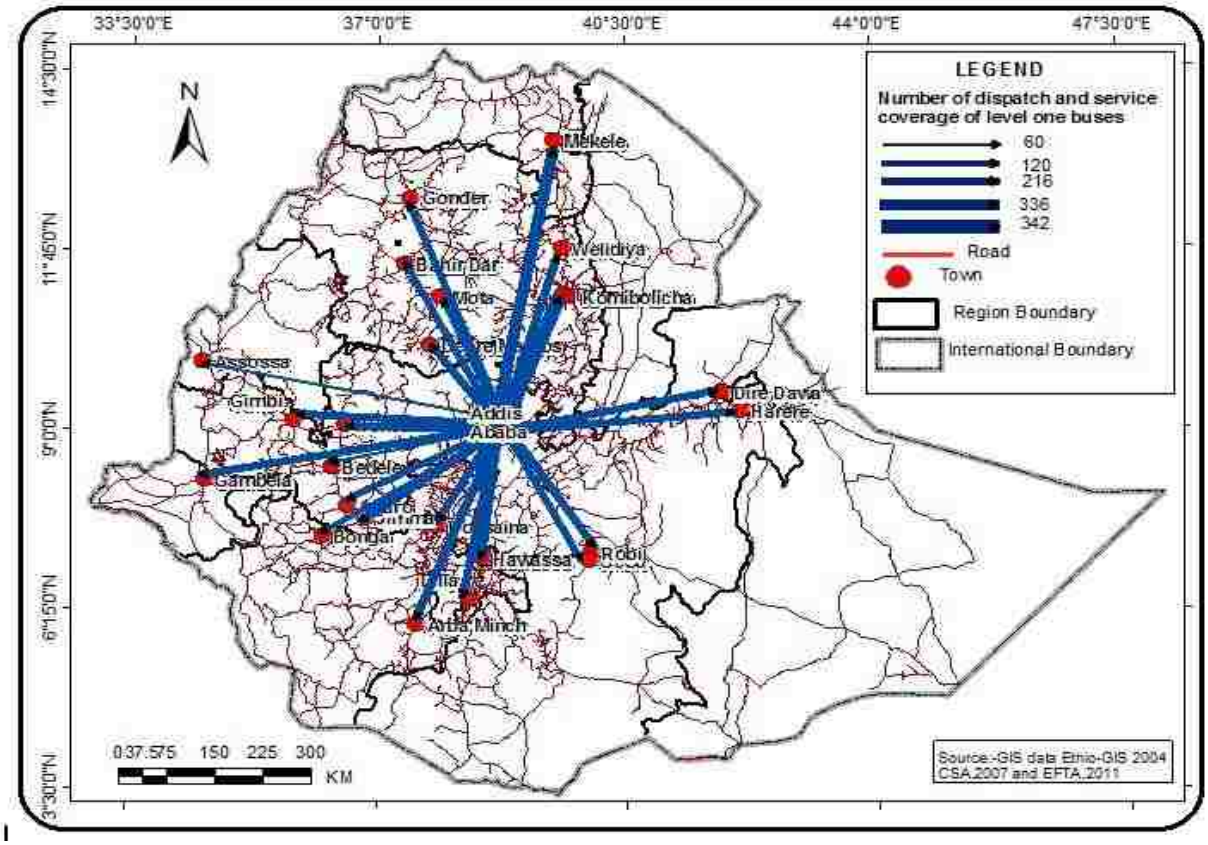
facility added, it would be contribute more the industry and it may initiate the interest of operators to stretch the service into other inaccessible places.

Transport investments are a ‘two way street’, for example, according to Romer (1994) linking a core to a peripheral region might be of more benefit to the former investor rather than the latter. This is an issue that the economic geography theorists seek to illuminate. This shows the role that transport has played in linking the core to a peripheral region. This linkage also contributes to the local economic development (Gunter and Scheepers 2012). The core–periphery theory is also applied to bus transport, where it links cities and towns and connects with central hubs. Addis Ababa has played a great role in linking various geographic placements because it has links with the surrounding central places. It played as a source of market centers, taking political attention and it would play as core role, and a center of population distribution.

4.3.3. Monthly Rate and Flow of First Level LDB Dispatch per Outlets with Specific Factors

This survey captured the first level buses interlinking with twenty-three major towns (Figure 4.4 above). However, it was found that the level one buses cover specific parts of the country (Map 4.1 below). For instance, Mekele, Dessie, Jimma, Hawassa and Shashemene have been receiving a disproportionate amount of level one transport. The total cumulative flow of first level buses observed at these towns, was sixty buses per month and at least two buses per day (Figures 4.3 and 4.4 above). The suitability of the roads and the increasing demand for bus services could be the main rationale behind this. It was also found that the socio-economic activities of society such as trade activities have contributed towards the rise in linking the hinterland and periphery with the metropolis. Other factors contributing to the rise in dispatch of buses around these areas are that they produce both cash and food crops. Most parts of Ethiopia, especially the northern and central parts, produce predominately cash and food crops (USDA 2008), which also contributes to the increase. Coffee is the dominant plant in most southern areas specifically in Gedeo-Yirigachefe, Kaffa-Shaka, Jimma, Sidama and Hararge. Khat is also grown in the whole of the south; in Sidama zone, Gurage and Silitie areas, and in Oromia, Jimma and Hareregie regions. Natural resources like minerals, the presence of industry and manufacturing sites, and trade activities also contribute to this flow. These towns are in areas using the highest share of the service coverage of level one buses, which contributes towards economic development and area linkage.

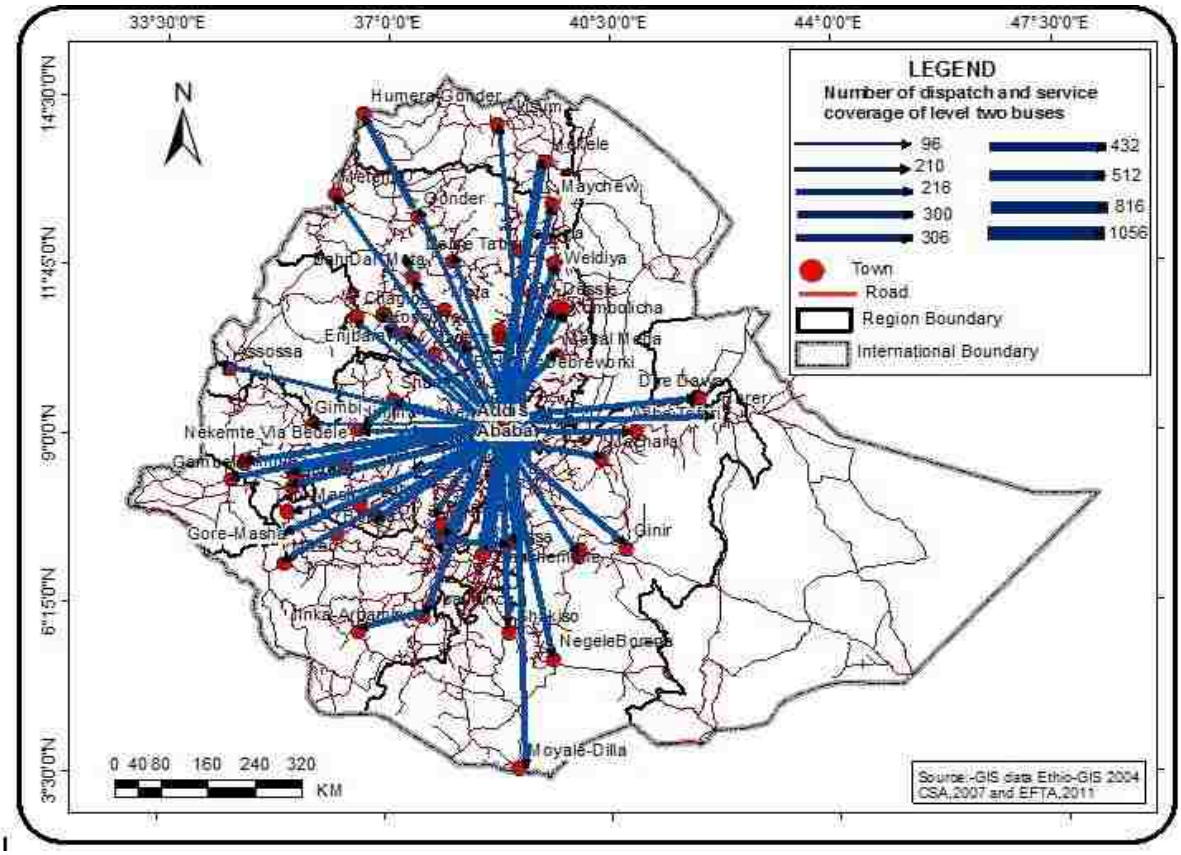
The lowest flow of first level buses was also recorded in major towns such as Agaro, Gambela, Goba, Bedele, which get thirty buses in each town per month. Figure 4.4 above shows that out of the twenty-three towns that get service, more than half (60 % get at least one bus per day). This does not mean that they could not get the other level of buses. These areas get all types of bus services. In general, most of the time, the first level buses interlink the very long distance routes, covering approximately 700 km (Table 4.3 below). Maps 4.1 to 4.3 below and Map 6.1 below, show the total dispatch of buses per town, calculated on the data of half a year. In this Map, it shows that the maximum flow of buses was seen along the north and south-western parts of the nation. This implies that these areas are highly interlinked with the core, Addis Ababa. Again, it is due to the geographic proximity and placement of at the center, infrastructural facilities, that makes the city to provide transitional service to the other destinations. However, as Map 4.1 below shows, the peripheral parts of the nation are addressed by all level (1, 2 and 3) of buses. This may imply that first level bus transport contributes less towards core and peripheral linkage. This result is expressed by the location theory of von Thunen by Block & Dupuis (2001).



Map 4.1: dispatch of level one buses per towns over six months

4.3.4. Rate and Flow Direction of Level Two and Three Buses

Map 4.2 below and Figure 4.4 above prove the nature and total flow of second level buses. This shows that level two bus services are addressed to more than seventy major towns. This is three times higher than the distribution of level one buses. Level two buses have a significant link to Hossaina and Jimma towns in the South Western parts of the country because the areas are geographically proximate to the core. It is explained in the location theory of (Block & Dupuis 2001).



Map 4.2: dispatch of level two buses per towns

In the study, the dispatch and service coverage of LDB before and after 2009 were compared. The year 2009 is marked as a significant period in which the government went through the BPR. According to the ORAAMP study in 2001, the average daily dispatch of buses released from Mercato bus terminal to major cities were Dessie (22); Mojo (21), Jima outlet (14), Gojam (14), Nekemite (13). The average flow of buses was seventeen at each outlet. From these outlets, a relatively high dispatch rate was recorded along the Dessie and Mojo outlets. Compared to the recent survey, the previous amount of buses dispatched along these lines was very high. An example is, the flow of buses in Mojo and Dessie outlets reached thirty eight in 2012/13, which is very high compared to the average dispatch of LDB at all directions which is thirty two buses. These two lines are the busiest lines in the nation (Maps 4.1 above to 4.3 and Map 6.1 below, Figure 4.3

above, and Figure 4.5 below). The other relatively small figure is covered by other outlets (Gojam (25) and Nekemite (26) (Figure 4.4 above). These figures imply a strong bond between these routes and the city of Addis Ababa.

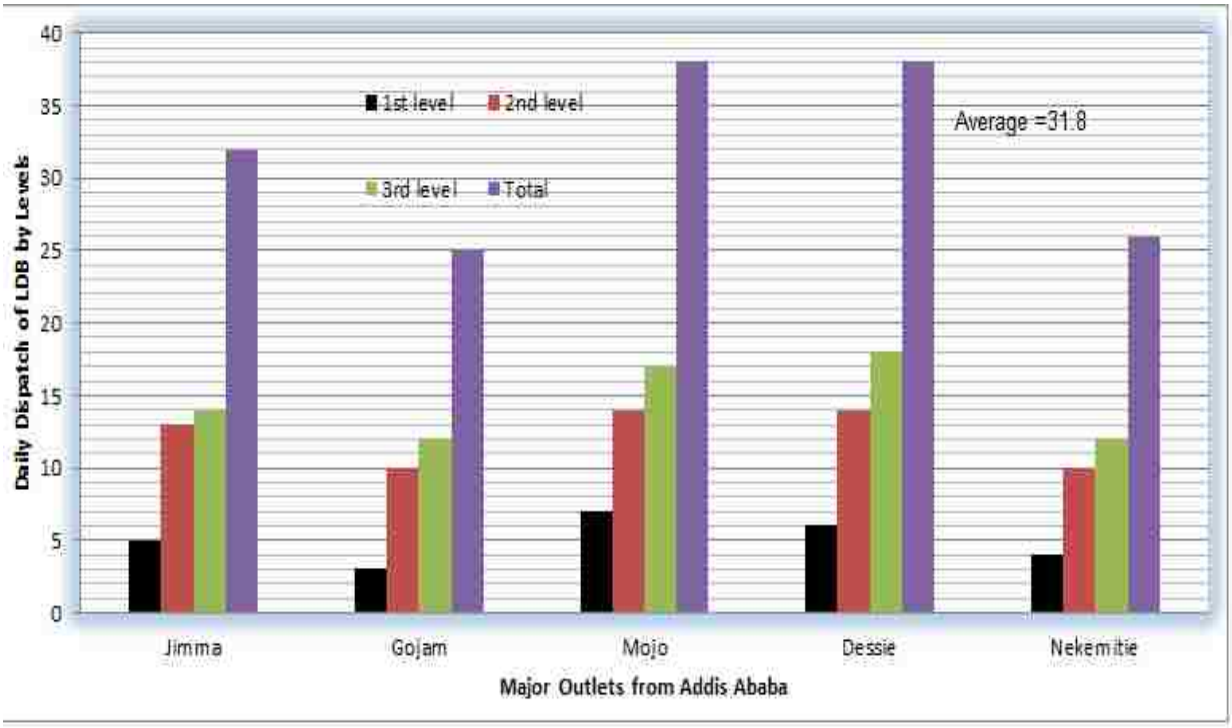


Figure 4.5: The daily dispatch of LDB from Merikato bus terminal in Addis Ababa

Source: (EFTA 2011, 2012)

A significant flow of LDBs has been seen along Mojo outlets. This outlet connects major cities such as Ziway, Hawassa and Shahsemene. The Addis-Mojo outlet is a major route connecting the country with the nearest port at Djibouti, where most imported commodities are shipped. This route also connects the country to Somalia and Kenya; it is also the outlet to the south, south eastern and south central parts of Ethiopia. That is why the cumulative flow of level two buses is very high on this route. One hundred and sixty buses per month (five per day) are destined for Hawassa. One hundred and twenty (four per day to Shahsemene and one hundred buses (more than three buses per day) to Hossaina The survey shows that these areas have a service that ranges from one hundred to one hundred and sixty buses. Within a month, on average, these towns receive the service of one hundred and thirty buses per month, or more than four buses per day. Again, the flow of level three buses is highest along the Hawassa and Shashemene areas. Approximately one hundred and fifty and one hundred and twenty

buses per month respectively, which averages a daily flow of four to five buses. This implies that the geographic proximity of these areas to the center where there is better infrastructure has facilitated the high frequency of bus flow.

Figures 4.4 above, 4.5 above and 4.6 below depict the Mojo route connecting the core with the adjacent neighbouring countries. It is also an international outlet to adjacent countries. It is the only outlet that has port access to Djibouti, Somali and Kenya. The Mojo route has an advantage over other outlets in the country. It also carries the majority of passengers. This infers that the city gives a radial service by linking all the outskirts of the nation with her adjacent borders. This outlet is important for metropolitan linkage. Therefore, a city is interlinked in all directions via these major outlets.

Demographic factors are important to the flow of buses. The major towns in the nation with a population above 150 000 were used for this analysis. According to the CSA 2013 estimates, the three most populous regions in the nation are Oromia (32 million), followed by Amhara (19 million), and SNNPRS (18 million). However, the estimates show that the majority of towns with a population of above 150 000 are situated in the Amhara region. For instance, Gonder has a population of (265 000), Bahir Dar, (198 000) and Dessie has (153 700) dwellers. Therefore, the bus flow to the Dessie outlet is as busy as the Mojo outlet. The next major flow to the towns was observed in the Oromia region, specifically, Nazirate and Jimma, with a total population of 283 000 and 155 400, respectively. However, in SNNPRS, the only city recorded as having a population of above 150 000 dwellers is Hawassa, which has 225 000 people. Even fewer people were recorded in most parts of the western and South Eastern parts of the nation. This combined with other factors has led to a limited number and frequency of bus flow.

The population density in Shashemene is very high ($12,000\ km^2$), seventy times greater than the population amount in similar sized towns in the country. It is half of the density of Mexico City ($24\,000\ km^2$), which is the most dense city in the world. The average density of the population in the nation is ($169.9\ km^2$). This is another reason for the rise in commuters from the towns along the Shashemene–Addis route and the Mojo outlet. The growth rate of the population in the entire nation is approximately (3.01/y). The growth rate in population seen in the towns of Hawassa and Arba Minch, which have increased by 6.12 and 6.11 per cent per year respectively. This rise is more than twice the total growth rate of the nation. This implies that bus flow has increased in this area more than in other places.

The other demographic aspect that affects the urban population is migration. In the census of 1984 and 1994 the annual average (AGR) of the population in the country, Addis Ababa, and Shashemene, was 3.8 %. Of this, natural increase accounted for 1.82 % and migration for 1.98 %. These figures show that the increase in population occurs more because of migration than by natural causes. Addis Ababa attracts a large amount of migrants from different parts of the country; this is made possible with the help of road passenger transport. Various studies have indicated that rural-urban migration accounts for the high increase in the population of the city. It is worth highlighting that the greater part of this growth is due more to net migration (1.69 % per annum) than to natural increase (1.21 % per annum). The rate of migration might accelerated by the access and availability of the LDB service linking the core to the peripheral.

The level three buses link to more than one hundreds and ten major and medium towns in the nation. This level also have the highest coverage in the country. Their coverage is 4.7 times more than level one and more than 1.5 times that of level two buses. In the remaining parts of the nation, the average flow of level three buses was thirty buses per month or the equivalent of one bus per day, commonly made a flow towards various middle towns (Annex 1). The results of the survey show that the presence of level three buses is very high along Hawassa (160) and Shashemene (144), which are served by more than five level three buses coming towards the towns. The other optimum flow of 90 buses goes towards Hossaina. Moderate flow is seen at Jimma, Debre Markos, Dessie, and Mekele where more than sixty buses are dispatched, which is an average of two buses per day. (Annex 1). This demonstrates that level three buses interlink more towns than levels one and two. These towns are predominantly an outlet to Kenya; the roads are very suitable, and there is good geographic accessibility to Addis Ababa and other areas in the SNNPRS and Oromia regions. Therefore, transport links center to center and periphery to periphery.

It is clear that level three buses have been assigned to the worst and most inaccessible parts of the nation. Therefore, these buses link most places, which are on the periphery. Dispatch is also frequently practised in the form of bids and franchising, instead of being assigned by turn. It demonstrates that level one and two buses are the winners, getting the chance to serve society along the preferred routes. Level three buses are usually dispatched to areas, which have an inferior infrastructure and are geographically the most inaccessible places in the nation. However, the majority of third level buses are dispatched to the routes that are not chosen by the level one and two buses, and they

interlink more inaccessible areas of the nation than levels one and two. This does means that the most marginalized would be linked with the most peripheral areas at the lowest frequency. In the area that was studied there are no privately owned buses. Individuals who invest their money hoping to make a profit run the industry. Consequently, they may not always strive to enhance their service; they are still providing a service to society. Therefore, it may not be the best way to link people with the capital.

Therefore, the federal and regional government of Ethiopia should subsidise bus transport. This would assist in developing the local economy. In order to enhance the role of the private sector in the economy, the government advocates extensive economic liberalisation, free trade, and reductions in government spending in all sectors. Taylor et al. (2009), stated in the 1980's the term mostly used as a general explanation of economic liberalisation policies, such as privatisation, open markets, and deregulation. Today, to be "neoliberal" means advocating a modern economic policy with state intervention (Taylor et al. 2009). The survey demonstrates that the existing service is carried out according to the interests of the owners and associations, but not the government, which is why the owners and associations want their buses to serve areas that, are easily accessible to most towns. Therefore, it is imperative that the government becomes involved and subsidises the transport sector in order to increase the service to all areas, thereby creating the link between the core and the periphery.

In general, the study found that similar towns interlink more with all levels of buses. For instance, the whole industry links primarily to Hawassa, Shashemene, Dessie, Mekele, Dire Dawa and Jimma. This implies that major towns in the nation, whether center to center or center to peripheral places are also linked with all levels of buses. The city of Addis Ababa has played an important role to in linking various geographic places to their surrounding and peripheral areas.

The Maps 4.1 above to 4.3 and Map 6.1 below show that the service coverage was saturated within a 300 km radius of headquarters. The lines in which the buses flow can be seen as dendrite flow types. This infers that service distribution is adapted for selected towns in the nation. Out of the total number of nine hundred and twenty five towns in the nation, level one buses service addressed below 10 % (one hundred and ten towns), receive service from LDB transport because the flow of level one and two buses overlaps with level three. Moreover, the remaining 90 % approximately eight hundred towns do not yet receive this service. It meant that these towns could not get even one type of LDB

per day. Therefore, the area coverage of the third level is taken as the gross of the whole LDB industry. However, the remaining 90 % of towns in the nation are not receiving any service, which means that these towns do not receive even one type of LDB per day. This indicates that service coverage is almost non-existant, and does not address inaccessible areas, less demanding sites and peripheral areas.

The major towns in the nation that receive all types of bus service are Gonder, Jimma, Dilla, Dire Dawa, Inde Silasie, Bale Goba, Bonga, Assosa, Gambela and Arba Minch (figure 6.1). The study reveals that all major towns found both in the interior and peripheral parts of the nation are connected using all levels of bus service. This is due to the suitability and accessibility of roads and the rising demand. It is a market driven system of supply and demand. If the demand rises, bus companies would provide the service, which in turn may put pressure on the government to repair the roads. The government must perform its duty to facilitate physical road linkage between towns. The other major rationale for the rise in bus flows the increasing population size of the towns and the rate of urbanisation. This may imply that these two concepts are interwoven; if urbanisation creates a flow of population from rural to urban areas, it may create a rising demand for transport.

This study explored that the urbanised areas had the highest flow of buses. Addis Ababa has the highest linkage to all major towns. The economic importance of the town, its administrative structure (political seat), makes a difference to the flow of the population. Beside this, the political attention and regional headquarters of the towns themselves, contributed to the rise in bus flow. In 1826, von Thunen stated that locational theory is generally associated with the descriptive characterisation of observed patterns across geographic space typically associated with human settlement (Block & Dupuis 2001). It also follows the growth theory of Romer (1994), which emphasised that economic growth is primarily the result of investment in human capital, innovation and knowledge.

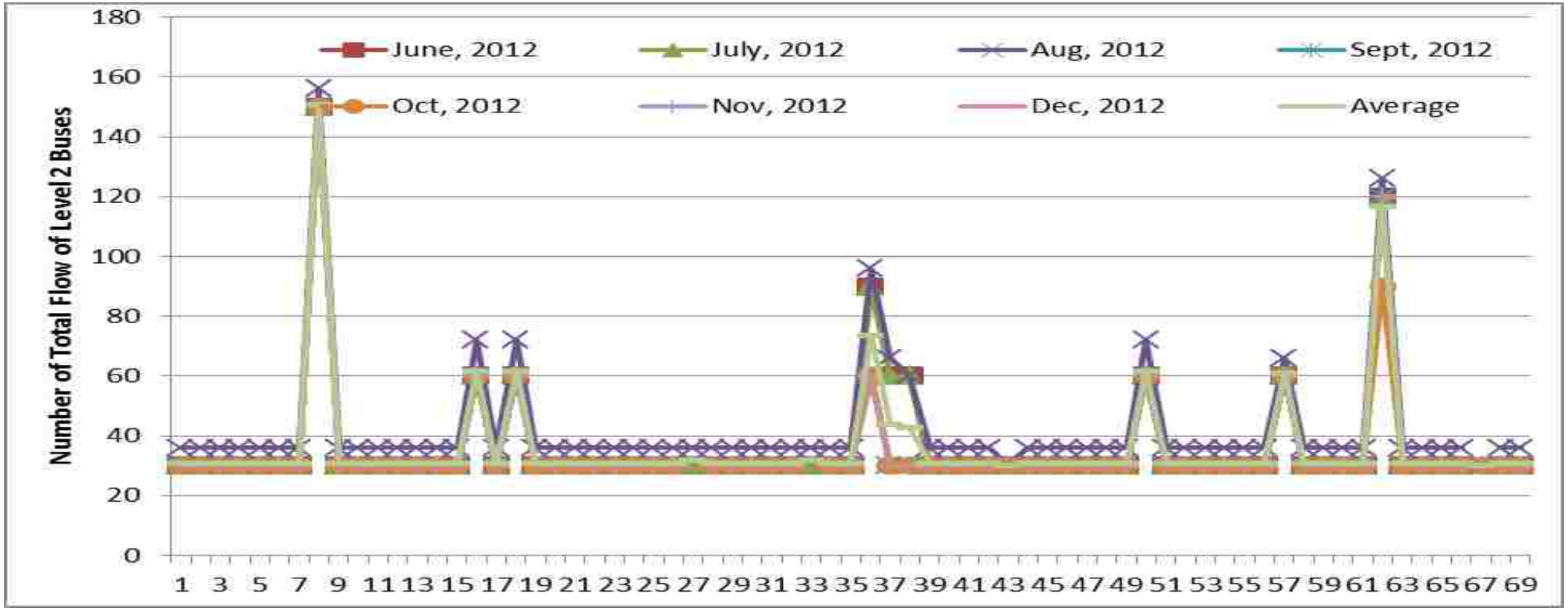
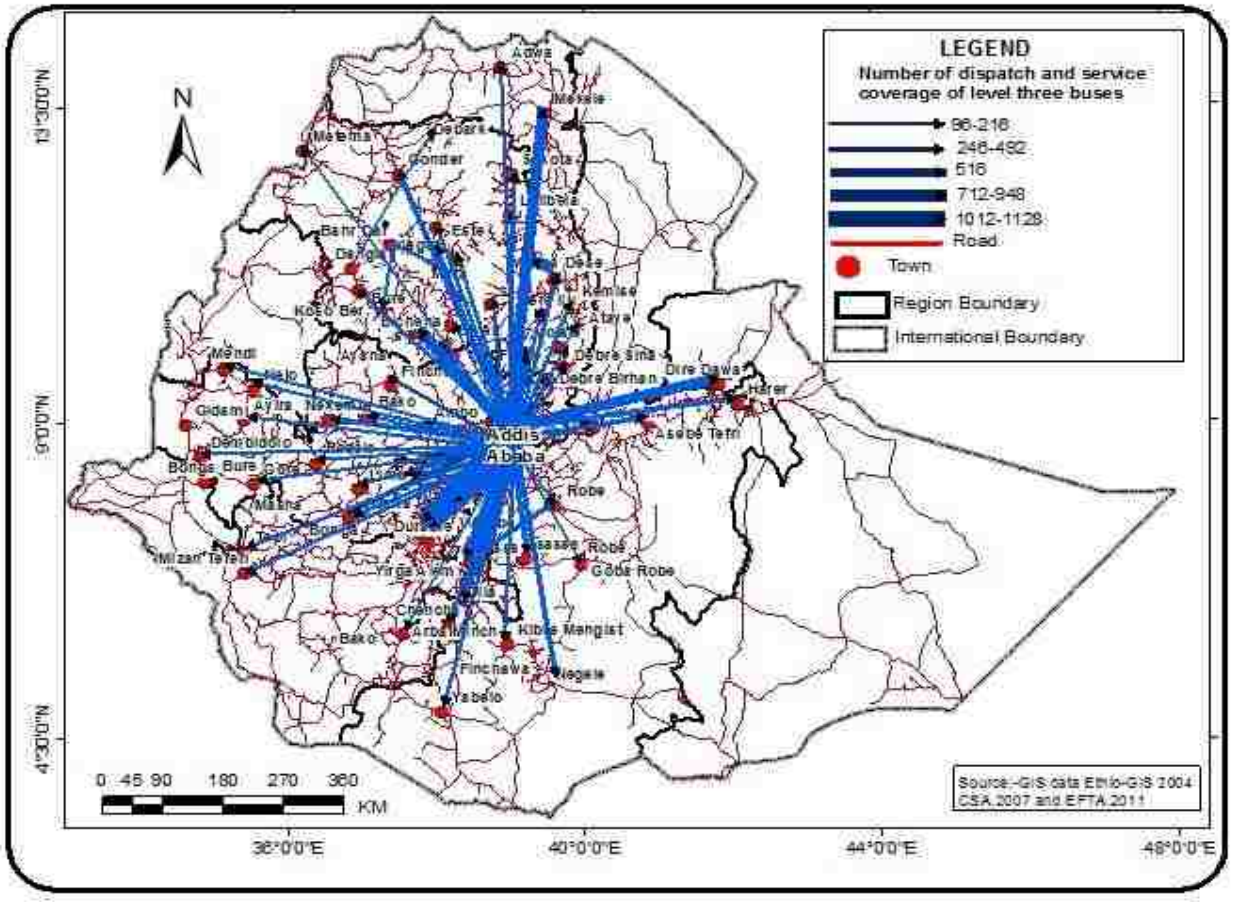


Figure 4.6: The rate of Second Level LDB Dispatch

NB : 1. Agaro, 2. Akisum, 3. Alem, 4. Degolo, 5. Amuru, 6. Arba Minch, 7. Asebe Tefer, 8. Assossa, 9. Hawassa, 10. Bahirdar-Bure, 11. Bahirdar-Mota, 12. Bedele, 13. Bichena Debreworki, 14. Boniga, 15. Chagini, 16. Debre Tabor, 17. DebreMarkos, 18. Dembi Dolo, 19. Dessie, 20. Dessie Masha, 21. Dessie tenita, 22. Diredawa, 23. Durame via Hossaina, 24. Enijibara, 25. Finote Selam, 26. Gainite, 27. Gambela, 28. Gimibi, 29. Ginir. 30. Goba-shashemene, 31. Goffa, 32. Gonder, 33. Gore, 34. Gore-Masha, 35. Hagere Mariam, 36. Harere, 37. Hossaina, 38. Humera-Gonder, 39. Jimma, 40. Jimma-Metu, 41.Jimma-Mizan, 42. Jimma-Nekemite, 43. Jinika-Arba Minch, 44. Kombolich, 45. Lalibela, 46. Kosso Ber,47. Mechara, 48. Limu, 49. Mehal Meda, 50. Mekane selam, 51. Mekele, 52. Metema, 53. Michew, 54. Mizan, 55. Mota, 56. Moyale-Dilla, 57. Negele Borena, 58. Nekemit, 59. Nekemit via B/D, 60. Robie-Shashemene, 61. Shakiso, 62. Shambu, 63. Shashemene, 64. Shire Inde solasie, 65. Tapi-Masha, 66. Wegidi, 67.Welidya, 68. Werabie, 69. Wereilu, and 70 Wolita via Hossaina.

Source: (EFTA 2012)

As observed during the survey, the first and second level of buses operated mainly along to the accessible parts of the towns. However, the third level buses travelled beyond the scope of the working boundary of the level one and two buses. It was for level three buses to expand their service away from the scope of level one and level two buses, and for level three buses to re-direct their service towards the more inaccessible rural parts of the nation. This may cause good grounds for level three buses to connect the core with the peripheral parts of the nation.



Map 4.3: dispatch of level three buses per towns

Figures 4.4 above, 4.5 above, 4.6 above and Annex 1 show that level two and three buses connect to seventy and one hundred and ten towns respectively, whilst level one only connects to twenty-three towns. The service coverage of all buses focuses on similar places with slight differences. The service coverage of first level buses is more limited than level two, and the coverage of level two is more limited than level three. This implies that level

three buses service and provide high area coverage, particularly in linking peripheral areas to headquarters.

Maps 4.1 above, 4.2 above, and 4.3 above show that the most peripheral parts of the nation receive less service, and sometimes there has been no coverage of LDB transport. A clearly marked vacant area has not yet received any transport service. The service coverage for this sector is located a certain distance away from headquarters in Addis Ababa. As is noted in Table 4.3 below, the majority of operators are working from between four hundred to six hundred kilometre distances from the center. Peripheral and geographically unsuitable places receive low coverage. According to AACGO (2011), ERA (2005), and the CSA report, in 1994 and 2007, only 84 to 85% out of the total land has rural areas, whereas 15 to 16 % is urban. Beside this, the economy of Ethiopia is based on agriculture. This implies major parts of the nation can be ruralised, which gives good grounds to apply Krugman's (1991) core-periphery theory.

4.4. Estimated Condition of LDB by Levels and Service Year

Table 4.2 explores the nature and the service year of bus transport in the industry. It also signifies how long they have served in the system. The estimated age and current condition of the bus, illustrates the comparison between the recent condition of the bus and its' condition when it was purchased. The finding shows that more than half (57 %) of buses joining the industry were new. This is due to the existing level division in the sector and the action taken by the government to implement the BPR. One-third of buses were averagely old at the time of purchase (29 %) and the other 15 % were very old when purchased. The overall existing condition of LDB shows that 27 % are new, whilst 86 % are averagely old. This implies that the addition of new buses into the transport system, is very low, and the number of level two buses is much higher than that of level one and three.

In EFTA (2011), approximately 42 % of buses had served for ten to fifteen years. Figure 4.3 above shows that 73 % are used buses and 44 % are old when purchased. In aggregate, concerning the estimated age of LDB, the majority (48.4 %) serve on average between one and ten years, and 41.9 % have served for approximately ten to fifteen years. Combined, 90 % of the present age of LDB ranges from five to fifteen years. In comparison, past studies have shown that above 65 % of the total vehicle stock is fifteen years old (Temesgen 2007). However, EFTA (2011) illustrated that 80 % of the total bus stock has served society for ten

to thirty years. On average, 80 % of themselves have served the community for more than twenty years.

In 2009, out of the total number of buses serving society, 62 % were categorised as level three. This indicates that the sector has not provided quality service. Five per cent of buses have served between thirty-one and forty years and below 10 years have served more than forty years. More than one-tenth of the buses fit exactly into this age category. This finding infers that older buses dominate the industry (Tables 4.1 and 4.2 below). This may contribute to the rise in green gas emission that can pollute the environment. This increase in the age of LDBs and the effect this has on long distance travel, leading to more accidents and loss of property. This implies that it also affects the socio-economic aspects of the country.

This survey is similar to the study conducted by the EFTA before 2011. EFTA (2011) found that 90 % of LDBs had served for more than ten and reached to forty years. Again 10 % of them had served for more than forty years. In aggregate, 15 % of buses in the industry serve for approximately thirty years. This figure deviates from the total stock of vehicles in the nation, where. 65 % of them were over fifteen years old (Temesgen 2007). This means that the age of the buses was more than the total stock of vehicles in the nation. The EFTA report of 2011 explains that the existing industry requires a slight change in the sector.

Table 4.2: The condition of LDB

Sn	The condition of LDB during buying (est.)	Percentage
1	New	56.5
2	Averagely Old	29
3	Old	14.5
	Total	100
	Existing condition of your bus (est.)	
1	New	27.4
2	Averagely Old	61.3
3	Old	11.3
	Total	100
	Existing age (est.)	
1	1-5 years	25.8
2	5-10 Years	22.6
3	10-15 years	41.9
4	Above 15 years	8.1
5	Unknown	1.6
	Total	100

Source: Field survey, 2011 and 2012

It is clear that the age of the buses have a significant effect on the speed, loading capacity, facility and comfort, motor capacity, fuel consumption, and environmental pollution. In Ethiopia, there is a trend towards attempting to substitute the old buses with new buses, because the older the bus the more it costs to maintain. This becomes unprofitable for the owner or company, and renders the passengers insecure. As a result, the government emphasises certain criteria to provide a standard level for buses. Thus, the service year of the bus either increases or decreases the performance. In 2009 and 2010, the Ministry of Transport and Communication (2011), revealed the fact that out of the current amount of large buses, 14 % have not been through the levelling process because they were unable to fulfil the standard required by the government.

Table 4.3: The estimated age of LDB by levels

		Estimated Age of bus by level					Total	
SN	**Levels of bus**	**1-5 year**	**5-10 years**	**10 to 15 years**	Above 15 years	Unknown		**percentage**
1	Level 1	6	4	1	0	0	11	17.7
2	level 2	8	7	13	1	3	32	51.6
3	Level 3	2	3	9	4	1	19	30.6
4	Total	16	14	23	5	4	62	100
	percentage	25.8	22.6	37	8	6.4	100	

Source: field survey in 2011 and 2012

4.5. Average Distance, Total Time Employed, and Reasons of Mobility

The other requirement of the sector is the distance, service coverage and time spent finishing the journey. Table 4.3 below indicates that the average distance covered by LDB was between four hundred and six hundred kilometres 400–600 km (47 %). From origin to destination takes between seven and ten hours (35 %). It was found that 47 % of LDB operators were dispatched at intervals of between four hundred and six hundred kilometres. Approximately 34 % interlink at intervals of between two hundred and four hundred kilometres. The LDB interlinks the cities and towns of the nation that lie at approximately 400 km intervals. Thus, its role is pivotal for interlinking the rural and very inaccessible parts of the nation with the heartland.

The travel time is the time spent on the whole journey from origin to destination. The amount of time to complete the journey is between five and ten hours. A distance below two hundred kilometres is completed in less than five hours. According to data from this study shows that the majority of places could be covered. A distance of between two hundred and six hundred (80 %) explores 81.7 % of the operators to complete the journey in less than ten hours. It is, similar across the whole nation. For instance, one LDB could accomplish a journey of five hundred kilometres, from the source site to the destination in approximately nine hours,

regardless of geographic placement, land terrain, conditions of the road and the efficiency of buses and operators. The quality and age of the buses and other related conditions were determining factors of the travel. This implies that every bus completes one hundred kilometres in an hour. This satisfies the passengers, and gets them to their destination in the quickest time (66 %). Very little coverage takes place above six hundred kilometres (11 %).

Table 4.4: One-way Trip Distance and Time spent to finish Origin to Destination places

SN	**Average distance travelled (one-way trip)**	**Percentage**	**Cumulative percentage**
1	below 200 km	8.1	8.1
2	200-400 km	33.9	42
3	400-600 km	46.8	88.8
4	Above600 km	11.3	100
	Total	100	
	Total time to finish from O to D	**Percentage**	**Cumulative percentage**
1	< 5 hrs.	15.4	15.4
2	5-7hrs	31.5	46.9
3	7-10hrs	34.9	81.8
4	>10 hrs.	18.3	100
	Total	100	

Source: Own field survey in 2011and 2012

4.6. Conclusions

The conclusion reflects the first objective, which was to explore the structural changes regarding bus levels, and the role that the LDB plays in facilitating movement and forming transport networks, through the nature of dispatch. More than one thousand small buses are added to the transport industry annually. However, the increase in large buses generally was very low. Small bus transport is just as important to the industry as large bus companies. Both types of buses contribute to the local economic development of the nation.

All the large buses in Addis Ababa (91.3 %) account for most of the buses in the nation. The remaining 8.7 % work out of the city radiating to other major towns in the nation. This is good for the city and it plays a big role towards linking core to periphery. However, extraordinarily the prevalence of level one buses was much higher than that of level two and three. The growth of first and second level buses has increased by more than 100 % per annum. This increase alone has contributed more to core and peripheral linkage. Thus, the condition of the bus determines which level it is given. Buses of all levels linking peripheral areas with headquarters is undertaken.

Infrastructural facilities, social and political aspects, geographic setting, population amount and density of the places, and the rate and level of urbanisation has contributed more towards the rise of bus dispatch. These factors affect the amount of dispatch along to the outlets. Among five major outlets, the Dessie and Mojo has have a higher share than the other outlets. Jimma, Gojam and Nekemitie have a smaller share. Addis Ababa is one of the important international cities and center of tourism conference. The city become as an area for the outlets and inlets to the nation**.** This contributes for the bondage of the city with other hinterlands.

In general, this and other features also treated within this chapter. By considering the detail features of the structural change of buses by levels and its roles so that let proceed to see the adequacy of the service provision, the stimulating factors and the future threat of transport of the sectors in the next chapter.

CHAPTER FIVE
SERVICE ADEQUACY, STIMULATING FACTORS AND THE FUTURE THREAT TO THE TRANSPORT INDUSTRY

5.1. Introduction

In Chapter Four, the researcher explained about the structural change of buses by *levels* and its roles that plays in facilitating movement and forming transport networks through the nature of dispatch. However, in this chapter is going to answer the second objectives of the thesis. The objective examine the adequacy of the service, stimulating factors and the future threat of inter-urban transport links from the periphery to the core in Ethiopia, focusing on the supply and demand. The adequacy of service is the ability if suppliers of transport to meet the demand for this service. The first section of this chapter will explore the supply side of the LDB transport industry and the second will examine the demand side of the industry.

The supply side of the sector, which includes survey data from operators and the demand side data obtained from passengers. This chapter focus on the service levels and stimulating factor for the stirring of the supply and demand situations and it explore the potential threats to the sector. Finally, to understand the adequacy of the service provided by LDBs, the linkage of the core (Addis Ababa) to the periphery (rest of the country) is discussed and the role this link plays in developing networks for local economic development has been assessed.

5.2. Service levels of LDB Transport

The term service level is a holistic term that encompasses the whole sector, from the supply (operators) to the demand sides (passengers) as well as support services and transport offices. The researcher has been challenged by the overlapping nature of demand and supply variables. Passengers, for instance could swing in both supply and demand side. The supply side service provision can be seen from both passengers and operators angles whereas the demand side of service levels can also be perceived from passenger. This has been good to triangulated by including the information from transport office.

5.3. Service levels on the Supply Side

The service levels of the industry are dominated by the variables in the supply side of the industry, such as the number of associations, number of buses and the quality of the service provided. The prevailing demand includes factors such as the time spent waiting to get full load, and to get a turn to load the passengers, the time taking to carrying full load in the terminal, the number of days that probably to start travel without getting full load and number of working days per week as well (Table 5.1 below). In Ethiopia, buses must leave the terminal on time regardless of load and seasons. In the industry, two different seasons that causes fluctuations in the demand for the industry. These seasons are on-journey seasons (a time of high demand) and the off-journey seasons (a time of low demand).

The buses may leave the terminal even if they are not have fully loaded. However, in Ethiopia, buses are obliged not to leave the terminal before all seats are occupied and sometimes overloaded. Once the buses have enough passengers, the buses leave the terminal and they stop very frequently in minor towns during the journey to the main destination. This lengthens the travelling time for passengers who become dissatisfied with the service.

The time that to get full loads, the buses are immediately load the passenger after opening the door of the bus or begun to sell the ticket, depend on the passenger (demand). The survey shown that majority of passengers could be able to purchase the ticket on the date of the journey and depending on the demand season, few others could purchase ahead of 1 day of travel. The operation and waiting time to take enough clients (passengers) varies from season to season. For instance, during on-journey seasons, it is not easy to get tickets for long journey than off-season. Passengers should have wait for long time on long queue (Photo 6.1 below).

However, in off seasons service providers will take more time to get passengers or to sell tickets. On average, 64 % of operators may wait at least one hour for passengers. However, the remaining 35.5 % would take over an hour (Table 5.1 below). This implies that two thirds of the operators sold all their tickets within an hour. The survey indicates that the industry is totally occupied by private owners and their ultimate objective is to make money by all possible means. The industry is totally market driven, not for the private sector, which is why

interference from the government is advantageous in order to strike a balance. This implies that in both seasons the government has to regulate the system accordingly.

Table 5.1 below shows the tendency that operators have to leave the terminal without carrying full load. The survey showed that 70 % of the operators declared that they leave the terminal without getting a full load. This might happen either operators open their buses at late dispatch or the allowed time to load the passenger is over. According to EFTA (2011) manual, the time allocated before a bus has to start carrying passengers is only 45 minutes. When that time is over, in principle the operator has to begin the journey with a minimum of 50 % of passengers. This survey revealed that almost most passengers would get ticket a head the travel day. Therefore, the operators know how much ticket left over before the journey. If they do not get 50 % within 45 minutes, they may cancel the schedule and give the passenger for other small buses by making negotiation with other operators.

As observed during this survey, a number of operators are waiting more in the terminal until to get full load (Table 5.1 below). However, 70 % of operators also begin the travel with getting full load at least 1 to 2 seats were vacant. The rest 24.3 % of operators did not hit the road without getting full load. This implies that the operators open their buses in early morning and sold the ticket before one day of the travel. Among the operators, more than one-fourth begins the travel with full load. This implies that in both seasons there will be a mismatch of supply and demand in the industry.

Table 5.1 below shows that on average 87 % of operators reflected that they were unable to get a turn to load the passenger was 1 to 3 days per week. In addition, 61 % of operators are not working 1 to 2 days per week. This implies that the operators are waiting four days in the week for a turn to load passengers. Thus, there is not as such high supply in the system in its place it has an integration problems in the system makes this mismatch regardless of its seasons.

81 % of operators indicated that they often start the journey without having a full load, and they wait for between one and four days to get another full load from the terminal. The 13 % of responded saying that it takes even more than three days to get a trip. The study shows that the main reason to begin the journey without having a full load was a lack of passengers; this was more common during off-seasons. The shorter time given to load and leave the terminal could be another factor. The system does not allow operators to load passengers

before the given time span, or to wait for a longer time until fully loaded. This means that if operators wait for unlimited hours in order to get passengers, the passengers already on the bus will be dissatisfied. Operators are therefore, often forced to leave the terminal and try to fill the bus with other passengers during the journey. This often delays the time that passengers arrive at their destination.

Table 5.5: The nature of service provision of the industry

I	The time wait to get full load	Percentage
1	below 45 munities	37.1
2	45-60 munities	27.4
3	A Above 1hrs	35.5
4	Total	100
II	Not working days per week	
1	2-Jan	61.3
2	3-Feb	25.8
3	above 3	12.9
4	Total	100
III	Do you left the bus terminal without carrying full load?	
1	Yes	69.4
2	No	24.2
3	Unknown	6.5
4	Total	100
IV	Days without getting full load	
1	1 days	58.1
2	2 days	22.6
3	3 and More	14.5
4	Unknown	4.8
5	Total	100
V	Waiting Time to get turn to load in days	
1	below 1	12.9
2	1 to 2	54.8
3	3 to 4	25.8
4	above 4	6.5
5	Total	100

Source: field survey in 2011 and 2012

With regard to the waiting time, approximately 67 % of operators wait for one or two days to be able to reload their bus at the terminal. This is also affected by the level of the bus. The lower of the bus level the longer the waiting time is to sell tickets. Level one buses have more chance of selling tickets. In this sector since 2009, there has been obvious way that to sell the ticket only on bid or franchise but not only in turn as usually. Therefore, the level one buses have get more chance to sell the ticket. The indication in this survey is that level one buses wait for less than a day. This implies that these buses are able to travel more frequently than level three and two buses. While level one buses are travelling more often, it is very important to keep up good quality service.

Table 5.1 above, reveals that the maximum waiting period is three to four days per week, and this mainly affects level three buses. Thus, the lower the bus level the longer the waiting period is for a chance to sell tickets. This does not mean that all levels of LDBs spend an equal amount of days in a week without work. The study reveals that level one and two buses have fewer days without work than level three buses. In all probability, this is because of the quality of service and the passengers' preference. It is due to its service quality and the preference of passengers, and they win the bid and franchising chance of the industry than level two and three.

Passengers are more likely to favour level one buses because they provide a better quality service. On average, most LDBs do not work for up to four days a week, however the majority of operators' revealed that it is more like one or two days that they are unable to work. However, it is possible for operators to work more than four days per week. This would enable operators to make at least two journeys from the Addis Ababa terminal, covering distances of between two hundred and six hundred kilometres, from the Addis Ababa terminal (Table 5.1 and 5.2 above). This suggests that this sector travels more frequently to towns that are less than four hundred kilometres away, and less to peripheral areas. Thus, they work for four days in a round trip. However, the survey shows that the majority of LDBs working in the industry spend more than four day per week without work.

However, distant destinations may get at least one trip per day. For instance, a distance of more than six hundred kilometres will take four days to complete a round trip, and if the distance increases, the number of days escalates. On the Inde Selasie and Gonder routes, which takes 4 days to complete the trip. It is inferred that on average, the dispatch of buses

work for very long distance (above 600 km). 61 % of LDBs provide travel to areas a shorter distance away, where they can perform a round trip within two days. The following day operators could travel again, but in most cases, they are expected to rest for one day. In rare cases, operators are assigned a round trip to complete in one day. Therefore, more than two thirds of operators can provide another trip within one to two days. Working days are days that link the origin to destination areas, and they contribute towards core to peripheral ties. This result is expressed in Krugman's core-periphery theory, Krugman (1991) by Fujita & Krugman (1995).

In general, the time spent waiting for a full load of passengers, the number of working days per week, the tendency to leave the terminal without a full load of passengers and the opportunity to travel again without waiting, are high in level two and three buses, and less in level one buses (Table 5.2 below). This implies that level one buses are more privileged than other levels. Thus, the time spent to waiting to get a full load of passengers correlates with the levels of the buses.

On the other hand, there is a weak negative relationship observed between the number of non-working days per week, with the number of days taken leave the terminal without a full load of passengers; the time spent waiting to load passengers and the tendency to do a round trip in every day. The level of bus has negatively correlated but its strength is weak because the Pearson's r is -.170, -.145, -.033 and -.028 respectively. This implies that the increase in one variable is weak and negatively correlates to the decrease in other variables.

However, the number of days per week un-used for travel has a relatively high negative correlation with the levels of buses. The round trip per day also has a negative correlation with the levels of buses. This has an inverse effect, because service provision improves from level three to level one. This means that the round trip of level of buses is increase the linkage between core and periphery places as designed by Krugman in 1991. The support of this idea, forwarded by Mushinski (2002); as cited in Jochen et al. (2010), Michael (2005) is that the geographic interdependence between places are sources for the mismatch of supply and demand that exists in neighbouring areas. This plays a particularly significant role in the supply side.

Table 5.6: The correlation between the supply side variables

		Level of buses	Not working days per a week	the days to leave the terminal without loading full load	The time to wait to get the turn to load	The time to wait to get full load	Have you made a round trip?	Have you made travel without getting full passenger?
Level of buses	Pearson Correlation	1	-0.17	-0.145	-0.033	0.004	-0.028	0.087
	Sig. (2-tailed)		0.187	0.262	0.799	0.978	0.829	0.503
	N	62	62	62	62	62	62	62
Not working days per a week	Pearson Correlation	-0.17	1	-0.059	0.052	-0.013	0.187	-0.068
	Sig. (2-tailed)	0.187		0.651	0.689	0.921	0.146	0.597
	N	62	62	62	62	62	62	62
The days to leave the terminal without loading full load	Pearson Correlation	-0.145	-0.059	1	0.006	0.197	0.025	-0.12
	Sig. (2-tailed)	0.262	0.651		0.965	0.124	0.845	0.355
	N	62	62	62	62	62	62	62
The time to wait to get the turn to load	Pearson Correlation	-0.033	0.052	0.006	1	0.106	-0.05	-0.059
	Sig. (2-tailed)	0.799	0.689	0.965		0.412	0.697	0.649
	N	62	62	62	62	62	62	62
The time to wait to get full load	Pearson Correlation	0.004	-0.013	0.197	0.106	1	-0.177	-0.23
	Sig. (2-tailed)	0.978	0.921	0.124	0.412		0.169	0.072
	N	62	62	62	62	62	62	62
Have you made round trip?	Pearson Correlation	-0.028	0.187	0.025	-0.05	-0.177	1	-0.117
	Sig. (2-tailed)	0.829	0.146	0.845	0.697	0.169		0.365
	N	62	62	62	62	62	62	62
Have you made travel without getting full passenger?	Pearson Correlation	0.087	-0.068	-0.12	-0.059	-0.23	-0.117	1
	Sig. (2-tailed)	0.503	0.597	0.355	0.649	0.072	0.365	
	N	62	62	62	62	62	62	62

5.4. The Passenger's Reflection on Service levels of the Service (Demand side)

In this sub-section, the demand in the industry has been analysed from the commuters' point of view. This survey gained the reflections from both the operators' and the passengers' perspectives, but the passengers' perspectives' held more weight. These include how passengers get access to tickets the length of time spent waiting for the bus to begin the journey, and the tendency to cancel travelling due to a lack of buses. The perceptions of passengers regarding the service that they get in the industry is measured by the amount of time they spend waiting for a bus, the time it takes to reach the bus station, their preference for a certain time to commence a long journey and the tendency to miss the bus after buying tickets. Other determining factors for passengers when choosing a bus are; the punctuality of the buses when beginning a journey; the comfort of the seats, cleanliness of the bus and the terminal and what entertainment facilities are available in the bus.

The industry itself is a sector that is demand driven, which means the supply and flow of buses depends on the demands of the passenger. If there is a lack, or poor quality of supply and the demand is not satisfied.

To understand the rate of demand in the industry, it is necessary to see the amount and the growth of passengers using LDB services from Mercato bus terminal (Figure 2.1 above). The rate of passengers' on and off-journey seasons has shown some variations. It is evident that on average one hundred and ten buses provide a service from Mercato terminals every day. The estimated amount of passengers leaving the terminal for the intercity movement is around 7 800 on outgoing long distance journeys starting from Addis Ababa. The number of incoming and outgoing passengers from Mercato terminal every day reached 15.600. This figure indicates that approximately half a million people per month are transported from the Mercato terminal alone on LDBs. The LDB only make a mobility for long distance intercity flow of buses. It is supported by '*the location theory' of* Block & Dupuis (2001). This indicates that the industry has contributed to the linkage between the core and the periphery.

Table 5.3 below shows that 66% of passengers want to catch a bus soon after they reach the terminal. Depending on the passenger's time of arrival at the terminal and the number of tickets available, 66 % of passengers would be able to purchase a ticket and board a bus

immediately. However, this could fluctuate between peak and low seasons. During peak season, buses are punctual and can be fully loaded within a short time. However, 34 % of passengers do not get buses immediately upon arrival at the terminal and they may have to wait for a while. This means that most passengers would get transport immediately after their arrival, depending on the availability of buses, and the time chosen for travel (Table 5.3 below).

In terms of the amount of time, spent waiting after buying a ticket to boarding a bus is less than an hour. Most passengers wait for anything between thirty minutes to an hour before boarding a bus. This is due to the capacity of the terminal, which can only accommodate sixty buses at a time. It cannot accommodate all the buses waiting to travel. Of course, the people that would get a bus after they have a ticket may get seat first and take the ticket started during travel. Commonly, this may happen for those passengers who sat in the bus first, for late comers and the passenger who catch the bus along the road.

It realises that almost the majority of passenger would get the bus after ticketing. Whereas, the two extreme times that spent within the terminal was below 30 minutes and above 1 hour. The small informants reflects that the less waiting time was below 30 munities which is recorded during the most congested seasons, holiday weeks and at early morning of every day. Whereas, the other equal amount of informants also reflected that they were waiting for more than an hour. In most of the time, it observed that often at the late dispatch between 10 am towards 1 pm.

The majority of passengers need to commence their journey early in the morning. It is shown in Table 5.3 below that 93 % of passengers travel in the early morning or the late morning. However, weather conditions can also affect travelling. This can be affected by the weather conditions. This study revealed that passengers, particularly those travelling to distant destinations, prefer to travel in the early morning because they may not get a bus if they arrive later in the morning. Only 7 % of passengers wanted to travel in the afternoon or evening. It found that they might get the access of bus and their place of travel is found within three hundreds distance from Addis Ababa. There are two types of dispatch practised in the industry. The first and most notable dispatch is carried out in the early morning, from 6 am to 8 am, which is usually for those travelling long distances and those making a round trip to somewhere close to the core area. This result echoes Krugman’s (1991).

Table 5.7: The perception of passengers on the service levels

Waiting time to get bus after ticketing		**Frequency**	**Per cent**	**Valid Per cent**	**Cumulative Per cent**
Valid	<30 minutes	36	14.9	14.9	14.9
	30-1 hours	146	60.6	60.6	75.5
	1hr +	59	24.5	24.5	100
	Total	241	100	100	
Do you have Bus when you reach Bus station?		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Yes	158	65.6	65.6	65.6
	No	83	34.4	34.4	100
	Total	241	100	100	
Preference time for long journey		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Early Morning	170	70.5	70.5	70.5
	late morning	53	22	22	92.5
	Afternoon	15	6.2	6.2	98.8
	Late Afternoon and on evening	3	1.2	1.2	100
	Total	241	100	100	
Tendency to miss a bus after ticketing		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Yes	123	51	51	51
	No	108	44.8	44.8	95.9
	Unknown	10	4.1	4.1	100
	Total	241	100	100	
Do you ever use vehicle other than bus for intercity?		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Yes	144	59.8	59.8	59.8
	No	97	40.2	40.2	100
	Total	241	100	100	

Source: *field survey in 2011and 2012*

The other major dispatch is around 1 pm. This dispatch connects places found in a certain radius below 300 km from the terminal. The dispatch towards Hawassa, Hossaina and Shashemene is the most known and common one. Thus, while the sector connects the center to the periphery there are major problems with the level of service, which leads to

inefficiency in the system that makes travelling that leads to inefficiencies in the system that make traveling disorganised and expensive in terms of cost and time.

Table 5.4 below, shows how the service is provided. In terms of getting high quality services, those passengers are can use the special bus transport for long distance travel. This may implies that the sector may not as give the service for the haves class of the society. This implies that the availability of high quality services of LDBs determined by the affordability of the person who wanted to catch the bus.

Generally, commuters using Mercato bus terminals are poor, and they are typical members of society in contrast to the more highly privileged commuters. During on-seasons, because of the rise in demand amongst commuters, the more privileged members of society are looking, via brokers, for other informal medium sized buses outside the terminal, which costs double the price of a normal trip from the terminal. During on-seasons, those who can afford it are not travelling with people who need the cheapest transport possible. The wealthy and influential take other buses that are not formally assigned to a destination, and are very expensive.

During on-seasons, it is very difficult to get bus service from the terminal because of the long queues. In this survey, the poor passengers used level three buses much more than level two and one. It is the fact that level three buses are cheaper than level one and two buses. Level three buses are the worst and least reliable. This implies that the rise in demand can cause deterioration in the service of LDBs and it may limit the mobility people with a low income.

Table 5.4: the probability of the variable of demand in the industry

Passengers issues to indicate the Demand of the industry		**Have you got Bus when you reach to Bus station?**	**Waiting time to get bus after ticketing**	**Waiting time for bus to get full load**	**Time of taking ticketing**	**Preference time for long journey**
Have you got Bus when you reach Bus station?	Pearson Correlation	1	.156(*)	0.012	0.001	-0.062
	Sig. (2-tailed)		0.015	0.859	0.991	0.338
	N	241	241	223	241	241
waiting time to get bus	Pearson Correlation	.156(*)	1	0.013	-0.05	-0.099
	Sig. (2-tailed)	0.015		0.843	0.442	0.125
	N	241	241	223	241	241
waiting time for bus to get full load	Pearson Correlation	0.012	0.013	1	0.113	-0.031
	Sig. (2-tailed)	0.859	0.843		0.093	0.646
	N	223	223	223	223	223
time of taking ticketing	Pearson Correlation	0.001	-0.05	0.113	1	0.018
	Sig. (2-tailed)	0.991	0.442	0.093		0.778
	N	241	241	223	241	241
Preference time for long journey	Pearson Correlation	-0.062	-0.099	-0.031	0.018	1
	Sig. (2-tailed)	0.338	0.125	0.646	0.778	
	N	241	241	223	241	241

* Correlation is significant at the 0.05 level (2-tailed).

5.6. The possibilities of other modes of transport for intercity travel

The other reference to check if the supply is in line with the demand is by observing whether passengers use other means of transport for inter-city travel. The majority of respondents

articulated that they would prefer to travel intercity without using a bus. There are the possibility to use other than bus transport for intercity travel because the output of logistic regression shown that the expected and observed are goes in rising.

Table 5.3 above also shows that 60 % of passengers would like to travel intercity without using a bus, but there is a lack of options, other than bus transport, late at night. There is a noticeable gap in the sector for bus transport late at night. This might mean that these respondents can afford informal transport. Moreover, they may prefer their facility and they are demanding automobile, tourist vehicles, and government office vehicles so far. This implies that informal transports are a kind of transports used by affordable people due to its charge per trip is high than the normal tariff (Fekadu 2013c). This shows that they want comfort and speed. Of these, 40 % noticed that not utilising other than bus for their long travel. In addition, bus was the only public transport that is accessed for.

5.7. The Reflection of Operator on the Supply-Demand Situation of the Industry

Supply and demand varied in time and place. The Mojo and Dessie outlets have a high demand and the other three (Jimman, Gojam and Nekemite) have a lower demand. During this study, there were different arguments put forward by different operators, owners and transport office workers. In short, the majority of operators agreed that there is a mismatch in supply and demand in terms of qualified service provision. The owners and operators articulated that there was a mismatch of supply and demand. They argue that both the quantity and quality in the industry did not satisfy the needs of their customers. The existing quality in the industry was poor and below the standard set by the government though the BPR action in 2009.

A few owners did express that the existing supply was enough to accommodate the present demand. Because demand is seasonal by nature. MoEFD (2010) stated that 85% of the population are agrarian. They travel during the months that they are not farming and during harvest time. This part of the society has not made mobility in such case. In terms of quantity, the supply meets the demand. The majority of operators argue strongly that the supply in this industry already meets the demand. The result of the survey supported the fact that 70 % of the operators argued that the supply accommodates the existing demand. The other 27.4 % of operators revealed their ideas in an unlikely way and 3.2% disclosed their opinions

incomprehensively. The others informants reflected that there is an uncertainty as to whether the supply in the industry accommodates the demand or not.

Few operators and owners argued that, in terms of quality, the supply accommodated and satisfied the demand. It is shown that in 2011, the MoTC tried to make changes to the sector. These changes included the fact qualified personnel must be operated the buses and that the quality of the buses should be inspected periodically and categorised into different levels. Other changes made in the sector were the provision of a pretrip ticket service for long distance travel. It also adjusted that the passengers utilised their trip as per their interest, affordability, and preference. The other big change made in the sector in 2009, was to get passengers to sit in accordance to the seat number stated on their ticket. This action by the government serves as a justification for passengers' increased satisfaction, and the reason why supply and demand are healthily balanced. (Annex 6, figure 5.1, Map 4.1 to 4.3, and Map 6.1).

In line with this, management of the bus terminal were informed that although there is a fluctuation in supply and demand, it is not constantly reflected in the sector. Other factors pertaining to supply and demand were enough to accommodate the present demand. This study explored that most buses (65 %) begin their journey carrying a full load at the terminal (Table 5.1 above). Some buses cancel their trip due to a lack of passengers. This infers that the existing providers fulfil the demand for this service.

In terms of quantity, the supply did not exceed the demand. However, it requires a definite effort to make the sector more interesting. In terms of quality, the existing conditions in the industry were able to accommodate the demand regardless of level. This denotes that the demand and supply of buses is enough to accommodate the passenger. However, the demands of users, nature of the trip and the distance covered, are still major factors affecting both quantity and quality of the service. Level one buses become fully loaded more quickly and are more popular with commuters than level two and three. This implies that there is a high demand in the sector for commuters to travel in buses that have the best service. Therefore, in terms of quality service provision the supply cannot meet the demand. According to passengers, the service provision in the industry is not good enough. It is estimated that it will take one to two decades for the industry to adjust service levels enough

to satisfy its passengers. The changes seen in the last three to four years is not significant. The changes made in the industry do not yet satisfy the demands of passengers.

In terms of quantity, the sector has enough buses to fulfil the demands of the passengers. However, a discrepancy occurred between the number of passengers and the number of buses observed between October to December and March to June. This shows that there is a season where the demand is lower because there are less passengers. The results of this survey ascertained that, passengers usually buy their tickets in an ad hoc way. Some operators appear to get customers only after waiting for most of the day and others are fully loaded an hour after opening. These results put forward the idea that there is a scarcity of passengers in the industry.

During this survey, the terminal was very congested and there appeared to be a disparity in supply and demand. It is due to the travellers at early morning. In the survey time conducted at Mercato bus terminal was the main justification for the accommodation of passenger were very congested and too busy at early morning 6 am up to 8 am and sometimes it goes to 9 am and occasionally it extended to 1 pm. After that, the terminal was vacant and relatively free of departing passengers and buses. Conversely, the terminal was due to the incoming passengers than outgoing journey relatively saturate the terminal. In short, it implies that the supply was greater than the demand. This rise of supply might leads the formal LDB into informality because of high queue is available in formal procedure.

According to the EFTA (2011) report the plan of the supply and demand situation of LDBs in the regions, in between 2011 and 2015, are shown that certain mismatches of the supply and demand. In areas of a Northerly direction along the Tigray and Amhara regions, the supply of buses did meet the demand. This implies that supply and demand are equivalent at the Gojam and Dessie outlets. Annex 6 and figure 6.1, shows that the supply and demand is equally proportional, but in the Tigray region, there is a slight difference of twenty demands and fifteen supplies. However, a high demand and low supply is observed at the Mojo outlet. Mainly to Southern Nations and Nationalities of Peoples States (SNNPRS) region and a lower figure of supply and demand is seen towards the Oromia and Benishangul regions. For comparison, the existing and future supply of buses towards the SNNPRS is fifty-one buses and the expected demand is two hundred and eighty buses. Thus, in south-eastern direction along to the Mojo outlet the demand is more than the supply. Mushinski (2002) as

cited in (Jochen et al. 2010) and Michael 2005) the geographic interdependence that established in a places and existing sources of supply and demand in neighbouring areas is particularly significant on the supply side.

5.8. Factors Stimulating the Variance of Supply and Demand

In one way or another, there is a probability of mismatch on the supply and demand in the system. This study explores that the following are the major factors that make the mismatch of the supply and demand. The stimulating factors are the presence of on-seasons and holidays, and lack of integration between different offices and stakeholders.

Among these, the worsen problem of the mismatch of the industry is lack of integration between different offices and stakeholders. For instance, at the time of this study, enormous amounts of higher institution students completed their semester and travel to their break. Since most of higher institutions follow the same academic schedule, the time when the students get in and off campus is almost the same season. For instance, the observation infers that 95 % of higher institutes called their regular student in one week (September 30 to October 6) and the rest few were called before September 30 and after October 6. This contributed to the mismatch of supply and demand of the industry. This study found that the poor coordination of stakeholders also exposed the users to be abused and mistreated by the operators. It is because of the pressure of the passenger, the office of transport bureau tries to assign the operators in percentage payment, which is a legal document that practised when demand risen to be add 50 to 60 % of the price on normal tariff. This implies that the customers are exposed to be exploited by operators by over-paying the stated tariff. However, from this one can infer that lack of integration between the stakeholders become advantageous for operators to exploit the users and has disadvantage to the users.

The minor reason for the pertaining mismatch of the LDBs operators shows less interest to work in all part of the nation. This is especially the area was not connected with asphalt road and distant areas of the nation. Many of Ethiopia's rural villages not yet connected with all-weather roads to market centers and other basic facilities and services. It is because the operators' intended to exploit the users by demanding over payment. Thus, the lack of infrastructural facilities also exposed the passenger to pay beyond the tariffs.

Due to flow infrastructure facilities, first level bus was limited to convey only 23 towns, and level two and three were 70 and 110 towns respectively. MoTC (2011) studies show that, the ratio of asphalt road of Ethiopia is very insignificant compared with gravel and rural roads. Regarding to its condition, more than 40 % of the existing roads of the nation are in poor condition and above 30 % were in fair. This shows the scarcity of the supply of LDB in some areas and the rise of demand in other places because of lack of road access. Lack of road access impedes the mobility of commuters and lessen the core and periphery linkage. Thus, the supply and demand in Ethiopia has focusing on the structure of inter-urban road and transport links from the core to the periphery. It has supported the Endogenous growth theory of Romer (1994) holds primarily contributed for the economic growth, which will fasten the infrastructural set up.

The other factor responsible for the mismatch of the supply and demand is the seasonal variability. The on-seasons are notable reasons for the prevalence of congestion and queues of passengers at the terminals. It predominantly observed seen in front of the ticket office while taking ticket at early morning. It is observed that there were long queue and fighting at the get gate of ticketing office and at the door of the bus to get seat. It goes longer and longer and it shows the passengers battling to hold their seat in the bus (photo 5.1 below).

Photograph 5.2: The queue of passenger during on-journey seasons to get ticket at Mercato bus terminal

Source: the researcher took the photograph during survey time in 2012/13 (at Mercato Bus Terminal).

The off-on seasons identified by both observation and number of flow recorded per month. This study indicates that the off-seasons commonly observed within October to December and April to June (Figure 4.3 above and 4.4 above). In rare case it also contributed for the reduction and stopping of passenger in the system. During off-journey seasons, almost 20 % (5 to 7 trips) of each buses in the respective associations have cancelled their allotted travel due to lack of passenger and other cases (EFTA 2011). Thus, the off-seasons characterised by the reduction of demand of passengers.

Meanwhile as the survey explained that in the on-seasons of the industry takes place in between July to September and December to February (Figure 4.3 above and 4.4 above). In this season, huge students' mobility carries out from June to July, August to September, and January. The supplementary rationale for the occurrence of supply and demand problems was at the beginning and mid of the Ethiopian academic year around September

and February months. That is the time of the entry and exits of students to go to semester break. As the pertaining reality, the governments and private higher Institutions called and send their students at the same week. From June to July, there was the exit of regular students from their respective institutes by completing their academic year and come back to their home.

In 2011, the studies conducted by EFTA displayed that the mounting of demand seen during specific holidays like Easter, Qulib Gebriel, and Epiphany and New Year celebrations. On average, it accounts nearly, 16, 13, 10, and 4 buses added every day on the existing dispatch along all direction. Out of this, the high flow of demand seen during Eastern and Qulibi Gebriel seasons. The result pertain that among these holidays, Easter and Qulibi Gebriel were carry out on outwardly mobility to the whole nation. The high number of demand can also be seen along all corner of the nation, during Arafa, Mesikel and Qulibi Gebriel respectively accounts 23 455, 19 419, and 17 538. The highest congestion occurred at Arafa (Muslim holiday) (Annex 2). In Ethiopia beside to regular holidays, there are numerous holidays, which is not nationally registered but commonly practised throughout the nation. This implies that during holidays the demand and supply seems mismatched.

Similarly, the very insignificant determining factors for the rise of passengers was also due to the incidence of different meeting in the nation. In spite of its geographic placement of the city at the central place to facilitate an occurrence of various events, the demand–supply mismatch has also been observed. Addis Ababa headquarters the nation and Oromia region, thus, there are huge demand for bus transport among the officers, officials and government workers. In most cases, there are conditions that utilise the city as a springboard to go to other part of the nation as outlets to move to hinterland. This also makes a slight pressure in the industry. The geographic interdependence between places are sources for the mismatch of supply and demand in neighbouring areas Mushinski (2002) in (Jochen et al. 2010; Michael 2005; Block & Dupuis 2001).

5.9. Future Threat for the Supply and Demand of the Industry

The future threat of the industry is under threat and potential alternatives will come from different sectors. It is good to regulate the service provision or the supply and demand of the Industry. Some alternative aspects are used to serve the community. The rise of alternative modes of transport like air and rail for inter-city travel and infrastructural facility, includes road could contribute lessening of demand. The other minor threat will also come from the existing spread of science and technology, particularly telecommunication and a paradigm shift in society. Due to these factors, the apparent variation of the supply and demand do not exist for a long periods.

Studies like the ERA (2005) and the EFTA (2011) show that more than 99 % of the society in the nation is dependent on bus transport for their intercity mobility. Therefore, designing alternative modes of transport will reduce the existing demand. However, this study indicates that there is no visible plan in the near future that can offer poorer citizens an alternative mode of transport. The alternative modes of transport such as rail and air, and access to other technology like telephones and internet, will be a threat to the LDB. This finding suggests that, this sector may in, the future, go into a decline. The logical reasons for this occurrence is that people will not stick to this mode of transport, and will start looking for alternatives. This is supported by the Endogenous Growth Theory of Romer, P. (1994) holds primarily contributed for the economic growth, which will fasten the infrastructural set up.

MOFED (2010) proclaim that in the coming five years the train sector of the nation will reach have 2 395 km of railway, in all directions. Formerly, the nation had a five hundred-kilometre distance of rail coverage radiating from Addis Ababa to Dire Dawa. However, for the future, the government plans to construct five-fold of the existing railway amount up to 2018, which will be evenly distributed throughout the nation. The growth of the railway industry would be an alternative means to reduce the existing congestion in road transport. It could also be used as an alternative corrective measure for road modes of transport, especially the bus transport service.

As a result, the demand for LDBs has reduced because of the spread of train transport. The train has some merits over bus transport; it is also preferable to bus transport because of

the speed and safety it offers, even when passenger volumes are very high. Rail travel is cheaper than bus transport in terms of the price of a trip. Therefore, it makes sense for poorer people to make use of it. Compared to other transport sector, the bus is the most commonly used for of land transport. The railway is an optional mode of transport, and is supported by the Endogenous Growth Theory, (Romer 1994).

The infrastructure of the nation includes road and this means that routes with a direct link to the metropolis have affected the LDB industry more than those that are linked indirectly. For instance, MOFED (2010) proclaims that Dire Dawa, Hawassa, and Nekemite routes have a direct link to the city, and the Mekele and Bahir Dar, have an indirect link. In academic guess, the spread of railway has been a prominent threat for LDB transport that accounts 95 %. The reality prevails that in the future the number and amount of the PRTs and LDBs will be reducing. Passengers may want to shift their attention to rail transport for national intercity movement as a substitute. It has also supported the Endogenous growth theory of Romer (1994) holds primarily contributed for the economic growth that will fasten the infrastructural set up.

A lesser threat than rail transport is the spread of air transport. There is also the dissemination of domestic air transport services that connect the major towns with the heartland. MoFED (2010) also indicated that domestic flight coverage and the number of destination towns for air transport have increased from sixteen in 2010 to twenty in 2015. This implies that air transport will stretch to service the large towns in the nation. The researcher estimates that it will threaten 4% of the transport sector.

Regarding the numbers of air passengers in domestic and international mobility, there will be a threefold increase on the current figure. In 2009, the aeroplane service had four hundred and twenty seven destinations; in 2015, it has reached one thousand four hundred and sixty four flight per year (MoTC 2011). Within the coming five years, the estimated growth of the mobility in air transport will increase by more than three fold. This shows that the number of domestic flights will also increase from time to time. Because of this, in the coming few decades, almost all major towns will be linked by air transport, which serves society at a reasonable price. Because of this reality, PRT will go on reducing. This will also contribute to the trend and it will contribute to the decrease in demand for LDBs. The potential passengers who can afford the price of air transport might also shift their attention

towards air transport as a substitute for intercity movement. This implies that the existence of air transport also creates an optional transport that is affordable for certain individuals, but not for poor and ordinary class. It would be preferable because of its speed, safety and that tries to deflate the existing congestion that seen on LDB. Therefore, air transport will become a threat to the LDB industry.

Airport and rail transport have contributed towards diminishing the existing supply and demand of LDB transport. The highest threat comes from railway transport. The reason being that rail transport is a better means to accommodate a vast population. It is also faster than bus transport because there is no traffic to impede its movement, and it is cheap in terms of travel prices. Thus, the rail transport has playing the highest role to cope up with the LDB and the air travel has less.

Another minor threat will also come from the spread of science and technology, particularly telecommunication and paradigm shifting of the society. This will increase more and more and this rise will decrease the interest of users to move from place to place. MOTC (2009, 2011) indicated an expansion of the telephone service, including fixed telephone lines, mobile telephones, internet installations, and wireless. The mobile utilisation also drastically increased because of the paradigm shift of society from fixed to mobile devices. However, regarding to the expansion of mobile telephones in 2008 was 1 954 527 and 4 051 703 in 2009 show more than two times risen from the previous year. At the time of this study, it goes up to 18 000 000 users in 2012. It has also forwards an outshine growth compared to the other mediums of communication.

The other threat to LDB could be a threat come from the expansion of telecommunication. In this paragraph, the researcher mentioned the level of expansion of telecommunication and its link with ground transport. The number of internet subscribers in the year 2009 was 71 059, showing more than a double increase from the previous year. Expansion of wireless telephones or internet in 2008 was 34 000 and 56 310 in 2000, showing 65.6 % increase from the previous year. At the time of this study, there is more growth within the last three years. It serves as a substitution instead of making for place-to-place mobility. Passengers instead will be communicating by using technological device rather than travelling long distance. This evidence implies that technological aspects are also contributed a bit or 1 % threat for the sector by fastening the societal tie and bringing economic growth.

Other studies also support the findings of the study. According to Jean et al. (2009), telecommunications can provide a substitution for personal movements in some economic sectors. Thus, by virtue of the prevailing electronic era, the demand for LDB will reduce. In fact, because of modernism and the paradigm shift in society, people prefer to make contact by using this device. The physical link will be rendered unnecessary. The study expressed that there is an increasing link within society where electronic devices like internet, phone, and other technology is used. It would also be a way to reduce the demand and it will consider as a minor threat of the LDB transport comparing to rail and air transport.

In general, the aforementioned issues such as the availability and increase in rail and air transport, the expansion of Information Communication Technology (ICTs) are the characteristics that will interlink society rather than intercity mobility. Therefore, this places the future of LDB transport in danger. The Endogenous Growth Theory of (Romer 1994), which holds that economic growth is primarily the result of investment in human capital, innovation, and knowledge support the overall idea of this study.

5.10. Conceptual Model of service levels' (S & D) of the industry

This conceptual model is designed to achieve specific objectives and findings in this study. This section explains three specific models used in this study. This model also shows the interaction between variables of service levels from supply and demand in the industry. It is also very important for the suppliers to provide quality service. This study-integrated variables like operators to the supply side and passengers to the demand side of the industry. The rate and level of urbanisation encourages large numbers of people to move from rural parts of the nation to urbanised areas. The demographic and socio-economic variables have links with the demand side. The service is undertaken on both seasons (i.e. on-journey and off-journey). The future threat has also tie with the socioeconomic wellbeing of the community and has big bond with the copying strategy of the industry. The supply and demand variables have links between and within each other and are inseparable. This means that one variable is an input for the other (Figure 5.1 below).

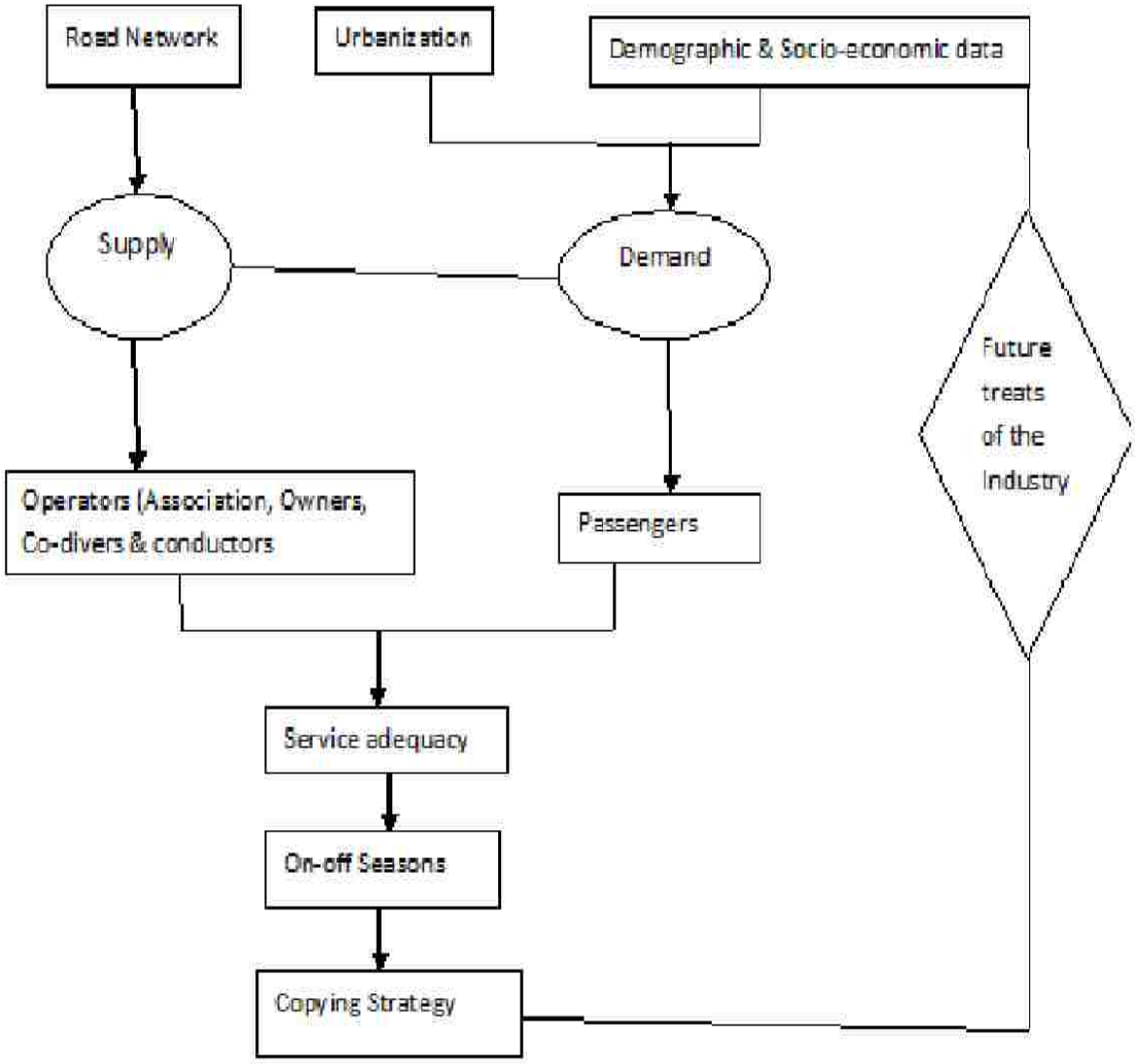


Figure 5.1: Conceptual Model of service levels of the industry

Source: formulated by the researcher (2013)

5.11. Conclusion

The conclusion of this section reflects upon the second objective, which is to explore the conditions of supply and demand of formal bus transport. The supply of the industry is seen from the quantity of buses found in the sector. The total extent of buses serving the passenger per day is more than one hundred and ten buses providing the service from the

Mercato bus terminals alone. In comprehensive, the sector gives service only from Mercato bus terminal for 16 000 for both incoming and out-going passengers per day.

The level one and two buses have fewer days without work than level three buses The implies that the waiting time to get full load, the tendency to leave the terminal without getting full load are too low, however the number of working day per week and waiting time to get the chance to make other travel most significantly on level one and reducing in level two and three buses. Thus, the waiting time to get full load and to get the chance to make other travel are positively correlated with bus levels. Level one is highly privileged than other levels.

From the demand side, there are is an inclination for passengers to immediately upon arrival at the terminal buy a ticket. However, more than one third of passengers will not receive service as soon as they come to the terminal. The waiting time to catch a bus after ticketing is that 75.5 % of passengers were waiting for less than an hour regardless of which level. While the majority of the passengers wait to get bus after ticketing was lies on 30 minutes to an hours. Regarding a time preference of passengers for their intercity long mobility, 93% preferred early or late morning. In terms of the strength of correlation, some variables on the demand and supply side of the sector have a weak correlation to positive and negative trends. Therefore, there is evidence for the prevailing discrepancy between supply and demand in the sector.

The service levels in the industry are determined by the availability of buses during off-on seasons. The on-seasons of the journey are predominantly the notable times for the prevalence of congestion at the terminal. The stimulating factors for the seeming difference between supply and demand are aggravated during holidays and educational travels. Beside the regular holidays, in Ethiopia numerous holidays that are not registered nationally but are commonly practised throughout the nation. In terms of educational travel, during entry and exit periods in higher institutions 1.5 million students were moving within the nation.

The future threat to LDB travel ties in with the socio-economic well-being of the community. The expansion of rail transport and domestic air transport has threatened LDBs. Expansion of rail transport shows a fivefold 5-increase and it will be totally connects the headquarter with the major cities in the hinterlands. Moreover, lower threat also expected from the spread of domestic air transport.

In general, the adequacy of the service provided by LDBs has good links between the core of Addis Ababa and the periphery of the country and it is playing certain role in creating networks for development. This reality also supports the Endogenous Growth Theory, the Core to Periphery Theory, the Central Place Theory and the Location Theory. However, the service provision system of the sector bonds homogenously within some explicit range of variability, which constitutes the node or core of the region. Thus, in both seasons the government has to regulate the system accordingly.

In general, this and other features treated within this chapter. By considering the detailed features of the adequacy of the service, stimulating factors and the future threat of inter-urban transport are also links the periphery to the core in Ethiopia. We can now proceed to see the major role of LDB transport plays in linking Addis Ababa to other cities and towns.

CHAPTER SIX

MAJOR ROLES OF LONG DISTANCE BUS TRANSPORT AND THE EFFECT IT HAS ON LINKING THE CORE TO THE PERIPHERY

6.1. Introduction

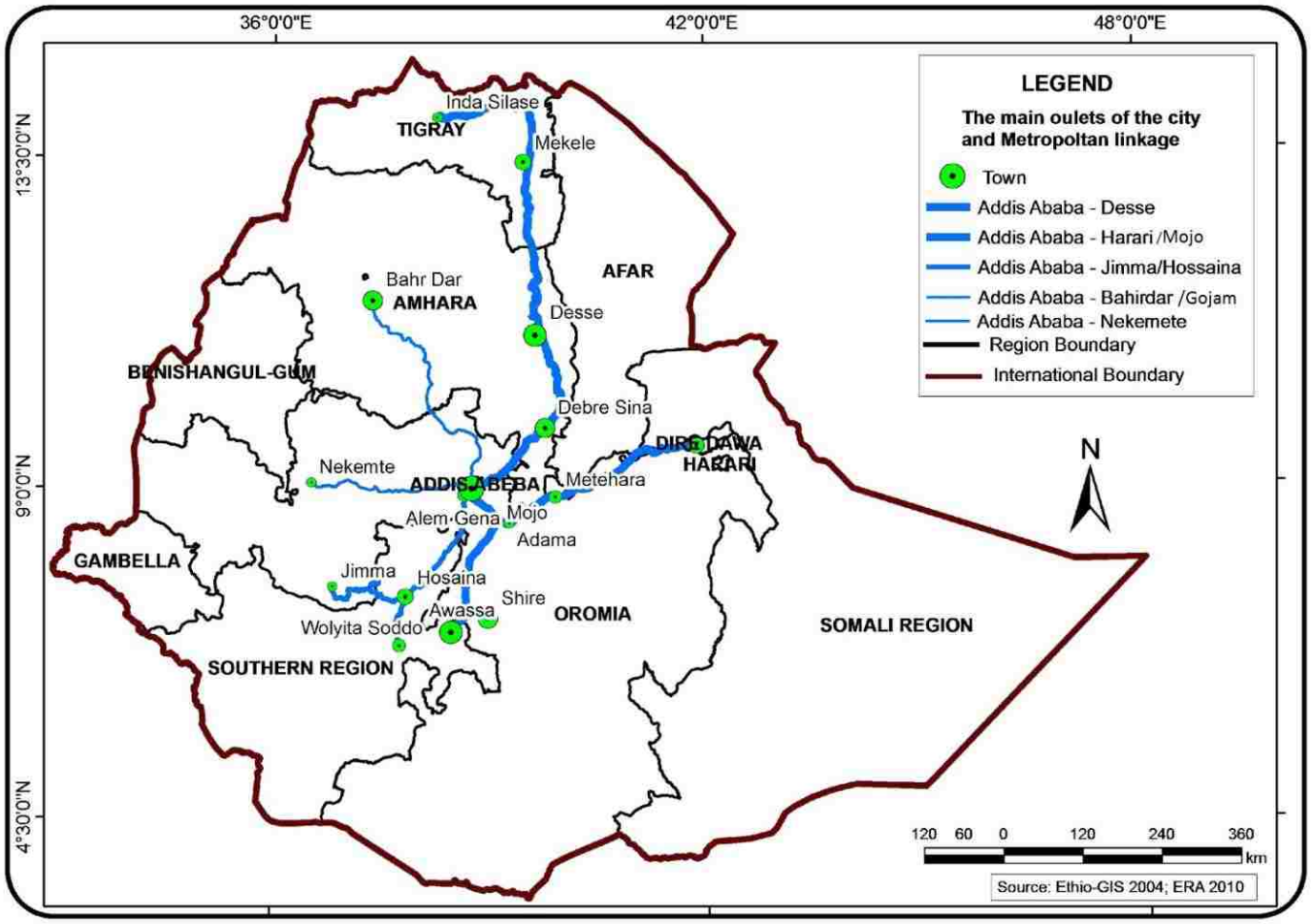
In Chapter Five, the researcher explained about the adequacy of the service, stimulating factors and the future threat of inter-urban transport links from the periphery to the core. However in this chapter has planned to give clear answer for the third objective of the thesis, it is examined the major roles of LDB transport in linking Addis Ababa to other cities and towns (RUL and for linkage of Metropolitan areas). It also focuses on its pivotal role for society, at origin, transition, and destination towns that also contributes to local economic growth. The LDB allows for the mobility of goods and peoples, which shape patterns of movement and development that stimulate economic growth. Thus, the flexibility of the LDB system can greatly influence the geographical location of economic development (APTA, 2009). This chapter presents the major roles of LDB transport and it effect on linking the core to the periphery. Moreover, it has shown certain effects on both local economic development and poverty reduction.

The dispatch of LDB has plays a significant role in the linkage of the city to other major towns, as well as the metropolitan linkage of the nation. The finding was that LDB plays a notable role at the origin, transition and destination places, and other parts of the country. Therefore, the dispatch of buses plays a key role for the major outlets, and it enhances personal and economic prospects by creating job opportunities for the unemployed.

6.2. Regional LDB Transport and its Roles in Metropolitan Linkage

It is clear that transport hubs of LDB bring specific benefits, enhancing markets, bringing goods and services and providing linages to other parts of the country. Physical linkage seen in terms of road that lies within different places. One of the main mechanisms for to making of link between various towns is due to the presence of highway roads that create a physical link between towns and surrounding rural areas. These links in themselves play a prominent role in linking markets, goods and services, societal, cultural and the likes because it is commonly carried out by using large distance buses and brings metropolitan linkage of a city with the hinterland. This is also very interesting for the making of link of the core with

periphery explained by (Krugman 1991; Fujita, Krugman & Mori 1999; Fujita & Krugman 1995).



Map 6.4: The main outlets of the city and general flow of bus per outlets

***Source**: Adopted from Google maps (Google software)*

There are at least five major outlets that can link headquarters with the hinterland (Map 4.1 to 4.3 and Map 6.1 above). It includes Mojo, Dessie, Gojam, Nekemit, and Jimma outlets that interlink the city with all outward and onward direction of the Country. Among these outlets, the Mojo and Dessie outlets have the highest coverage and they are receiving a great advantage from the industry. The other outlets like Jimma, Gojam and Nekemite get lowest flow of LDB (Map 6.1 above). This implies that enclosing the lowest flow of buses should also contribute to improve the sector.

The role of LDB for metropolis and metropolitan linkage is obvious. LDB transport plays an important role in the linkage, integration and growth of the cities and towns located along the flow routes. The highway roads also attract small settlements from rural villages that settle along the bus route and begin to form a town. This implies that the infrastructural facility is a base for the settlement and the formation of a town. Thus, these routes contribute towards the increase of urbanisation and it has fewer roles for the making of link among towns and certain rural areas that found around the city and on certain radius at the two sides of the highways roads. It has also indirectly connects towns to the rural areas found along both sides of the main routes. Data shows that the road is located within ten to twenty kilometres and it has brought primarily linked the city with other part of the country. Thus, the LDB transport has contributed high role for metropolitan linkage, which played for core and peripheral places.

The actual and potential factors for both the outgoing and incoming mobility of buses along the paths of Addis Ababa are going to be interlink of the city. The Maps 4.1 to 4.3 explain that all routes come and go towards and away from Addis Ababa, and they serve as a radial link to the surrounding major towns. For comparison, the ERA (2005) documents discussed that the entire road of a nation constructed by using Addis Ababa as a springboard. It is important for making an interwoven linkage for all towns and surrounding rural areas that located at nearby place of the city. It also shows a radial linkage of the city to the hinterland. The road infrastructure contributes to the formation of high urban sprawl along the route and it has less role for the making of conurbation at the nearby outlets of the city. Thus, the dispatch of the LDB provides a lot towards the linkage of the core to peripheral areas.

6.3. Dispatch and its Contribution to Urbanisation along the outlets

The amount and flow of bus dispatch has contributed towards the rate of urbanisation and vice versa. The data indicates that the estimated number of towns and the distance gap between major towns and smaller towns is identified in kilometres. The nature of the towns also determined based on the situation of their infrastructure, socio-economic and technological. Moreover, the dispatch of bus transport is determined by various factors like geographic and demographic.

The rate and level of urbanisation in Ethiopia is secured. On average, the spread of urbanisation is 6 %. The total amount of towns in 2007 of the country reached to nine

hundred and twenty five and this number increases annually. In 1984, there were three hundred and twelve urban centers. By 1994, this number had increased to five hundred and thirty four, and in 2013 there were approximately 1000 urban centers, which shows the rapid change in the distribution of the population in the country. The numerical growth of towns in the 1994 census has more than doubled. Therefore, the estimated total number towns in 2020 will almost double to eighteen hundred (Thomas & LaVerle 1993; CSA 2007). Therefore, the evidence indicates that LDB transport may also contribute towards a rapid change in the distribution of the population, and at the same time increase urbanisation.

In 2007, Ethiopia had more than seven hundred and thirty towns, 89 %. The total number of towns found in the nation was nine hundred and twenty five. The remaining 11 % share the medium and large towns and cities. There are approximately seventy medium towns and fifteen to twenty large towns. (Ministry of Urban Development and Construction MUDC report of 2007). The number of cities is only ten cities in the nation except Addis Ababa. This indicates that the transformation from rural areas to urban areas is very fast. Thus, the flow of LDB may contribute directly towards the core (Addis Ababa) and peripheral linkage (destination), and indirectly for anywhere in the nation.

Map 6.1 shows that the highest distribution of LDB also seen along Mojo and Dessie line. It proves that out of these outlets, the great frequency of both major and all towns are observed at Dessie route on Inde Selassie routes are 27 and 78, and Gonder line has 18 and 52 respectively. The outlets have highest recorded of both the total number of all towns and the major ones. It has a relatively busy flow of buses being located along this line. This implies that the outlets has high interface with the center than others outlets, this industry has also played high role for this immense of interaction with the center than others outlets. Thus, the rate of core to peripheral linkage are very high than the other outlets.

The estimated number of all towns found along these outlets is forty two. The number of major and medium towns is closest to fifteen towns on each route (Figure 6.1 below). According to MUDC (2007), CSA (2007), In Ethiopia, Addis Ababa is considered to be a mega city. It discloses that on average, more than fifteen major towns have a direct link and these towns get the services of LDB from Addis Ababa. All towns found along the highway roads have benefited from using direct and indirect service of the LDB.

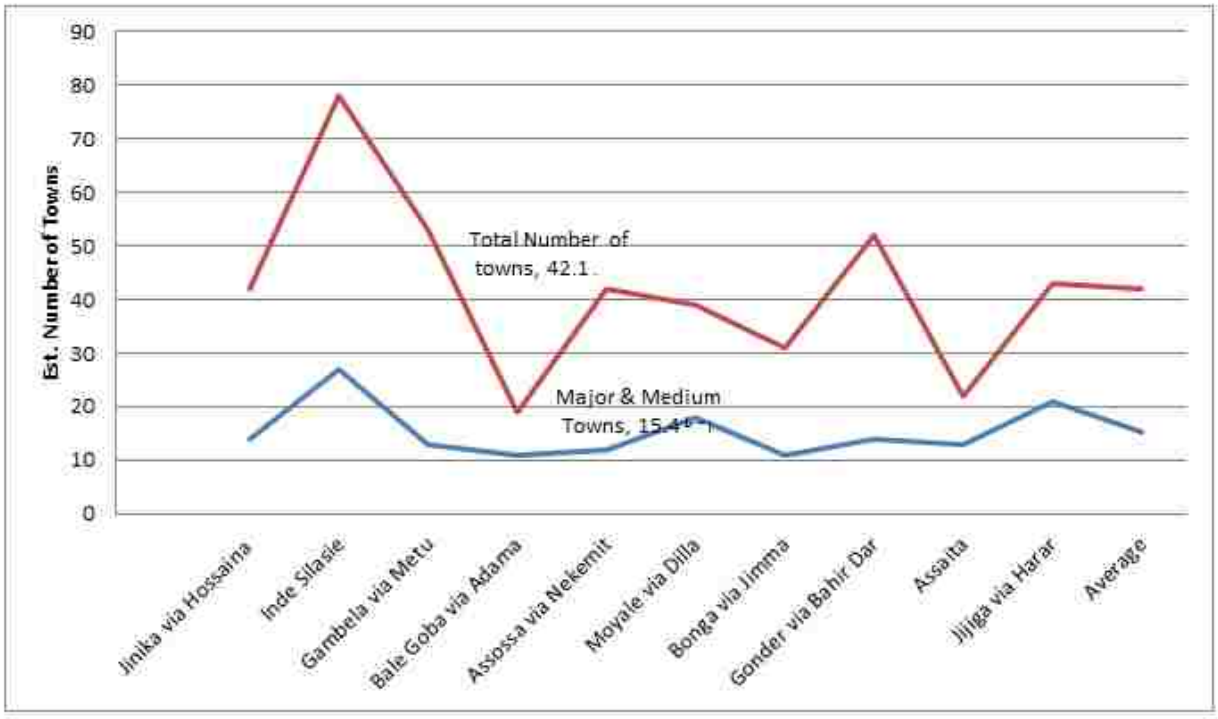


Figure 6.4: Estimated number of Towns along Major Routes from (O-D) in Ethiopia

***Source**: Compiled from GIS software and MOTC data of January 2012*

Notice: With the help of the EFTA who manually counted the number of towns.

The survey shows that there are approximately seventy eight towns found along the Inde Selassie route to wards northern direction. This high presence of towns appears to be due to historic road planning; the route was conducive to town formation. The distance of this route is one thousand and ninety kilometres, which is equivalent to 681.64 miles. It has strong ties with the center because of the prevalence of economic and social activity. These areas have benefited from the LDB industry and there is a strong linkage to other outlets. (Figure 6.1 above and Map 6.1 above). This growth and fusion of various towns along the route may result in a relatively high interaction in all areas of the country. This implies that the LDB is playing a significant role in linking the core to the peripheral areas.

6.4. The Roles of LDB Transport

6.4.1. General role of LDB

The sector has made a great impact on society. Research data indicates that the industry focuses on the habits and options that have opened up for people. Societies, in particular Ethiopians, rely on LDB more than on any other mode of transport, including air and rail. This reliance is largely attributed to the limited access to other modes of transport and economic considerations. In an agglomerate, the mobility culture of society essentially relies on this sector, rather than other means of transport (ERA 2005; EFTA 2011). It is also more suitable for all life styles that contributes more for all lifestyles that want in long distance intercity travel.

Job creation is another prominent role played by the sector. As the 1994 census of the Central Statistical Agency affirms, unemployment, which is 34.7 %, is a big problem in the city of Addis Ababa; it is even worse in other urban areas. At Mercato Bus terminals, the industry provides formal job access to more than 30 000 individuals. The sector provides jobs across a broad spectrum, including technicians, drivers, co-drivers, conductors and other professionals. It also provides informal job opportunities for brokers, street vendors and other activities such as crime and prostitution.

It provides services to all levels of society, regardless of their level of education. Although 60 % of national dwellers are illiterate in 2009 (MoE2010; MoFED 2010). At the bus terminals, countless members of society, regardless of their class, are directly or indirectly, engaged in the industry. This infers that it accommodates the city's jobless. The sectors' contribution to job creation with the resulting reduction in poverty and economic development is, therefore, unique.

LDB contributes to the expansion of existing towns and the establishment of new towns along routes. Furthermore, it contributes towards to the expansion of existing towns with a little left to establish new towns. The other minor role of PRT is also it is contributed a small for the prior factor for the growth of emerging towns and the formation of new towns along the route. It is noticed that the average distance gap between major and minor towns is forty-five and seventeen kilometres respectively (Figure 6.1 above).

In addition to this, the PRT in general and LDB in particular plays a role in the flow of information, distributing postal service and news. It connects a diverse number of individuals within the bus, and it promotes interaction that stimulates an exchange of ideas and culture amongst the passengers and residents of the towns along the way

Recently a significant amount of attention has been devoted to exploring the economic interactions within metropolitan areas. This plays the sector has an interaction with the social and economic problems that are concentrated more in the central city and major towns. In that case, it is possible to engage in suburbanites and urbanities efforts to be addressed the problems of their nearby towns. The idea that the fortunes of the cities and their surrounding suburbs are closely and positively linked.

6.4.2. The Roles of LDB at the Origin, Transition, and Destination Places

This study explores the role that LDB transport plays in various places, at the origin, transition and destination phases. It contributes enormously towards It plays a great role in the metropolitan linkage of major cities with the hinterland; the contribution towards the linkage of the core to the periphery is also explored.

6.4.2.1. Roles at Origin and Destination Places

The findings were that passengers start their journey from their source area, meaning the bus terminal nearest their home. Once they reach their destination, rather than searching for a place to rent, all passengers either go to their own houses, friends or other family members' homes. It is practical for passengers to do this in all destinations except Addis Ababa. This is very true when a person begins a trip from Addis Ababa towards destinations in the hinterland. The majority of passengers benefit more in origin and destination towns than in transitional towns. Even this implies that they do not want to consume the accessible material such as fruits, foods and traditional items both at origin and destination places. This shown up those individuals do not use the rental bed and they are not consume material, which is convenient, both at origin and destination places. The Mercato bus terminal is a place where individuals engage, which creates job opportunities for an enormous amount of people including small traders, street venders, brokers, and other classes of society that directly or indirectly benefit from it. The sector has also contributed towards development both directly and indirectly.

The sector also brings valuable intervening opportunities to the city of Addis Ababa. It is a fact that Addis Ababa acts as the place of origin and destination of all long distance travel. Therefore, as a means of generating income, it benefits more from this sector than other towns. It is also a means of generating income for the dwellers living near the vicinity of the bus stations.

In Addis Ababa, there are formal and informal house renters located around the station, who also benefit. These formal renters are mainly hotels and pensions with a license; the, informal house renters are used more in the industry. Informal house renters receive money for renting out rooms in their residential homes either temporarily or permanently, to passengers. They are advantages that society acquires from the industry, particularly at origin and destination locations.

6.4.2.2. Along Transition Towns

The industry has various roles in transition towns. Because of the importance of the sector, it has the lion's share when it comes to the transitional places between the origin and destination areas. This applies especially to the LDBs. The transition towns are not the towns found along the route, they are specific places to stop at for breaks. The operators rest at these stopping places for at least a quarter of the whole distance of the journey. In this study, the towns selected serve as transition places to stop for lunch and breakfast along all the main outlets including, Debre Sina, Gebre Guracha, Hossaina, Butajira, Wolikita, Ziway, Ambo and Metehara.

In fact, this survey focuses on the selected towns of Debre Sina, Gebre Guracha, Hossaina, and Metehara, which are located along the four major routes. They are the places frequented by the LDB for breaks. They break for an average of an hour before continuing the journey. During these breaks, passengers consume lunch or breakfast and occasionally, in some cases, they take dinner and find accommodation. Intercity bus transport provides certain roles for these transition towns, which benefit more than the places found at origin or destination (Photograph 6.1 below).

These four towns, located along the main routes, benefit from the industry. This is a reasonable sample to explore a similar reality at other transitional parts in the nation. For instance, Debre Sina, found along the Mekele route, stays alive because of the presence of

passengers. The data derived from focus group discussions, explained the town as 'the gift of the passenger', which is similar to that of 'Egypt was the gift of the Nile' (Hamley 1871). This implies that without these passengers, Debre Sina would not survive. Bus transport is an interminable source of sustenance for Debre Sina dwellers. Now the challenge is to provide a similar service for other towns in the nation. This implies that intercity bus transport provides great opportunities for the people in these towns to make money, and improve the livelihood of the society in these transition towns. Debre Sina's case is unique because of the geographic placement of the town.

Photograph 6.3: The role of buses in transitional places at Butajira town

Source: photograph taken in fieldwork in 2012

The industry has played a remarkable role by providing fruit at the entry and exit places of origin, transition and destination towns where passengers can eat drink and refresh themselves along the route. For instance, along the Addis Ababa to Arba Minch route, the

incoming and outgoing passengers are able to buy fruit near their destination and along the journey. They usually consume the fruit from the market at Lante, a place near Arba Minch town and other similar transitional towns in the nation. Thus, the transitional places benefit more than the origin and destination towns. This implies that the sector reduces poverty and increases local economic development.

6.5. LDB/PPRT Nexus LOCAL Economic Development and Poverty Reduction

This section expresses the general roles of the intercity bus reducing poverty with a strategy for local economic development. The model in Figure 6.2 below displays the link amongst the roles of LDB/PPRT with local economic development and poverty. Poverty has a multifaceted bond with all components in the model. Moreover, the researcher can describe each variable on the model such as poverty reduction, local development, alternative off-road transport (rail) and policy objectives of PPRT/LDB service. It also has some connection with the conceptual model of LDB transport in Figure 6.2 and 3 below.

6.5.1. Contribute to the reduction of Poverty

The issue of poverty has to be the target of every entity in the nation starting from federal to local levels in the nation (Richard et al. 2000). In this model, the issue of poverty has a central position, which notifies its integrating power as a cause and consequence with all variables. The model presents the different policy strategies linked to reducing the rate of poverty and increasing of the local economic development. The advantages gained from the transport industry are to reduce poverty by creating job opportunities. In 2011 and 2012, the industry employed more than 30 000 individuals including workers at the associations. In comparison, among the three places that get the service from intercity LDB, more in transition towns than that of origin and destinations because it contribute for the poverty reduction. It appears that LDB transport provides plentiful roles to transitional towns (Photograph 6.1 above).

6.5.2. Supplies for Local economic development

The theory of Local Economic Development highlights components such as the prevalence of specific government policies; technological innovations; relatively cheap transportation assisted by road building; inexpensive communication and the end of the era of industrial production, permitting firms to locate suppliers that are at a distance from consumers

(Richard et al. 2000). Local economic development has provided efficiently the essential public services like schools and infrastructure. Local economic development is facilitated by the transport sector providing relatively cheap and essential transport services to society (Ibid).

The LDB has contributed to local economic development, by creating job opportunities for both the illiterate and literate classes of society is number one. This implies that long distance transport has a great link to eradicating poverty and promoting both economic and local development. However, in my study, the bonds between towns and cities are tied to each other because geographic integration is considered advantageous for rural urban linkage. The local economic development and eradication of poverty have a mutual relationship. Again, this agglomerate effort also creates better opportunities for growth and development locally, regionally and nationally. Figure 6.2 below explains the cumulative interlinking in the structure of the industry; it also refers to the accessibility and connectivity of the town; the provision of quality service paves the way for the existence and occurrence of growth and development. Finally, it decreases ruralisation and increases urbanisation by reducing the rate of poverty, which is viewed as a prerequisite to local and economic growth.

This model indicates that the three components (PPRT, poverty and local and economic development) are inalienable and inseparable. They are interwoven like gears in a machine. If improvements are made to PPRT, and it stretches its service to inaccessible peripheral areas whilst keeping the cost of transport affordable, poverty would reduce and local economic development would increase. The major targets of development theories are to address the problem of the poor and pull the economy of the nation up in line with middle-income countries (Figure 6.2 below).

6.5.3. Alternative off-road transport (Rail)

The other component to this model is that the sector has created an alternative off-road intercity form of transport, catering for people from all walks of life, that of rail. Again, if local economic development appears in areas, infrastructural facilities are improved and extended. Therefore, rail transport is not the only transport sector, but it is a substitute and alternative means of transport. This form of transport can carry a heavier load of passengers and goods. Compared to road transport, it is the cheapest means of transport, and there needs to be an expansion of alternative off-road transport, like rail transport. Again, it also

contributes by diminishing the existing congestion on PPRT/LDB, and play a notable role in the reduction of poverty and the increase of local economic development.

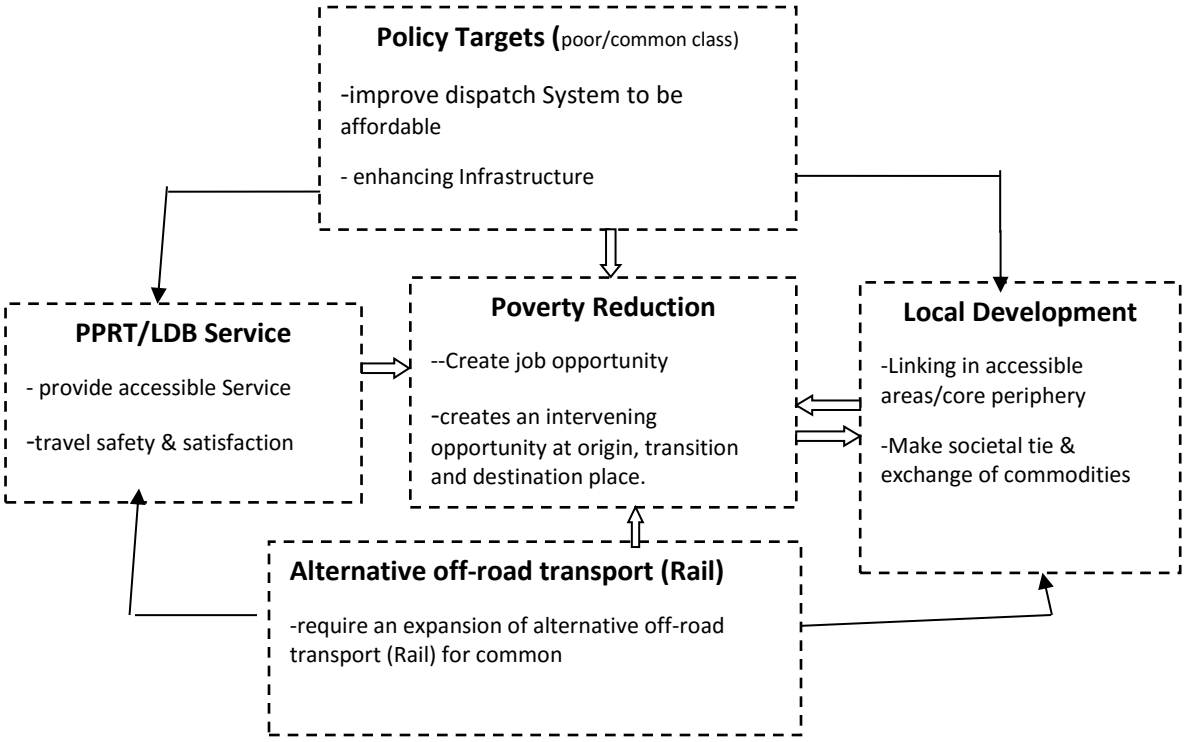


Figure 6.5: LDB/PPRT nexus with local economic development and poverty reduction

Source: designed by the researcher in 2014

6.5.4. Public Passenger Road Transport (PPRT) and Policy Issues

The remaining components of this model are PPRT and policy issues. The PPRT is a generic name that includes all types of passenger road transport, but the LDB service focuses only on long distance passenger transport that interlinks different cities and towns. The sector has succeeded in providing three big components; accessible service, passenger satisfaction and a focus on travel safety. It is noted in this study, that the best effort has been made to provide quality service, which means providing sufficient transport for commuters. PPRT is very important, playing a key role in third world countries. It must be a major target

for the reduction of poverty and development. To accomplish this purpose, the government must have a proper policy framework for PPRT in general and LDB in particular.

The other variable within this model is policy issues. Some policies are going to improve the dispatch system, service provision and rate of satisfaction; fare setting, inspection processes, travel safety and traffic management. The policy issues would focus on the associations' service provision, the safety and service and enhancing the buses. This requires integration among stakeholders; shifting and decentralising the service to the preferred regional capitals, extending the LDB Service to neighbouring countries, and upgrading the association to a corporate company. However, in this model the policy issues explain the overall effect of the transport industry reducing poverty and promoting local economic development. Therefore, LDB plays an important role in the fight against poverty.

6.6. Conceptual model of the Roles of LDB at Origin, Transition and Destination Towns

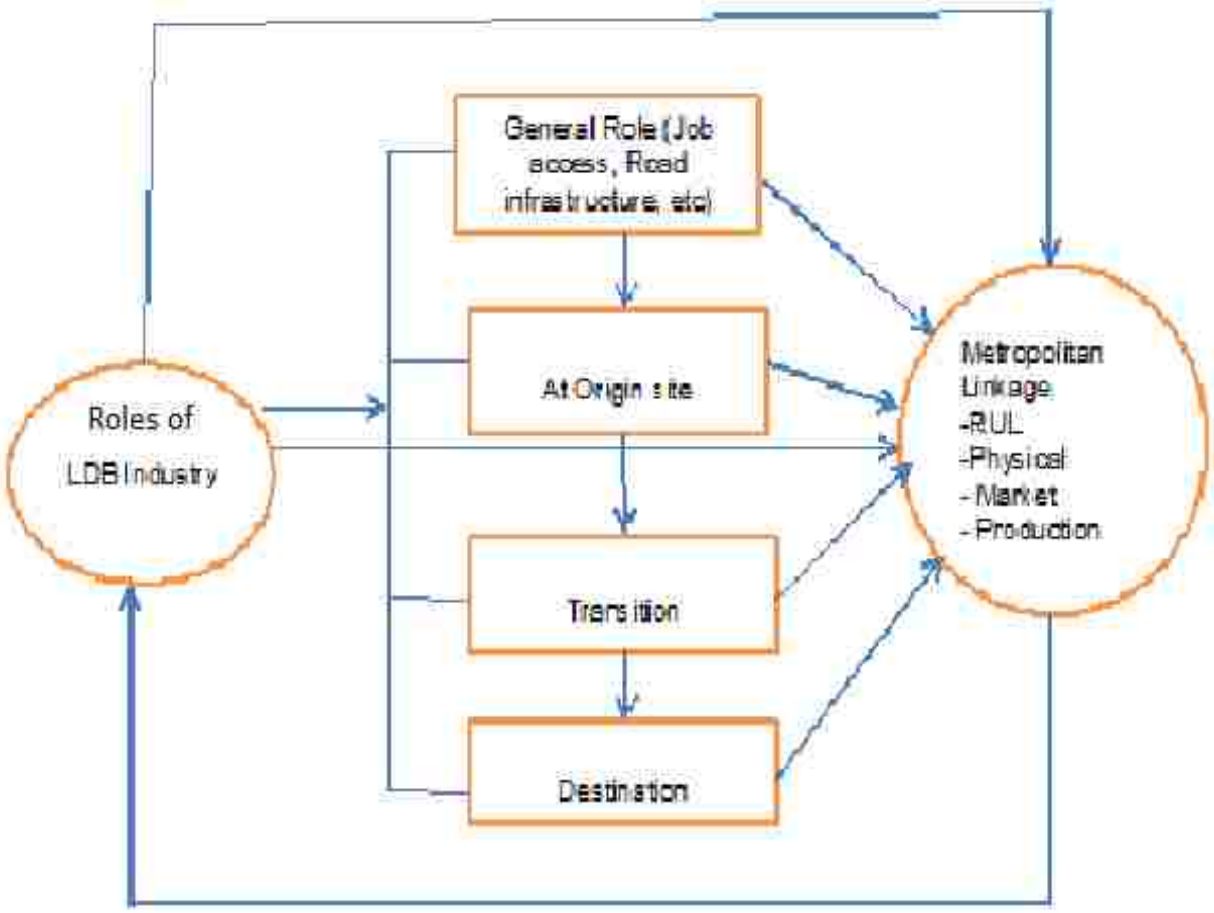


Figure 6.3: The conceptual model of the roles of LDB Transport

Source: designed by the researcher in 2014

This model shows the general role of the LDB and other specific roles in different areas, at origin, transition and destination towns. The most beneficial role acquired from the industry is job creation. It is the only potential means for social interaction within the society. The other contribution made by the industry is seen more at transition towns than origin and destination towns. It provides direct and indirect roles for the towns along the routes. The sector contributes to the metropolitan linkage of the city with the hinterland by using RUL, mainly with physical linkage, market, goods and services and other linkages (Figure 6.3 above). This model describes the roles of LDB at origin, transition and destination towns and their linkage to each other.

6.7. Conclusion

The conclusion reflects the third objectives, which is to explore the major roles of LDB transport in linking Addis Ababa to other cities and towns (RUL and the linkage of metropolitan areas). The industry has provided various roles for every person. The main purpose of the industry is to provide road transport for passengers travelling along the five major outlets, Mojo, Dessie Gojam, Nekemit, and Jimma. In terms of the nature of metropolitan linkage, these outlets can link headquarters with the hinterland. LDBs serve along the outlets that interlink the city in all directions of the nation. The study found that on average, more than fifteen major towns have generated a direct link with the center. There is a similarity to the MoCUD (2007) report, which stated that there are approximately seventy medium sized towns, and between fifteen and twenty large towns in the nation.

The data shows that the existing total number of towns including large, medium and small towns found along the main outlets is forty two. The highest number of towns is found along the Inde Selassie and Gonder routes, which are seventy-eight and fifty two, respectively. This availability of towns has come about mainly because of the accessibility of the routes and the demands of passengers. This is supported by the endogenous growth theory of Romer (1994), who holds that economic growth is primarily the result of endogenous investment in human capital, innovation, and knowledge. This can create good grounds for urban growth by upgrading the existing towns and opening the doors for emerging towns. Therefore, the sector has contributed towards the growth of towns.

It also plays a key role in transitional towns where passengers stay for an hour or so, to relax, eat and drink whatever is available. The finding was that all towns along the main route benefited from the industry. The role of LDB has visible and direct benefits for the selected transitional towns and for the core to periphery areas.

The first models describe the roles of LDB at origin, transition and destination towns and their linkage to each other. The second model shows how inalienable and inseparable PPRT is with poverty and local economic development. Thus, one of the unique aspects is that various literate and illiterate people in the sector get work opportunities and it put in for poverty reduction and local economic development. In general, the role of the sector contributes to people in all walks of life wanting to travel intercity. The model describes how

the sector provides overwhelmingly to all beneficiaries. The sector plays a prominent role of contributing to society by producing job opportunities for the majority of jobless societies.

In general, this and other features also treated within this chapter. By considering the detail features of the major roles of LDB transport in linking Addis Ababa to other cities and towns so that let proceed to see the major challenges of LDB transport in Ethiopia in the next chapter.

CHAPTER SEVEN

MAJOR CHALLENGES OF THE TRANSPORT INDUSTRY

7.1. Introduction

In this chapter, the fourth objective in this study is discussed, and the major challenges of LDB transport in Ethiopia are identified. There is a clear answer to the question of how the challenges in LDB have hindered the development of transport links and how this impedes the core to peripheral linkage.

This chapter identifies the major challenges in the sector, seen from the perspective of operators, passengers, owners, and the government. The main challenges of LDB transport are identified as a lack of integration between different stakeholders working in the sector and the service seekers are number one. In this section, the factors impeding the industry are discussed and possible solutions are put forward.

7.2. The Challenges of LDB Transport

It is difficult to have a transport sector that is free of complaints. This challenge seen from both the challenges, which impede the overall situation of the sector and it also focus on the challenges that comes on the urban environment, in the industry and economy of the country. However, if they are not acted up on the challenges, this study may severely impede the service levels, structure, and growth of the services provision of the sector. The challenges of the sector seen from various perspectives that include the passengers, bus operators and related government offices (Table 7.1 below). The identified challenges that have been seen in the system put as per the priority in terms of its weight, the burden that would bring on the community and other issues. As a result, the notable challenges of this sector are mentioned as per their influence that situate according to priority.

7.2.1. Lack of integration between different stakeholders

The first and most severe challenge is the lack of integration between the EFTA and the stakeholders that link the sector. The lack of internal integration among associations, operators, and government officials also hinders service provision. In peak seasons, some associations, and operators are not willing to perform their tasks as per the prescheduled

programmes and tariffs of the trip; instead, they are demanding a percentage of the payments.

The external integration shows that that the transport sector lacks integration between different stakeholders, which are working out of this sector. This study found that there is no real integration between the government and higher institutions (both private and government owned) and the police officer or security officer has integrated with the transport sector. The higher institutions, which include thirty one government universities that commonly, enter and release their students during regular summer programmes, but they do not communicate properly, with the transport sector. The MoE (2010) claimed that more than 1.5 million students enrolled every year at different universities and colleges in the nation. Of these, one fourth of them need to get the LDB service during the entry, exit, and holiday weeks, in order to attain intercity movements during exactly the same period. As a result, it becomes beyond the scope of the sector to cope with the prevailing demand during this time. The prevailing misalliance between supply and demand damages the service provision of transport and passengers are not satisfied. The bad integration between stakeholders magnifies these grievances and it make that passenger who suffer.

The other areas where the work with stakeholders has disintegrated are found in the security officers and the police officers. This is a fact even if the data from different offices indicates that the transport sector is the only industry that works without any security problems. However, there is no police force or security force in this sector that does not screen passengers and their luggage together. As a result, there is a potential danger for the passenger because there is no thought given to their safety. This observation reveals that mechanisms like screening on-board customers of every LDB, which could help to keep passengers secure, are unavailable. Thus, both internal and external integration amongst stakeholders are necessary condition in order to satisfy passengers and their property safe. It is better to provide effective and efficient service, in order to keep passengers secure and safe.

7.2.2. The Quality and Capacity of Mercato Bus Terminal

The quality of the accommodation and structure of Mercato Bus Terminal is low and of a poor standard. The AACC (2009) report stated that the Mercato bus terminal, which is

already fifty years old, is unable to meet the increasing demands of passengers and movement of vehicles.

Despite the fact that the Mercato Bus Terminal is a national and federal bus terminal, that connects various cities across the region to other areas. Its capacity is below one-fourth of the standard stated by the government of Ethiopia (200 buses) (MoTC 2011) with a current capacity of sixty buses at a time. In addition, the bus terminal is too old it was built when the total population in Addis Ababa was not more than half a million, and the national population was forty million people (CSA 1984; ORAAMP 2001). With a slight expansion, the long distance travel is dominant and still takes place from this terminal. This will be very problematic as the population of the nation. It is predicted that the national population of the nation will reach 106 million (Oladele 2010), and population in the city will increase to between six and seven million by 2020 (Iginis, 2008; as cited in (Mesfine 2009).

Another challenge is the places of surrounding the bus terminals, which is explained by (Gebre *et al.* 2009), as 'the dark side of bus station'. The surrounding areas of Mercato terminal and its satellites are a perfect place to commit crimes, abuse drugs and alcohol, and there is a prevalence of commercial sex workers. The result is over-crowding in all the surroundings of the terminals. Observation proves that the areas around BTs are the busiest places in the city. All these factors are the actual and future challenges to society. Block & Dupuis (2001), in line with the idea of the Location Theory of von Thunen cited in the book the reality of the city and bus terminal is. It is located in the center for the spatial economic making.

7.2.3. Rapid rise of informal PRT and Increased Sabotage

The rapid rise of informal PRT is another challenge in the industry. This has an adverse effect on formal PRT and LDB transport in particular. The various findings reflect that the small and medium sized buses, which have exposed them to informality operated by the majority of PRT. It found out that such illegal services were undertaken during the early morning and and at night. The observable effect that this informality brings to the LDB is mainly they are snatching the potential customers from the formal PRT and LDB in particular by using 18 informal temporary bus terminals around the Mercato bus station and in the city at large.

This study shows that the size of small buses was raised more than 17 times othe large buses and ten times higher than medium buses (Figure 4.1 in chapter four). In short, the small buses vastly outnumber the medium and large buses. The estimated rise of informality was 2 to 3 (informal mid buses), and 15 to 20 (informal Mini buses) are among buses that go to each major towns per day (Fekadu 2013a; 2013c). The Mid buses and Minibuses also estimated to reach between 20 to 30, 100, and 150 along all outlets, respectively. These oblige the formal LDB commonly delay their departure and sometimes cancel their journey. This has clearly affected LDB transport and it has become a potential challenge to the industry in general.

The other striking challenge of the sector is that there are many cases of sabotage and corruption. Especially, within the domestic services of the PRT, which are subjected, to violate the regulation of the government, for they were mainly engaged in the sabotage system (Fekadu 2013a; 2013c). This transgression of the existing regulations of the Federal Transport Authority affects both the regular operators and usual services of the industry. It also brings a significant negative effect on the potential gain of formal operators by impeding the positive competition among formal bus operators. More specifically, the market subjected to sabotage that potentially provides a significant advantage for the informal operators over the formal.

The contributing factors to such corrupted services seem to be due to poor awareness of the users, intentional violation of rules and regulations by the transport operators, the habit of poor traffic controlling and private ownership of buses. This externality also impedes considerable effect to or slows down intercity mobility and facilitate the movement of goods and people, and it also makes to delay the local and regional development of the nation.

This effects clearly also stated on the account of (Mishra and Nandagopal, 1993, as cited in Syed et al. (2007) due to the fact that of poor management and low quality of the sector with chaotic and completely uncoordinated operating environment that is often leads to slow down the speed of buses, and lesson the services provision.

7.2.4. In-service levels and Age of Buses

The service levels can see from both the supply and demand sides. Most customers are not satisfied with the services of the sector as its levels falls below expected standards. This

challenge can be seen from the old age and high service year of buses. The majority (48.4 %) of LDBs have been served between 5 to 10 years while 41.9 % have used for 10 to 15 years. Combined, the age of LDBs range from five to fifteen years that counts 90 % of the buses on service. This slightly supported by the data of EFTA (2011) which states more than 80 % of the LDBs have served for more than 20 years of age. This has complicated the government's effort to maximise the rate of customer satisfaction and it seems to endanger the business of the industry.

7.2.5. Difficulties with Bus Operators

During the survey time, it has learned that not almost all the operators seem to follow the stated rule and regulation of the Authority. It seen that even no buses in the formal industry that are to be checked whether the passengers are placed as per their ticket number or not either before the bus leaves the terminal or along the journey. It has been noticed that level two, three, and sometimes-level one buses do not provide light refreshments for passengers while they come from destination to Addis Ababa. The challenges also come from the side of the Associations and some operators who resist the new paradigm on the services. One of the new paradigms that targeted by the government is to keep the passengers from the suffrage of high queue to get buses and seats. The problems of the associations are less willingness and commitment to implement the BPR, and they do not work hard to satisfy their customers rather simply work to make money. The associations do not have branch offices at their destinations but they saturated only in Addis Ababa. It is found that this group do not properly serve the users and not able to subdue to the rule and regulation of the transport authority.

This study proved that all associations, which are working in main bus terminals, are refused to be upgraded into company. Instead, they are dispersing more by opening new Associations rather than joining into the present Associations that consolidate their potential into the company. Therefore, they have a room to open fuel dispatch center, to construct their own Bus Terminals, the provision of place for selling vehicles and accessories, like spare part, oil, tire, etc., and running of their own garage and other.

The Owners of the sector shown that the majority of the owners have refused to join into new company because of it reduces the direct ownership role of the owners. They work jointly that merged their buses into corporation they have to need the policy measure to

protect by law. Therefore, the government should create an opportunity and forced the Association and owners to organise in the corporation by enhance their awareness.

The other similar challenge emitted from the owners is that they simply focused on the lucrative nature of the business, but they have no enthusiasm to serve the society. In terms of service provision, the associations stick to their areas of interest that depends on the road facility and demand of passengers but not as such devoted to serve along the whole nation. The operators are work not only to ensure the social objectives but simply for financial gain. However, it is totally differed from the study of Crozet (2009); he argues that the operators should work to ensure social objectives but not simply for financial gain. The finding also shows that the sector was much functionalised by privately owned individuals and mainly operated by unqualified personnel, relative and affiliated individuals for the owners. It is commonly operated by unskilled labour that attended not more than 8^{th} grade (Annex 5). Operators that are mainly employed as drivers, co-drivers, and conductors employed due to their trustworthy nature to the owners. Therefore, these all aspects impede the service provision, safety, and service levels of the industry as the same time it also impedes the core to periphery linkage.

The other challenges of the industry was also seen from the side of drivers, among the challenges mentioned on the survey on Table 7.1 below shown that overloading of passengers and over-speedy driving of drivers on intercity LDB was accounted 45 %. Of these, the over-speedy driving is contributing more for the rises of human death and economic effects due to accident.

According to the latest WHO data published in April 2004 and Humanitarian news and analysis (HNA), (n.d.), the road traffic accidents deaths of Ethiopia has one of the highest road-accident rates in the world. It reached 22 786 or 2.77 % of total deaths. The Death Rate is 37.83 per 100 000 of population ranks Ethiopia number 12 in the world. India has the highest, followed by China, the US and Russia. In Africa, Eritrea is home to the highest concentration of road deaths (48.4 per 100 000 people), followed by the Cook Islands, Egypt and Libya. Among these raise of death, is may be due to the crash of Passenger transport can contributes more than automobiles because of in one intercity bus crash there would be a probability of carrying more than 60 passengers.

The ratio of vehicle population of Ethiopia has very low and below three per 1000 in 2007 (World Bank 2011). With the current estimate of Ethiopia being 5 per 1000 people. Whereas in developed countries the average ratio is above 800 vehicles per 1000 people. This implies the vehicle accident record was very high with very low number of vehicles comparing to other developing countries.

7.2.6. Troubles with Bus regulators (Government)

This challenge focuses on the challenges that emitted from the government side. They are challenges that arise from lack of attention to make the sector attractive to society and due to little enthusiasm to implement the stated rules and regulations. For instance, 85 % (Table 7.1 below) of the respondents observe the delay of asphalt road construction, poor road connection between towns and lack of coaching and controlling, and poor provision of LDB transport service due to lack of government attention. However, three-fourth of the respondents reflected that lack of coaching and controlling was a severe challenge.

This study noted that, both the formal and special LDB services do not provide services at night or 24/7 or 18/7 as the State restricted any PRT service provision to carry out during the daytime (12/7) only. Therefore, the rule and regulation of the nation also do not seem to allow running extended services to the customers. However, there is a huge demand to work day and night because it is a sort of demand driven industry. The government may need to work jointly with owners to create LDB corporations and it has to provide a policy that protects the owner of bus by law.

7.2.7. Camping of Passengers at Once

These challenges from the passenger side, can be seen due to high flow of people at once to get the service from long distance, it has been commonly from late evening to early morning. This implies that the passengers who are traveling for long distance are come to the terminal together at similar time. It is a usual trend to see various passengers are camping at the terminals at early morning to make long distance travel. It is also very common to observe disagreements with operators and neighbourhood passengers. This feature also because of the government not provided timely, flexible and proper schedule for them. They assumed that they might not get bus after 6 am or early morning. Beside with poor management, uncoordinated operating environment and low quality of the sector often aggravated the problem.

As shown in Table 7.1 below, over half (50.2 %) of the passengers have limited awareness of their rights. This implies that they do not realise the rights and the responsibilities of the operators, and appeals the traffic police when regulators (22 %) accuse the operators. Since the passengers have little knowledge and limited awareness of their right on and off the journey, it observed that they also fight over seats. The perceived challenges that identified in the industry is also confined the service provision makes too poor to keep the satisfaction and safety of passengers.

7.2.8. The Nature of the Road and Bad terrain

The last but not the least challenge would come from the natural landscape, and the size and nature of the road. The geographic placement of the road and the mountainous nature of the nation took as challenges for LDB and passengers. The main related challenges of the LDB are narrowness and zigzag nature of the road or the curvature of the places as geographic settings of the road.

Most Ethiopian roads are constructed on the steeply sloppy places that built by cutting the valleys or the mountains. These are dominantly found in the Amhara and Tigray regions, and some parts of Oromia. This is also one of the fiercest challenges of the system. According to AACC (2009) explained that Ethiopia’s terrain remains something of an obstacle, particularly for passenger transport in rural areas. Therefore, this bad terrain also

hinders the speed of buses, and increases the insecurity of passengers. This also brings congestion along the route that impedes the speed of buses (Photo 7.1 below).

Table 7.8: Challenges from Owners, Passenger, Operators, and Driver

Source: Field survey 2011

SN	**Challenges from the Owners side**	**Percentage**
1	They think only for the daily income	58.5
2	Don't care for the car safety	12
3	Lack of timely maintenance	13.3
4	Shows less integrity to serve the public	6.2
5	Other	10
	Total	100
	Challenges from the Driver side	
1	Overloading	26.6
2	Disrespect to passengers' right	21.2
3	Over-speedy driving	17.8
4	Using drug on driving	13.7
5	Other	20.7
	Total	100
	Challenges from the Passenger's side	
1	Less commitment to secure their right	50.2
2	Appealing to the traffic police when accused	22.4
3	Reluctance to provide proper information for controllers/regulators	21.2
4	Other	6.2
	Total	100
	Challenges from the Government side	
1	Delay of asphalt road constructions	33.2
2	Lack of coaching and controlling	30.3
3	Poor provision of passenger's transport (supply)	21.6
4	Lack of subsidy on fuel price	9.5
5	Other	5.4
	Total	100

The bad terrain has negatively affected the efficiency of bus utilisation; it has also adversely influenced the maintenance and cost of transport service. There are some differences in the

price of transport according to the terrain (AACC 2009). The journey per kilometre, on flat terrain, is not the same on mountainous terrain. For instance, the transport cost of a bus operating on flat terrain and good paved roads is largely lower than the mountainous terrain with fair gravel roads. The cost of each journey per kilometre is 0.09 on flat terrain and 0.17 birr on mountainous terrain. Similarly, in bad terrain the cost for a trip is twofold of the costs on flat terrain (Photograph 7.1 below). This may also bring either required paradigm shift into air modes of transport because of escaping the terrain. This also implies that bad terrain and geographic settlement of the places by itself matters, the provision of the industry and it also hinder the core to peripheral linkage.

It found that due to the unsuitable nature of the landscape and worst placement and catchment of the town has been taken as a challenge for the sector. For instance, the town like Debre Sina is settled in very bad terrain. In one way, when someone goes to North direction to Mekele, it is very much sloppy and in other direction when they come to Addis Ababa, it is very mountainous. As the observation explores, most of the incoming buses which come from Inde Selassie, Gonder and other remote places are reaching Debre Sina town at night and near night due to bad terrain. The bad terrain together with the geographic settlement of places is hindering the flow of LDB.

Photograph 7.4: The geographic placement or landscape and nature of roads

Source: The photo on the left side was grabbed during field survey in northern part of Ethiopia and the right side photo was also taken from the picture archive of face book which is clearly shows the reality in this study.

Photograph, which shows the LDB operators, that is drives on unsuitable landscape on zigzag line. It is acting as a major challenge for the industry.

Photograph 7.5: A photograph taken at Basso River, near to Lanite town along Addis Ababa to Arba Minch that the bus does not crosses the highway during the survey

Source: Photo taken during the survey in 2012.

N**ote:** The arrow indicates that LDB stand aside because of the frustration to cross the river and waiting for rush rivers to decline.

Photographs 7.1 above and 7.2 above are an indication of the many challenges of PRT and LDB in particular. This has observed for the past 20 years cross the highway road becoming a stabling block for the sector as well as passengers in the area. The buses usually take 2 to 4 hours until the flow of river recedes. People who need to continue their mobility for some reason are forced to cross the river by human bearing and on foot. This disgusted the passengers and operators. During this season, the operators' show less interest in coming to Arba Minch and other similar places until sanction lay. Thus, this considered as the government related challenge that resulted from poor coaching and controlling factors also affecting the flow of the river and lack timely and proper remedial actions from the local and regional government. However, all these challenges are interwoven with each other and one can affect the other. These are, therefore, the other challenges to the industry. See Figure 7.1 below.

7.3. The challenges and Solutions Model

This model is also requiring a bit narrative about how and why the model is formulated. It is good to understand the problem and solve it with the proper prescription that to tackle specific problems of the study.

After identifying the challenges of the study, it is necessary to predict the proper solution for it. Therefore, the model seen in Figure 7.1 follows the concept of Weiner and Vining. They put forward that problem analysis is connected with solution analysis. Problem analysis includes understanding the problem, choosing goals and constraints, and choosing a method with which to solve the problem. Solution analysis includes evaluation criteria, specifying alternatives, assessing alternatives, and recommending solutions (Wiemer & Vining 1989). Therefore, this model follows the concepts of Weiner's and Vining's ideas and points out the major challenges in the sector on the left side, and the short and long term solutions on the right side.

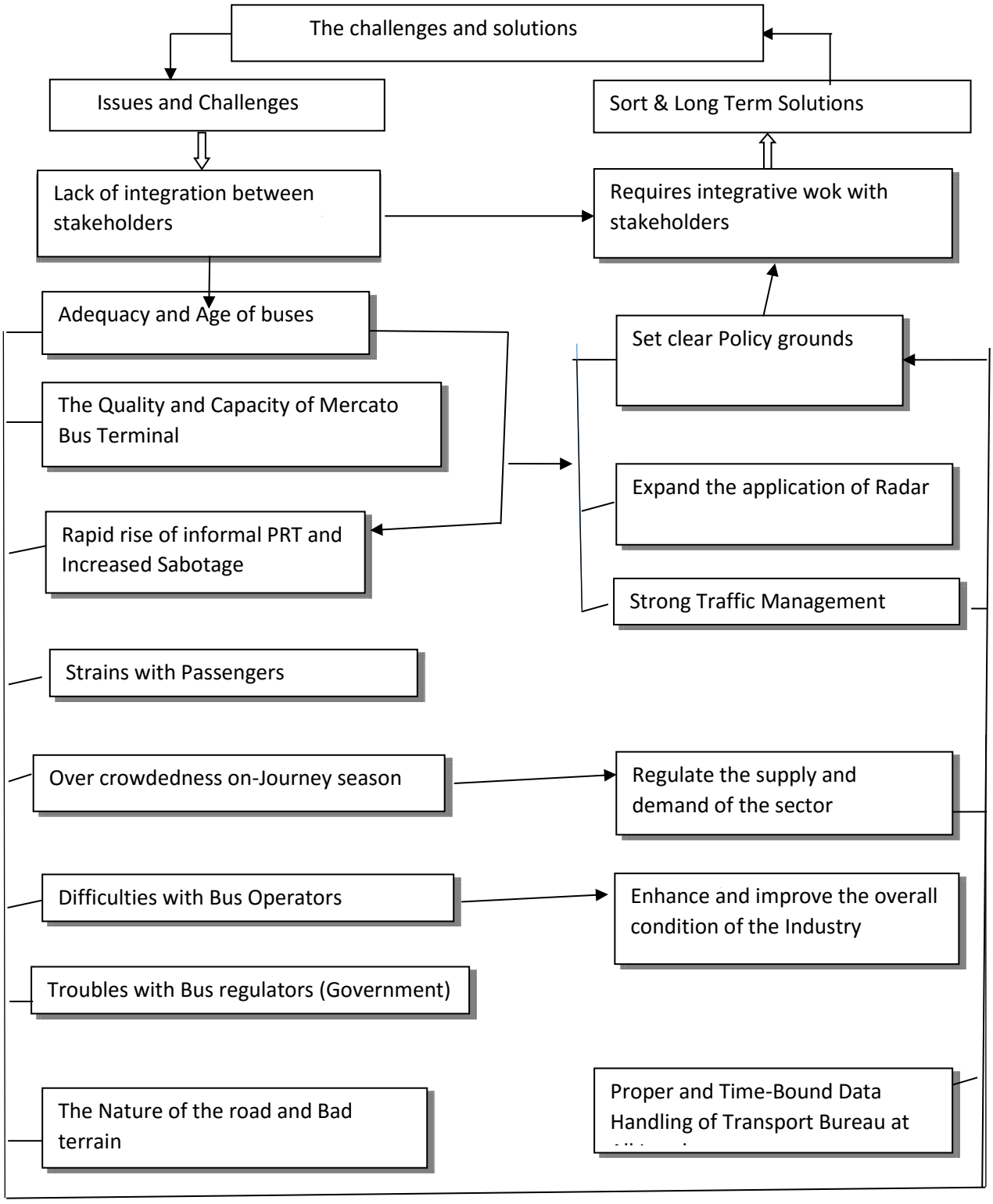


Figure 7.1: The major challenge of the LDB with its solution

Source: Formulated by the researcher in 2013

7.4. Conceptual model of Major sides of challenges of LDB Transport

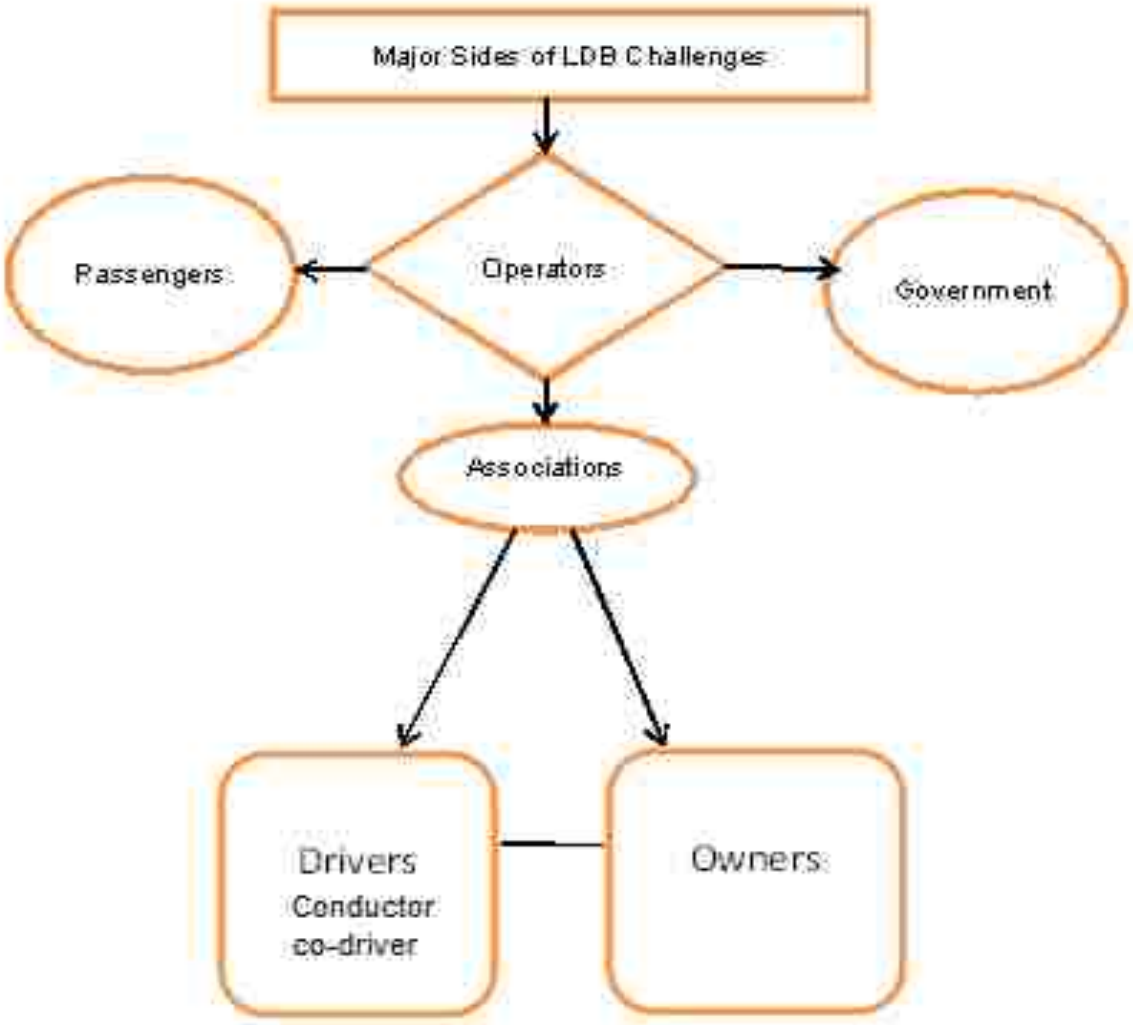


Figure 7.2: The conceptual model of the Major sides of challenges of LDB transport

Source: Formulated by the researcher in 2013

This figure does not show the detailed challenges of the industry, but it shows the source of these challenges. However, the major challenge of the study is explained clearly in Figure 7.2 above. In simple terms, it shows the overall framework of how and where the challenges of the industry are generated. Mainly the operators experience the challenges that is why the operators and associations are found in the center. The government and passengers see the other challenges in the industry. The passengers show less commitment to stand

up for their rights, and they appeal to police officers when operators accuse by them. They are also reluctant to provide proper information to controllers and regulators. Figure 7.2 above. This model clearly explains the basic themes of the study, and it expresses the objectives of this study. The model also shows the flow of the essential systems. This model shows the potential of filling the gap in policy features and it demonstrates the service features of the transport system in Ethiopia. It then illustrates how to implement these ideas within the present policies of the Ethiopian transport sector.

7.5. Conclusions

The conclusion section reflects on the fourth objective, which is to discuss the major challenges that impede service provision and growth in the LDB transport sector. The major sources of these challenges are observed from the viewpoint of the passengers, operators and the government. The lack of integration among different stakeholders in the sector is the most daunting challenge. The crowding of the service centers also contributes to the rapid rise of informal PRT and presence of sabotage and associated difficulties for operators and the government.

The other challenge relates to the poor quality of the accommodation and structure of the Mercato Bus Terminal This affects passengers, service provision, and growth of the transport sector. The final challenges arise from the landscape, the age of the buses; problems related to bus associations and the implementation of rules and regulations. The challenges of the sector is a challenge for the link of the core of Addis Ababa and the periphery of the country and it also plays to provide roles in developing networks for development.

The existing challenges in the sector must be identified and analysed of the sector. The next concern focuses on the policy gaps in LDB travel in Ethiopia.

CHAPTER EIGHT

POLICY GAPS OF LONG DISTANCE TRAVELLING BY BUS IN ETHIOPIA

8.1. Introduction

Challenges in the running of LDB explored in the previous chapter, cannot be overcome simply by improving the companies themselves This chapter will look at the fifth objective of this study, which is to examine the policy of LDB transport in Ethiopia. It also answers the question “what state is the LDB in Ethiopia with regards to the policy of LDB transport?”

The intention of this chapter is first to introduce the existing reality that can be seen in Ethiopian specifically focus on the PRT sector. Afterwards, we undertake to figure out the gap found in the sector and to put forward potential strategies to fill this gap. The section was primarily done based on document analysis with less weight on primary data. The policy features are a pillar and very important for the transport sector that takes into consideration as a potential and suitable manuscript in the transport sector especially in LDB. Therefore, the main theme of this literature is introducing the nature of LDB policy in Ethiopia and tries to show alternative policy features in the sectors.

The policy issues of the sector are expressed on Ethiopian experiences, with a view to helping other developing countries, particularly African countries. The literature is so relevant even beyond the region. The issues relating to LDB transport are highly reviewed in this chapter. Gaps in existing literature are identified, and implications for further research a forward. The policy in the transport sector of Ethiopia has shown certain changes and it has good impute for other countries. However, the total action taken on the industry would bring remarkable change and provide effective and efficient service to all PRT. Therefore, the policy change of LDB would be efficient and effective.

The literature presents a clear picture of the policies of PRT in general and LDB in particular. This section describes the general scope of the sector, which starts from the viewpoint of the transport policy, bus safety and service policy. It specifically focuses on the policy of LDB transport in Ethiopia, which mainly includes the levelling criteria, number of buses in the associations, the nature of dispatch in the industry, and the safety rules and regulations.

Policy issues are very important for the transport sector in general and the same is true in road passenger transport, particularly when looking at LDB transport. It helps to improve

service provision keeping the safety of both passengers and property. The existing reality articulates the key areas in the sector, which have been given due attention. Such as operational aspects, setting of fares or cost of features; amount and nature of dispatch, and how they franchise the route; the age limits of buses and a system to improve service provision of the sector; inspection, and its environmental effects. Policy issues should be seen from the point of view of passengers, government, operators in the sector, provision of driving license and so forth.

However, the policy status of PRT can also be seen on the areas of the Bus safety and Service Policy, the levelling criteria of the industry, number of Buses in the Associations, and the nature of dispatch and it shows how it focuses to set the tariff for trips on LDB Transport, and development plan of the City. It also focuses on the safety rules and regulations of the Industry and others.

8.2. Policy of Long Distance Bus Transport in Ethiopia

Ethiopia has various policies in the sector, but it lacks of reliability and consistency. Some of these documents are MOTC (2011), Federal Negarit Gazeta, FNG (Transport Proclamation) (2005), National Road Transport Policy (NRTP), Selam Bus foundation document (SBFD) (2009), Addis Ababa Chamber of Commerce) (2009) and HBL (Holroyd Bus Lines Pty Ltd) (1981) and other sources also elucidate the policy issues that related to the maximum and minimum number of buses in the associations, the levelling criteria in the industry, the way the dispatch is undertaken and its practice procedure.

8.2.1. Number of Buses in the Associations of LDB

In every service provision sector, there is a maximum and minimum quantity to be determining the allowed ranges in the system. In PRT sector, the setting of minimum and maximum amount of buses within the Association is important to ensure the constant settling of operators within the industry and good mechanism to improve the service provision. As we know the data and the prevailing reality shown that PRT, which commonly serves for intercity, travel and for LDB that is provided mainly by the private buses (EFTA 2011). See more in Chapter Four. Therefore, the government should intended to set a clear policy to be administering on these buses by setting maximum and minimum amount of buses in the Associations. The government also tried to make its own clear set up of the amount of buses

in the Associations. The main reason for setting policy as careful to limit the number of buses within the Association was address to upgrade them into company that helps to improve their quality and service provision.

In line with this, it also addresses to reduce and stop the fluctuation of buses owner within the Association. It stands to better foster a mechanism to create competition in the sector. Therefore, the policy document, MOTC (2011) clearly articulates the maximum and minimum number of buses in the Associations. Table 8.1 below depicts the minimum and maximum number of buses in any association, which range from fifteen to fifty for special buses, fifteen to one hundred for level one buses, and thirty to one hundred and eighty for level two buses, and forty to two hundred and fifty for level three buses. The fact that there are fewer level one and special buses, implies that they provide a better quality service than level two and three. Thus, to put certain standards to buses helps to manage them to provide a more effective service.

The government has a stand to determine the number of buses in the association should also protect the unnecessary saturation of buses in one association and it also contributes more for the growth of association.

Table 8.9: The maximum and minimum number of Buses in associations.

Sn	Buses Types by level	Minimum	Maximum	Remark
1	Special bus	15	50	Special sector
2	Level one	15	100	Formal sector
3	Level two	30	180	Formal sector
4	Level three	40	250	Formal sector

Source: MOTC, 2011

8.2.2. Levelling Criteria of the industry

The idea that to make the buses categorise into different level began in 2009, it is new for the industry that the fact of the industry needed change. It was because of the industry holds very old buses with old system of administer that stay for half a century. This infers the sector was accustomed with the routine situation of old system for several years. That is why; the

government was intended to begin remarkable change on the sector. They began the new concepts of BPR practice in 2009. The study is strictly forced to make change on previously accustomed system and they begin to be levelling among buses in the sector.

However, for this action and introducing new notion on the sector, government has established new criteria that served for the making of level in the industry. The idea of level is found in Chapter Four. The accounts of EFTA (2011) documents pertain that how the levelling has been undertaken. There are three basic components that utilised for the classification of levels such as service year of the bus, the nature of bus facility and comfort ability of passengers, and safety feature. These criteria have equal share that each has one-third of the total percentage. The first attribute are focus on the service year of the bus. If the age of bus increases, the performance and facility of the bus would also goes in decreasing manner. Thus, this policy feature is superb technique to bring change in the service provision of the industry.

The second important attribute used for levelling is the facilities in the bus. These include the nature of the bus, the type of seats in the bus, whether there is air conditioning, the neatness of the roof and floor in the bus. Entertainment such as audio and video, soft drinks and light food for reasonable prices, and the comfort of the seats. The last component of levelling focuses on safety aspects, which are crucial in the sector because of the number of passengers being transported to distant areas. The safety is important mainly for the passenger, operators, government, and the property by itself and so on. The government are forced that the entire bus whether it has to have different aspects including fire distinguisher, insurance, first aid kits, outlets window during injury, the safety belt and the like for the betterment of concerned bodies such as utilizer of the bus, providers, and others. In the provision of levelling, these three components has equal amount i.e. 30 % (one-third) of the whole criteria such as the service year, facility and safety features.

With regard to grading buses to determine which level they belong to, depends on the amount of points that each bus gets. Every bus should score between eighty and one hundred, which would be a level one status. Buses which are given points between sixty five and seventy nine point nine nine are given level two statuses. Points given between fifty and sixty four point nine nine apply to level three buses. The last category of the point also lies within fifty to sixty four point nine nine are getting level three. The rest buses which are not

able to score the point below fifty are left for a while and need to make Buses that score below fifty points are required to make certain improvements before being tested again. This implies that the level one and two buses provide better services than level three buses.

According to EFTA (2011) ground rules and regulations, the duration of levelling applies to one year. Therefore, each year all buses are checked again for these criteria. This should keep buses to a reasonable standard, and hopefully it increase the standards of lower level buses.

The other techniques of making bus in level have taken by coating their buses in different colour. The other identification techniques and role of levelling is to identify the buses by colour. Regard to coat the bus by colour, however, the service provision of buses is very inclusive and its service would be address for all walks of life mainly for poorest members of the society. The operators should also provide qualified buses to the industry by giving different colour for buses by using allowed colours as per the standard (see on photo 4.1 in chapter four). Beside the other criteria, therefore, the passenger can easily identify the buses that took ticket even they can try to identifies by its colour but not only identify them on the level types, bus number and side number.

As per the rules and regulations of the MOTC that assign buses to a category, state that all levels of buses should use standard colours, so that even the illiterate population can identify which bus to choose. The red brown colour on the main body of the bus coated with a white stripe, identifies the special buses. Level one, two and three buses are white on the lower part of the bus and the top half is green, blue or yellow. In general, the policy of the sector was adjusted as per MOTC (2011), to ensure a standard that worked on all passenger road transport. Dividing buses using colours is the most effective way to ensure good service provision in the industry. See Photo 4.1 above.

8.3. The Dispatch System of LDB Transport

In this context, the word dispatch implies the flow of bus that is considered in organised operation to be assign in the route for the people that to make travel from place to place especially for LDBs. It also means that to make send off quickly, as to a destination or to perform a task from the legal bus terminals. In other word, it infers that to discharge or

complete the task that to distribute the buses promptly. In short, it infers that sending off the bus from the terminal into different part of the nation in either round trip or normal trips.

The dispatch system of buses is undertaken based on the operational schedule and the routes made by the associations, company and owners. Operators who need to get confirmation from governing bodies prepare the operational plan. The operational programme is prepared for fifteen days, three months, six months, and if necessary for one year or more. The programme includes the expense for tariffs, number of buses, preferred routes and destination towns starting from the origin to the destination. The operational dispatch of making and getting the flow of buses are that the supply's to the passenger is established on the formal system are level one, two, three and special service also undertaken by registered Buses. Regarding the route operation, the place of departure and destination is determined by the transport authority where public commercial road transport vehicles are assigned to operate (MOTC 2011).

Concerning the type of buses, this is assigned in free dispatch according to pre-stated schedule programme and franchising or bid by competition. The dispatch that is not covered based on the pre-established programme and it would be free line. Therefore, the Federal Transport Authority or Regional Transport Bureau should also cover the line by bid, ratio or other suitable actions. As per the article 5.5 sub article c of the documents of MOTC (2011) discuss that every operator should provide the service that requested by Transport Authority. The EFTA has also try to assign selected buses on the area that is not uncovered or being vacant as per the regulation.

The main alternative points for the distribution of dispatch allocation in the system that is carry out from/to the bus terminal are clearly mentioned for both operation and associations on the documents of (MOTC 2011). These are summarised as:

1. Operators can load passengers only within the bus terminal. They are not allowed to load passengers along the road or anywhere that is not in the terminal. For operator also not allowed to drive the bus and begun to load the passengers without having the legal certificate from each one amongst the legal bus terminal or from the Association or legal service providers.

Operators are entitled to a schedule fifteen days before a journey, which is then endorsed by the transport authority or the Regional Transport Bureau of Ethiopia. So as the transport Authority has to ratify their plan according to the schedule and distance coverage. And also, if the pre-stated schedule would be changed, they can make report to the concerned bureau at Federal or regional levels. Every operator provides a pre-service ticket from the office in a place, which is place that is convenient for passengers.

1. The amount of time it takes to begin loading passengers; the LDB would stay forty five minutes at a federal bus terminals. Buses would stay an hour at regional, zonal and wereda terminals. If the allowed period is over, if buses are 50% full, they must begin the journey.

2. Passengers must sit in the seat allocated to them on their ticket, and a number is assigned to their luggage. This should all be done an hour before the bus leaves. Next to the dispatch system, let see how the concerned office would set the tariff of the journey. The setting of tariff is also considered on the base of the logical settlement criteria, it is important for the betterment of both the users and operators in the industry. In general, the management of the operators or Association settles the ticket prices of the trip periodically or Company to make regulation by consider the market price of all necessary expenses such as mainly the price of the fuel, the cost of Tire and spare parts, and depreciation cost and so forth. The Bus safety and Service Policy of the whole LDB transport is discussed hereunder. However, this dispatch and established standard of bus operating procedures are the best practices for other countries.

8.4. Bus Safety and Service Policy

The notion of safety is an inclusive word, which denotes the condition of persons or property being protected against physical, social, financial, political, emotional, occupational, psychological, educational consequences of failure, damage, error, accidents and harm. It is a state in which someone is safe and not in danger (Cambridge Advanced Learners Dictionary 2003). In the transport industry, safety is [paramount. Road accidents cause injury, death and damage to property, all of which impact on human health and safety (WHO 2004). Safety concerns are considered amongst the criteria when buses are being levelled (EFTA 2011 and Humanitarian news and analysis (HNA n.d.).

In the context of road transport, the Motor Vehicle Transport Act (1987) defines bus safety as preventing accident, injury and damage to passengers and vehicles. Safety must be given top priority in PRT. Health and well-being of the staff and passengers is essential

The spectrum of safety is mentioned in the accounts of HSE (2005), Transport Integration Act (TIA) (2010); Transport safety issues are seen from different perspectives people's safety, vehicle safety, management, site safety and others. The people or passenger safety is addressed by, amongst other things, proper training. Management safety, by risk assessment, taking responsibility, communication, and co-operation. Vehicle safety, by regular vehicle repair and maintenance with regular inspection, driver training, appropriate vehicle loading and management.

The passenger sector needs more attention than freight as it carries people. This is not to say that safety in freight lines is of less impotence.

In some jurisdictions of Ethiopia, the issue of road safety as seen on the accounts of EFTA (2011), it has already been established to evaluate and recommend the implementation of road safety policies, such as mandatory use of seat belts, compulsory driver training and testing; prohibition and punishment of driving while impaired by drugs or alcohol; traffic safety education for children; and testing and inspection of all vehicles to comply with national vehicle safety standards.

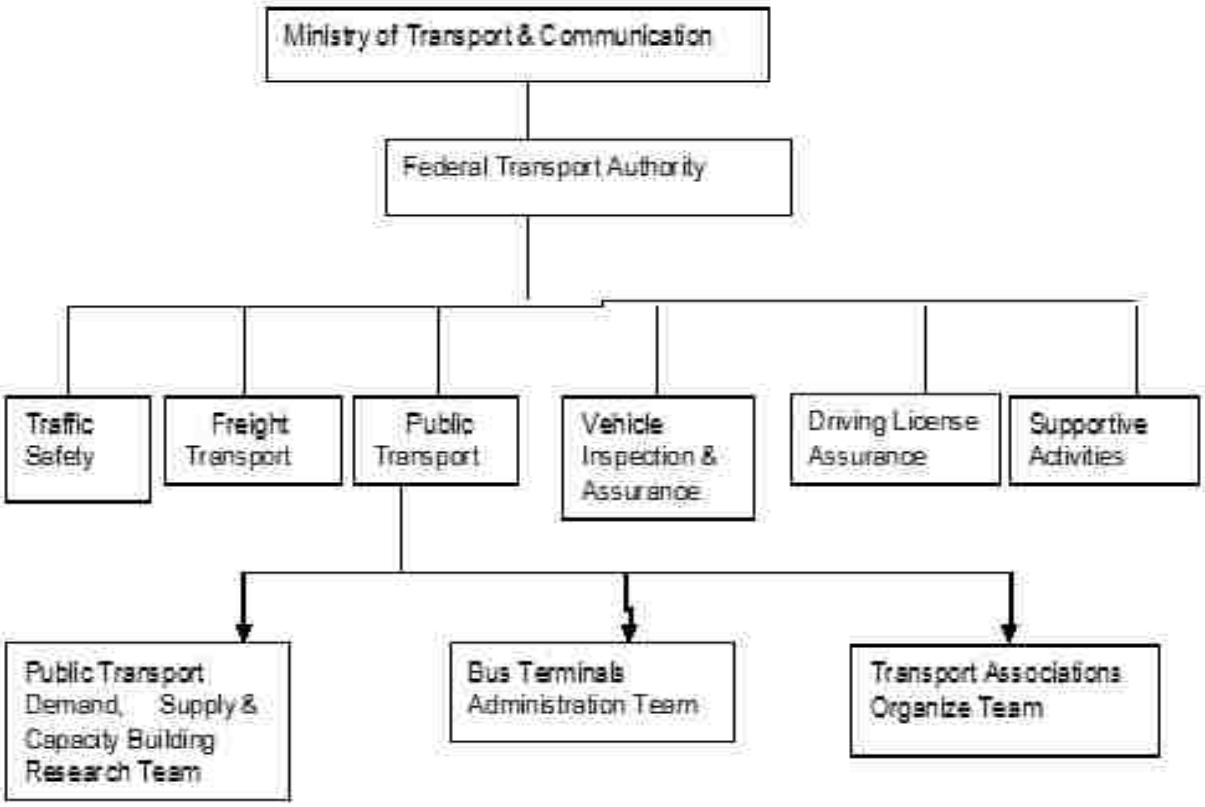


Figure 8.6: The Office Structure of Ethiopian Federal Transport Authority on public transport

Source: (EFTA 2012)

8.5. Internal and External constraints of the organisation from Policy Viewpoints

This study identifies certain constraints as internal and external factors and it helps to examine the policy outlook. In this context, focus is specifically on the Federal Transport Authority and Ministry of Transport and Communication in general. Identifying the internal and external constraints of the organisation found in the sector is very difficult. This is largely due to conflicts among role players such as government, operators, and passengers.

Based on the overall objectives of the study, policy proposals have to create workable environment in the sector. Cohesion, commitment, uniform policies and co-operation, are lacking in the sector. All of these are identified as the major internal and external constraints of the organisation as well as the sector.

Lack of integrated policies among the stakeholders in and around the sector is the major constraint; this effect are of performance of the sector including safety. A further problem apart from lack of access to policies is that the policies, such as they are, remain inadequate. EFTA policies are allowed to the passenger transport service that should only be provided in day (12/7). However, they do not have trends in the industry to serve the society for 24/7 or 18/7 makes that the service are going to be stacked only in day because of the predominant policies. In addition to this, poor setting of policy for LDB transport in particular and PRT in general because there are some issues in the sector require policy formulation such as they do not have trends to reserved special seating for senior and disability including special cases (Pregnant Women and family with children). It also impedes the efficiency of sector. This is a better tool to elasticise the limited service provision at any time.

Respectively having good policy without strong implementation capacity, it is nothing. In Ethiopia there are certain areas has required to settled policies in the office of EFTA. However, there is low commitment. These areas are shown the service sector contemporary Associations of LDB transport does not yet upgraded into companionship or corporation. The Association are still not yet open and expand ticketing office at least to the major destination towns because of poor commitment. Till today, no LDB Association should expand the services into the neighbouring countries. Almost all LDB service provision is limited in the borderline of the country.

Beside to Upgrading and deterioration of the standards of Mercato Bus Terminals, it was as it was as before. During on-seasons, certain associations and operators has shown little willingness and cooperation to be carry the passenger according to the prescheduled programme. In addition, there was no proper provision of light food and soft drinks for the customers who are traveling in both outgoing and incoming travel of less commitment of policy practitioners. This all drawbacks show that there are lacks and gaps of policies in transport sector and scarcity of commitment on the policy makers and practitioners are taken as the bottleneck of the industry. This internal and external constraints of the organisation are limited the efficiency of the service provisions.

8.6. Prominent Alternative Strategies for Policy Makers

The sound policies are good to govern this sector. As to the foregoing discussion, the following key points are provided as possible suggestions to improve the overall situation of LDB transport and it also good tools to fill the attaining policy gaps. The following strategies and alternative policy points are forwarded in priority in terms of their weight. Therefore, the government and Association should do the following:

8.6.1. Work with stakeholders to reduce passenger congestion in the terminals

The supply and demand mismatch is primarily created because of lack of integration between the stakeholders such as (MoE, MoH, MoA, MoD and others). Therefore, during the time of entry and exit of the higher institutions, the concerned government bodies primarily MoE, MoH, MoA, MoD and other should work together with Federal and Regional transport Authority. For instance, the MoE and MOTC have to make consent to cooperate and try to fasten the service to the users according to the predetermined schedule. If it is possible, the Universities and Colleges should also send their schedule before one month to make calling and release the student. Then after, the MoE can make a link with MoTC to be ready to host the student. Thus, it requires at least specific integration between MoE and MoTC prior to the exit and entry of their students. Moreover, the other offices which MoD, MoA, and other have to have the same agreement with MoTC. It can settle the problem in such a way and try to regulate the demand and supply accordingly.

8.6.2. **Work cooperatively with concerned stakeholders (Security Officers) for the safety of Passenger and Property**

As to the data from different offices, it is the only industry that works without the pervasiveness of security problems and yet there would be potentials security problems, which require working with the police force of the city. This study revealed that in Ethiopia at large and in the study areas in particular; there were no attempts to screen the on-board customers and users of every LDB users and property. The concerned body should check the on-board passengers and their property by the help of modern technology such as metal detectors. It is important to work with the police force and other trained security personnel at the exit and entry of bus terminals or when boarding and leaving buses. This is essential as the sector is connected to human lives.

8.6.3. Serve the society for 24/7 or 18/7

This study noticed that there was no trend of LDB working for 24/7 or 18/7. It is found out that almost all PRT serves twelve hours in a day during the daytime (12/7). This limited hour service of the formal industry provided rooms for the rise of informal passenger transport as passengers were found to travel anytime they want. This survey explored that the small and medium informal passenger transport are raised. The sector should work day and night because it is a sort of the demand driven industry. However, the study found that both the formal and special LDB services did not provide at night. The rule and regulation of the nation also did not allow serving in 24/7. The industry was found to provide its service only on daytime from early morning to noon (at least 6 hours) or a quarter of a day. Therefore, the government and Association should allow the sector to serve the society for 24/7 or at least 18/7. This can be done starting from some to secure the major towns and gradually it expands into others towns. In this way, the industry can deflate the present congestion during the daytime and satisfy the customers' demand providing convenient service. It can also become a good mechanism to reduce the rate of informal operators.

8.6.4. The Association should Open and expand ticketing office and develop web site

During the survey, almost all Associations camped in the main bus terminals. It was found that none of the formal bus services had a branch office for selling tickets in the city. As the PRT is the only means of intercity mobility for majority (99 %) of the people in the country EFTA (2011), and the PRT Associations should open alternative ticketing office at every sub

cities of Addis Ababa. They can start from congested areas of the city and gradually expand to major towns found at destination areas. The government should also use this as a part of the standard criteria working in the sector. This may also open up job opportunity for graduates from TVETs.

The study also revealed that none of the Associations opened a website to introduce their services and to help passengers register for tickets online through their electronic cards. The associations should promote and allow online registration for ticketing service and for booking for travel. Therefore, the government should also consider this as standard criteria for the Associations and operators that want to join and stay in the industry for the future. As the same time the associations and government should announce their service to the passenger through media how they reserve the seat.

8.6.5. Upgrade the Associations into Companionship Corporation

This study proved that not all the Associations that currently work in the sector upgraded themselves into a company. Instead, they tended to open new Associations rather than joining the existing Associations. The Associations should expand their business by opening gas stations, constructing their own Bus Terminals, establishing place for selling vehicles and accessories (spare parts, oil, tire etc.), and opening their own garage. These in the long run will enable them change into a big industry that begins to assemble and maintain own buses. Moreover, the current direct ownership role of the owners should be changed to corporate ownership because the owners need to work jointly into corporation. This needs legal ground and the government should take policy measures and provide them legal protection. The government may also need to enhance their awareness about being ownership of buses is corporate to be make company.

8.6.6. Expand Long Distance Bus Services to neighbouring countries.

During of this study, the existing LDB service was only focused within the nation and contributed very little to international linkage. The industry may need to provide the service to adjacent countries such as Djibouti, Somali, Sudan, Kenya, and Eritrea. This may bring a good neighbourhood relationship with the adjacent countries and it makes cultural and social interaction. It can also be helpful to international mobility that crosses the boundary of the nation for transit. As the name refers, LDB transport can stretch its service as long as it can

until it is substituted by rail transport. In fact, this action requires bilateral agreement among the neighbouring countries. The government should facilitate this by drawing up a memorandum with adjacent countries.

8.6.7. Set a clear policy ground for long distance bus in particular and PRT in general

In this study, it was found that certain issues had policy, but most other aspects did not. As the study articulated, the majority of LDBs served for long year and their age was above 20 years. This needs a policy on the age limit of vehicles and buses, environmental effect of motorised transport, maximum hour limit to drive continuously and how to secure the safety of passengers. This should particularly focus on intercity long distance mobility and later on medium and on taxi services. Therefore, as stated the Ethiopian government especially the ministry of transport and communication has to formulate a policy on the maximum limits of drive per day and week, consecutive hours, rest time and others.

8.6.8. Upgrade the standards of Mercato Bus Terminals and plant the other BT

Mercato Bus Terminals have been the prominent national BT serving the nation for the last four decades. The terminal was constructed in the 1970's for a small number of operators and passengers. In 1970, the total population of Ethiopia was not more than 20 million. However, a survey by the AACC (2009), reported that the Mercato bus terminal, which has served over 30 years, is unable to meet the increasing demands of passengers and vehicles. Currently, LDB serve 76 to 80 million people we want (CSA 2007). It is a national and federal bus terminals, found at headquarters of the nation and its present accommodation is too poor and below the standard. At a time, it serves below 30 % (60 large buses) but the total expected accommodation of buses is 200. Therefore, the government should improve and try to expand the bus terminals as per stated standard on the BPR as early as possible. This may be better tools to meet the need of increasing demand of passengers and vehicle movements.

8.6.9. Regulators have to check prevalence of extra passengers, Realise the service provision of operators along the journey and others

The finding depicted that there was the prevalence loading extra passengers. It indicated that the operators add 2 to 3 extra passengers. It was found that there was no trend of checking whether all the passengers were holding tickets. The operators were also careless

to handle the passengers and to practice as per the BPR study. Therefore, regulators have to be assigned to check whether the passenger have tickets or not. They should also check whether passengers are seated as per their ticket number. They should additionally check whether the facility and the service expected from the operators were as per the indicated on the BPR. For instance, the regulator may check the provision of packed water, soft drink and light food along the journey, the condition of drivers and operators, and even how the operators handle the passengers. This checking of the regulator or traffic officer is good to maximise the satisfaction of the passengers. It is also good to keep all the promises in the BPR study of the sector.

8.7. Conclusions

The policy matters are very much sensitive issues that focus on the objectives of the study. The setting of policy has laid a limit on the minimum and maximum number of buses in the Associations is a base for the effectiveness and efficiency of the sector. Therefore, one can conclude that to enhance the safety in the sector the government should improve the wellbeing of the industry. The sector has been practised without Integrative work with stakeholders. It is better tools to reduce the prevailing congestion and keep the security of passenger +and property. In order to bring a change in the sector, the transport sector has to be expands the services for 24 hours a day and seven days a week or 18 hours a day and seven days a week. And it also increases the number of ticketing office in different part of the nation. Therefore, to conclude that Integrative work with stakeholders is a pillar feature and it is also acts as an ad hoc remedy to reduce the rate of congestion in the sector and to keep the security of passenger and property.

Generally, this description has to be identified and analysed the policy gaps of long distance traveling by bus in Ethiopia. In the next concern of discussion are also focuses on the conclusions, contribution of the thesis and limitations and future areas of the study.

CHAPTER NINE
SUMMARY, CONCLUSIONS, IMPLICATIONS OF THE THESIS, AND FUTURE AREAS OF STUDY

9.1. Introduction

The previous chapter looked at the policy gaps pertaining to long distance traveling by bus in Ethiopia. This chapter provide a summary of the major fidings of emperical chapters (4-8) of the study and the overall conclusion based on the key findings of the thesis. It also highlights the academic contributions as well as policy implications. It ffinally pointed to the possible areas for future research.

The overall goal of this thesis was to contribute to the understanding of transport in the global south by exploring the structure, service levels, and the role it plays towards linking peripheral areas to the core city of Addis Ababa through the LDB system.

Using a mixed methodological, a multiple-stage design of both qualitative and quantitative approaches was employed. The researcher integrated pragmatism and positivist while follow an interpretive approaches. The prominant data sources were both primary and secondary data. The data collection strategies were conducted in Addis Ababa at the Mercato bus terminals in four outlets (Metehara, Debre Sina, Gebre Guracha and Hossaina). The sample techniques were selected by simple random sampling and three hundred and eighty-four passengers and sixty-four operators were selected, both when leaving and arriving. The analysis techniques include inferential and descriptive statistics and it was subject to multiple interpretations.

9.2. Summary of the Major finding

The overall goal of this thesis was to contribute to the understanding on transport in the global south by exploring the structure, service levels and the role it plays towards linking peripheral areas to the core city of Addis Ababa through the LBD system. It also holds the major syntheses with respect to the research questions, and how they may affect existing theories and understanding. A detailed conclusion of the analysis of each chapter is presented hereunder.

Objective 1:

1. The structure of the LDB transport system and its effects contributing to econimic growth through transport networks by the rate of dispatch and its associated *factors.*

An in depth analysis on the growth rate of buses, the nature of dispatch of buses and service and distance coverage by levels was made in chapter 4. Small buses than mid and large buses dominated the overall growth of the industry. This means that there have been more than 1000 small buses added into the industry per year. The highest distributions of the large buses are seen in Addis Ababa more than the other major towns. It is this fact that major road networks are radiated from the capital to the rest of the country; it is because of economic agglomeration, diplomatic and political seat, and local and regional offices locations. The flexibility of the LBD system means that it can induce economic growth by including a new transport route thereby facilitating the movement of goods and people as well money into a peripheral area. This can conclude that the Bus Transport has high links to the local economic growth.

The average growth rate has been raised more than 100 % of the total LDB but very high-rise has been seen on level one. Thus, the service coverage of both level one and two has gone above 100 % per year and reduction on level three buses. The average growth rate of all types of PRT is 7 % each year. Therefore, one can conclude that the growth rate of LDB is double of the population growth of the country. The growth rate of first and second level buses is very high than three. The growth of the sector is double of the population growth of the country. This can also conclude that the Bus Transport has links to economic growth. This means that the growth and levelling of LDB contributes towards the linking of the core to peripheral places.

In terms of dispatch by levels and area coverage, first level buses interlink more major towns than level two and three. However, level three buses cover larger areas than level two and one. The level three buses contribute more to human transportation than level one and two. Thus, the cities that are located amongst the Dessie and Mojo outlets are closer to economic and demographic advancement, than other towns in other outlets. This division is the most decisive component for making the service provision in the industry more effective and of a higher quality. This also means that growth and levelling has contributed towards linking the core to peripheral areas, which is supported by Krugman's (1991) theory.

Objective 2:

2. Define the present service supply of LDB and how it meets the existing demand of passengers, which impacts on passengers' ability to move from the periphery to the core in Ethiopia.

The present service supply of LDB meets the existing demand of passengers, which impacts on passengers' ability to move, it have the stimulating factors and the future threat to the sector that links from the periphery to the core in Ethiopia.

An in-depth analysis on the adequacy of the industry is made in Chapter 5. Level one and two buses stay for fewer days without work than level three. Thus, the waiting time allocated to fill the bus and travel again is correlated to the levels of the buses. The supply and demand cycle of LDB's impact on the ability of passengers to move. This lack of ability for passengers to travel ties in with poor economic performance and it has implications to poor economic performance have implications for the transfer of goods and services. The advancement in technology and the incidence of technological advancement and the increase in air and rail transport has reduced the demand for LDB in this sector. Therefore, these factors imply that there is a disparity between the supply and the demand, which again affects passengers' travel plans.

Objective 3:

3. Investigate the inter-urban LDB system and the role it plays in linking Addis Ababa to other cities and towns and how tis contributies to economic growth.

This is explained in Chapter 6 where the focus is on the role of LDB transport in linking the metropolitan area of Addis Ababa with hinterlands, and the role it plays in economic growth. The findings showed that LDB transport significantly contributes towards linking Addis Ababa, through its main outlets, to other metropolitan areas. Amongst Mojo, Dessie, Gojam, Nekemit, and Jimma, which are major outlets, the highest flow of LDBs is recorded along the Dessie and Mojo lines. At these outlets, the largest number of major towns is observed

At Dessie or Inde Silasie routes, which have twenty-seven major towns and seventy-eight smaller towns along the route. The routes of Gojam Nekemit have the smallest amount of large and small towns. The transport industry has reduced poverty and brought local

economic development. LDB transport LDB has a positive effect on the formation and growth of towns along this route. Implication for the growth of emerging towns and the formation of new towns along the route. Therefore, it is possible to conclude that overall, the nation has benefited from the transport sector.

Objective 4:

4. Identify the major challenges that LDB transport encounter in the development of transport links and on the service provision of public transport.

This conclusion of objective four is explained in Chapter 7, where an in depth analysis is presented. The main challenge is a lack of integration between stakeholders. The service center was below standard and could only accommodate a limited amount of buses. The increase in informal passenger transport has reduced passengers in formal LDB transport. The presence of sabotage and corruption in PRT is an additional challenge. Operators, passengers, and governmental bodies have more challenges that are more specific. The government and operators are components that should be more committed to controlling the policies that regulate these challenges.

Therefore, it can be concluded that a lack of both internal and external integration between associations, government bodies and stakeholders challenge this sector severely. Both the age of the buses and the poor quality of service were combindely contributed for the provision of less qualified service in the industry, this has become the challenge for the sector.

Objective 5:

5. Scrutinise the nature and gap in policy of LDB transport in Ethiopia.

The eighth chapter focuses on the analysis of long distance traveling by bus in Ethiopia. The areas that need changing in the policy of LDB transport are scrutinised. The policy of LDB in Ethiopia includes the level or size for the buses, which affects whether the owners of these buses get licenses or not. Associations are limited to a certain number of buses. The dispatch of these buses can only happen after they have gone through the levelling process, which includes safety rules and regulations.

Establishing sound policies with a high commitment to implement them, will bring change to the sector. It is important to reduce poverty and foster local economic development. This study has revealed the internal and external constraints in the sector and in government offices leads to constraints in the sector. If these policies are applied, the level of service will increase.

9.3. Theoretical Implication

This section focuses on the major findings of this study compared to other studies done in different parts of the world. In this section, the researcher contends that the findings of this study could influence further similar studies.

9.3.1. Findings Compared to Domestic Studies

The findings in this study could influence further similar studies. The study found that the growth rate of the sector is 6.6 %, which is similar to the results of the EFTA study conducted in 2011. According to the CSA (1999) and SBPLC (2009), it rose from 4.1% to 6.7 % in 2009. AACC (2009) also revealed the same figures as this study. The growth of LDB transport is double that of the existing population in in the country, which 2.7 % wss in 2007.

The present service coverage of the sector is exactly four times higher than the previous study done ten years ago. Therefore, the growth of the sector plays a large role in connecting the centers to the peripheral areas in the country. The flows of buses are also doubled for the service provision and area coverage of the sector. The area coverage differed from 10 years ago; ORAMP (2001) stated that ten years ago the service coverage of the sector linked approximately seventeen major towns per day. Nowadays level one buses alone link approximately twenty three major towns per day and level two and three interlink seventy and one hundred and ten towns respectively per day. An average of sixty eight towns get direct service from the LDB.

9.3.2. Findings Compared With other Countries' Experience and Studies

In developing countries, LDB transport is backbone of peoples' live (World Bank 2002). Inter city bus transport is an integrall part of the nation;s surface transport network, and it is particularly important in smaller urban and rural areas. Poverity plays a central position, in which PRT and local economic development are inalienable and inseparable. If the PRT

improves and address their service to inaccessible or peripheral areas and if the cost of transportation is more affordable. It would reduce poverity and contribute towards economic growth (see figure 6.2). The finding of this study are partially supported by the theory of local economic development of (Richard et al. 2000).

Of the findings in this study, compared to other studies done in different countries. In terms of area coverage, the LDB service should consider providing journeys to very distant areas. The interurban coach service found in Italy operates between two hundred and twelve hundred kilometres within a seven hundred kilometre radius. (Didier 2009; Brasileir et al. 2001), found that although the illegal bus and coach operators in Brazil run more frequently, these precarious vehicles actually run routes longer than two thousand five hundred kilometres, transporting people between the metropolitan centers of the Southeast to the main centers of the North and Northeast regions. In Ethiopia, the service coverage of the intercity LDB covers an average of between four hundred to six hundred kilometres a day, which is less than in Brazil and Italy. Therefore, the origin, transition and destination areas benefit directly from the LDB service. A notable role played by the sector, is helping the poor by providing a service at an affordable price. Studies done by the World Bank (2002), found that in most cities in developing countries in the world, intercity bus transport is the backbone of peoples' lives. TCRP (2002) and Fravel (2003) illustrate that intercity bus transport is an integral part of a nation's surface transportation network, and it is particularly important in smaller urban and rural areas.

Therefore, both contribute to linking areas and local economic development as stated by Charles (1894) and Richard et al. (2000). Transport has a strong connection with the endogenous growth theory and contributing to economic development (Amanda**,** 2012).

The intercity LDB transportation is a dominant mode of public transport that links areas that are inaccessible. In Latin America, the transport sector also provides feeder services that link inaccessible areas to main transport routes. However, in this study the main transport routes do not act as a feeder modes of transport, which include other modes of transport such as rail and air. In Ethiopia, intercity bus travel is the only means of transport for the majority of people.

With regard to linking metropolitan areas, the findings of this study agree with those of various other countries. According to David (1962) who studied the transport system in

Montevideo Uruguay, bus transport prevails from the capital to the peripheral areas. This study also explores road structure in addition to the service coverage of LDBs, which show a radial link with the metropolis.

The sector has an effect on the environment with aging buses release more carbon. The Transport State Transit (TST) reported that in America emissions from motor vehicles are the main cause of air pollution in major cities, which contributes substantially to greenhouse gas emissions. The study found that level three buses had higher environmental impacts in Ethiopia.

The findings of this study correlate to the linkage of transport and development, focusing on central cities surrounded by towns, situated in between a large (central place) city and at least one other supply city. These ties in with the Location Theory by von Thunen (Block & Dupuis 2001). The flow of buses and other road transport is frequent on the routes between the market places.

The prevailing challenges in the sectors are identified in Chapter 7. These includes: 1) lack of integration between/within different stakeholders in both internal and external system, 2) the rapid rise of informal PRT, and 3) difficulties with the regulation of transport. These findings are almost identical to certain studies conducted in India, Nigeria and Brazil Transportation systems in India have been criticised for the low quality of their service, which is reflected in overcrowded buses, a lack of punctuality, bad roads and substandard amenities in both intra city and intercity movement (Syed et al. 2007). In Delhi, PRT is inefficient and provides insufficient, low-quality service, that fail to respond to market demands. Thus, the lack of integration with stakeholders in both internal and external systems has caused dissatisfaction amongst passengers, a fear for their safety, and the safety of their property.Bad terrain hinders the linkage of the core to perpheral areas and impedes the flow of bus dispatch.

9.4. Implications of the Study

In the implications sections the researcher describes the main findings that have significant direction for the government and other scholars in the field. The following points are summarised:

9.4.1. Implications for government and Policy issues

To set and implement new policies, the sector must integrate stakeholders to work together in order to produce a plan and set goals for the sector. Because the fundamental challenges originate from the government and operators, who must communicate and collaborate, work together, exchange ideas, findings and research results, compare notes before finalizing policy.

If the government intends to bring about change, it should be addressing service needed by the majority of people, who are poor. If these changes are implemented, it will change service provision in the industry, which could decrease poverty and bring about local economic development.

The other challenge for the government is organising secondary data in all offices. This limitation was not specifically explored in this study, which limits the scope and methods of the study.

9.4.2. Implications for scholars in the field

The study consists of the following published and unpublished articles drawn from this thesis.

Published articles:

1. Leveling and its effect on the service provision of LDB transport in Africa: The case of Addis Ababa. In the Journal of Geography and Regional Planning Vol.7 (6), pp. 106-113, August 2014 DOI: 10.5897/JGRP2013.0407 ISSN: 2070-1845

2. The major roles of long distance bus transport in developing countries, with the emphasis on Addis Ababa, Ethiopia. The International Journal of Area Studies 10:2, 2015 DOI: 10.1515/ijas-2015-0002

3. The policy of long distance bus transport in Ethiopia: A literature review, Journal of African Studies and Development. JASD/29.10.13/0264 September 22nd, 2014 http://ms.academicjournals.me/manuscripts/details/84930

4. The roles played by informal operators in the city of Addis Ababa. A Journal of Urban Transport in India on Vol. 12. No 1. (Aug 2013).

5. The service adequacy of long distance bus transport in Addis Ababa, Ethiopia: International Journal of Research and Technology vol. 1, issue 5. (Dec 2013).

Unpublished articles:

1.The roles of long distance bus transport and its effects on local economic development (LED) and how it reduces the rate of poverty in Ethiopia.

2.Stimulating factors for the variation in the supply and demand of long distance bus transport, and its future threat in Ethiopia

In general, both published and unpublished articles are contributes a lot to the knowledge gap which is by adding to the literature in this particular area. Therefore, the study has epistemological input to the field of human geography.

9.5. Future Areas of Study

A research study is not usually thought of as an isolated piece of intellectual activity, rather it has given room to other research that will take place in the future in the same field (Paul 2014). It is impossible to address all the issues of the transport sector in one study. The issue of transport is multifaceted; it requires the attention of economists, engineers, environmentalists, sociologists, urban planners and policy analysts. It requires the involvement of scholars from different disciplines to examine variables in the transport sector from different perspectives. It is, therefore, helpful to identify areas that require further study in the sector. The section identifies some of these:

In this study, the researcher could not make an in-depth study on the effect of informal operators on formal LDB and PRT in general. Even although they serve a large number of people, the roles and challenges of small scale and mid-bus, transport (12 to 24 seats) was not studied. Their effect on LDB transport and on the sector at large is an interesting area to be investigated.

Other areas not included due to time and scope constraints, is the special LDB transport. Service provision of special LDB transport in comparison with formal LDB also requires attention. An evaluative study on whether the current expansion of the intercity bus terminals in the cities of Kality, Asko, Ayer Tena, Addisu Gebeya, Lamberet and others, were

accessible and suitable for the users, is also required. The connectivity and centrality of nodes and edges of the nation concerning transport-requiring investigation.

One of the main themes of this thesis was to investigate the linkage of metropolitan areas with the hinterlands. However, this study did not address its effect on the rate and levels of conurbation and Urban sprawl in Addis Ababa, due to insufficient data to explore. Therefore, this can also be a potential area of researcher for the future.

The study has also not focus on the satisfaction rate of the customer, both in the terminal and on the journey. Satisfaction is an important issue; it helps to determine the standards of the sector. This study has not addressed this issue, because it is not part of the main theme and there is insufficient data. These areas could therefore be explored in a new study.

In some countries, bus transport has been partially substituted by rail based passenger transport. As Ciarán (n.d.) states, this is clearly the case in Dublin city. The role of bus transport is likely to change quite substantially over time, with the growth of rail-networks. Forecast studies of this development is required. In the end, the LDB may be replaced by the rail and air transport like advanced countries. This also require further study.

Environmental issues have had global implications and require advance investigation necessary. This study took a cursory look at environmental issues but a more in-depth.

9.6. Concluding Remarks

The conclusions are focused on five target objectives of this study.

The first objectives concentrates on the structure of the LDB transports system and its effect on economic growth. The growth rate of first and second level buses is much high than level three. The growth rate of buses is double that of the population growth of the country. This can lead to the conclusion that bus transport growth is linked to economic growth.

The required conclusion of the second objectives concentrates on the service supply of LDB meeting the existing demand of passengers with the emphasis on the ability to transport these passengers. The supply and demand cycle of LDB, have an impact on the ability to transport passengers. This ability has ties to poor economic performance or has implications for the movement of goods and services.

The unavoidable conclusion of the third objectives is focusing on the inter-urban LDB system and roles that linking Addis Ababa to other cities and towns which contribute to economic growth has. The origin, transition and destination areas have benefited more from the sector and they were on average addressed at every 600 km radius from the city. This contributes to economic growth of cities and towns taking advantage of the road and transport networking. The transport industry has played an enormous role in reduction of poverty and economic development. Therefore, the LDB has positive implications for the growth of emerging towns and the formation of new towns along the route.

The fourth objective addresses the major challenges faced by LDB in the development of transport links. It can be concluded that a lack of both internal and external integration with association and government bodies and between different stakeholders severely challenges the sector.

The last one is policy. Adoption of well-grounded policies is essential to bringing about change in the service provision of the industry, reduction of policy and economic growth.

The conclusions can be summarised as follows:

The key contributions of this study were to fill the knowledge gap and add to the literature in the area. Therefore, the study had epistemological input for the field of human geography.

The lack of organised secondary data in all concerned offices and difficulty in obtaining written agreement and responses as opposed to oral responses, from passengers and operators was challenging. This limitation limited the scope and in-depth study on the effect of informal operators on formal LDB and public transport in general. .

Future areas of study identified were - the effect of informal operators on formal LDB and public transport in general and the service provision of special LDB transport in comparison with formal LDBs.

This study had a cursory look at policy deficits t prevailing in the sector. This requires further investigation to see the strength and weakness of the existing policies, and the working rules and regulations of the sector.

REFERENCES

Addis Ababa Chamber of Commerce (AACC), 2009, The Management of Commercial Road Transport in Ethiopia Private Sector Development Addis Ababa, Chamber of Commerce and Sectorial Associations, Addis Ababa.

Addis Ababa City Government Office (AACGO) of the Mayor, 2012, Addis Ababa, reviewed 1st May 2013, from http://addisababaonline.com/about-addis-ababa.

Addo-Abedi, F. Y., 2009, 'Challenges in Financing Road Maintenance in Sub Sahara Africa', reviewed13 May 2009, from Http://Www.Roadsfundtz.Org/Web/Pdf/Session%207/ Africa pdf.

Al-Senan, S., Al-Ahmadi, H., Ergun, G. & Ratrout, N., 1995, 'Development of Intercity Transportation System in Saudi Arabia', presented at the Fourth Engineering Conference, Jeddah, Saudi Arabia, 5-8 November, 1995.

Allsop, R. E. & Robertson, S. A., 1994, 'Road Casualties in London in Relation to Public Transport Policy', Journal of Transport Economics and Policy, 28(1), 61-82.

Amanda, B., 2012, Central Place Theory (CPT), an Overview of Christaller's Central Place Theory, viewed 12 December 2010, from http://geography.about.com/od/urbaneconomicgeography/a/centralplace.htm.

American Public Transport Association (APTA), 2006, Public Transportation Fact Book viewed 12 December 2010, from http://www.apta.com/Pages/default.aspx.

American Public Transportation Association (APTA), 2009, Economic Impact of Public Transportation Investment, Arlee Reno Cambridge Systematics, Inc. 4800 Hampden Lane, Bethesda, Maryland 20814, October 2009

American Public Transit Association (APTA), The Benefits of Public Transportation Information Provided by the American Public Transit Association, viewed 12 December 2010, from:www.apta.com.

Arkesay, H. & Knight, P., 1999, 'Interviewing for Social Science Scientists: An Introductory Resource with Examples', in author, edn. Code of Ethics of the American Anthropological Association. SAGE, London.

Asnake, T., 2006, Road Freight Transport in Ethiopia with Special Emphasis on Addis Ababa – Djibouti Corridor, Addis Ababa University School of Graduate Studies June 2006, Addis Ababa.

Aynalem, A. & Assefa, H., 2011, Rural–Urban Linkages in Ethiopia: Insuring Rural Livelihoods and Development of Urban Centers', the Demographic Transition and Development in Africa Vol. 4, 167-186.

Barter, P.A., 2000, 'Urban Transport in Asia: Problems and Prospects for High-Density Cities', Asia-Pacific Development Monitor, 2(1), 33-66.

Bangkok Declaration for 2020 Sustainable Transport Goals (BDSTG), for 2010-2020, 2010, Final Version Fifth Regional EST Forum, 23-25 August 2010, Bangkok, Thailand, viewed 26th April 2012, from http://www.ncts.upd.edu.ph/est/docs/bangkok.pdf

Block, D. & Melani, D. E., 2001, 'Making the Country Work for the City', Von Thunen's Ideas in Geography, Agricultural Economics and the Sociology of Agriculture Academic Journal Article the American Journal of Economics and Sociology, Vol. 60, No 1, January 2001.

Brasileiro, A., Enilson, S. & Joaquim, A., 2001, 'Regulating Interstate Passenger Transport by means of Independent Agencies: Challenges to the Institutional Development of Road Passenger Transport in Brazil', Department of Civil Engineering Federal University of Pernambuco Brazil, viewed 13 March 2009, from www.thredbo.econ.usyd.edu.au.

Byrnes, J. & Aine, H. M., 2007, An introduced to mixed method research, Atlantic Research Center for family work issues Mount Saint Vincent University, viewed Dec 3rd, 2007, from http://www.msvu.ca/site/media/msvu/MixedMethodologyHandout.pdf.

Cambridge Advanced Learner's Dictionary (CALD), 2003, Cambridge University Press 2003, viewed 14th April 2009, from http://www.cambridge.org/.

Central Statistical Authority (CSA), 2013, The Federal Democratic Republic of Ethiopian Central Statistical Authority Annual Abstract Country Summary, August 2013, Addis Ababa.

Central Statistical Authority (CSA), 2009, The Federal Democratic Republic of Ethiopian Central Statistical Authority Annual Abstract Country Summary, Addis Ababa May, 2010.

Central Statistical Agency (CSA), 2007, Compilation of Economic Statistics in Ethiopia, July 2007, Addis Ababa.

Central Statistical Agency (CSA), 2007, Summary and Statistical Report of the 2007, Population and Housing Census Results, December 2008, Addis Ababa.

Central Statistical Authority (CSA), 1984, Ethiopia 1984: Population and Housing Census of Ethiopia. Preliminary report, Addis Ababa.

Central Statistical Authority (CSA), 1996, The Federal Democratic Republic of Ethiopian Central Statistical Authority Transport and Communication Statistics, Statistical bulletin No 246, Addis Ababa, March 1996.

Charles, H. C., 1894, 'The Theory of Transportation', Pp 17-118 in Sociological Theory and Social Research, Being Selected Papers of Charles Horton Cooley. Originally Publisher in Publications of the American Economic Association 9, 1894.

Christine, K., 2005, 'The Urban Transition in Sub-Saharan Africa: Implications for Economic Growth and Poverty Reduction', the World Bank Africa Region Working Paper Series, No 97, December 2005.

Ciarán, B., n.d., 'Provision of Bus-Based Public Transport Facilities in Dublin City', Be, Fiei, Chartered Engineer – Project Manager, Dublin City, viewed 5th December 2009, from http://www.codatu.org/wp-content/uploads/Provision-of-bus-based-public-transport-facilities-in-Dublin-city-Claran-DE-BURCA.pdf.

Creswell, J. W., 1994, *Research Design: Qualitative and Quantitative Approaches*, Printed in United States of America, SAGE Publications, India Pvt. Ltd. New Delhi India.

Creswell, J. W., 2009, *Research Design: Qualitative, Quantitative, and Mixed Method Approaches*, 3rd Edn., Printed in United States of America, SAGE Publications London.

Creswell, J. W. & Plano, C. V. L., 2007, Designing and Conducting Mixed Methods Research, 2nd edn., SAGE Publications, Thousand Oaks, CA.

Crozet, Y., 2009, 'The Future for Interurban Passenger Transport Bringing Citizens Closer Together the Prospects for Inter-Urban Travel Demand', Transport Economics Laboratory,

Lyon University France, 18th Madrid international transport research symposium Discussion Paper, 14th November 2009.

David, S. E., 1962, 'Commercial Passenger Linkages and the Metropolitan Nodality of Montevideo Economic Geography', Vol. 38, No 2 (April 1962), pp. 95-112. Published by Clark University Stable URL, viewed 22nd February 2009, from http://www.jstor.org/stable/142270.

David, G. M., 2008, 'Missing the Bus? The Political Economy of Regulation in the Bus Transportation Industry in Belize', Policy Brief No 1st, December 2008.

Didier, V. V., 2009, 'Long-Distance Bus Services In Europe: Concessions or Free Market'? Joint Transport Research Center Discussion Paper, No 2009-21, December 2009, Delft University of Technology, Netherlands.

Economic and Social Research Council (ESRC), 2004, viewed 4th Oct 2008, from http://www.esrc.ac.uk.com.

Ethiopia Demographic and Health Survey (EDHS), 2011, Central Statistical Agency Addis Ababa, Ethiopia ICF International Calverton, Maryland, USA, March 2012

Ethiopian Federal Transport Authority (EFTA), 2011, The Directorate of Commercial Passenger Quality Certificate Office, transl. July 2011.

EFTA, 2012, The Directorate of Commercial Passenger Quality Certificate Office, the survey of supply and demand from the main Bus terminal of Addis Ababa, transl. May 2012 Addis Ababa.

Ethiopian Road Authority (ERA), 2005, Ethiopian National Urban Transport Policy, Urban Transport Study and Preparation of Pilot Project of Addis Ababa Final Report Addis Ababa December 2005.

European Commission, 2009, Study of Passenger Transport by Coach Final Report June 2009 European Commission Directorate General Energy and Transport Rue De Mott Brussels, viewed 4th Oct 2008, from www.steerdaviesgleave.com.

Federal Negarit Gazeta (FNG) of the Federal Democratic Republic of Ethiopia, 2005, Prepared by Parliament of Federal Democratic Republic of Ethiopia, Addis Ababa 6th August 2005, proclamation No 468/2005.

Fekadu, k. A., 2013a, 'Informal Transport and Its Effects in the Developing World – a case study of Addis Ababa, Ethiopia', on Brazilian Transport Literature (BTPL) *Research Directory Journal of Transport Literature* Vol. 8, n. 2, pp. 113-133, Apr. 2014.

Fekadu, k. A., 2013b, 'Conurbation and Urban Sprawl in Africa: The case of the City of Addis Ababa', *Geographic journal of Ghana* on vol.5, 2013 pp 72 -94.

Fekadu, k. A., 2013c, 'Roles of informal Bus operators in the city of Addis Ababa Ethiopia', *Urban transport journal of India* Vol. 12, n. 1, Aug. 2013.

Fleming, D., 2008, City of Rhetoric revitalising: The Public Sphere in Metropolitan America, State University of New York Press, Albany.

Fravel, F. D., 2003, 'Intercity Bus Link Moving into New Territory', TR news 225 March – April 2003.

Fujita, M., Krugman, P. R. & Mori, T., 1999, 'On the Evolution of Hierarchical Urban Systems', Institute of Economic Research, Kyoto University, Yoshida-honmachi, Sakyo-ku, Kyoto 606-8501, Japan Department of Economics, Massachusetts Institute of Technology, Cambridge, MA 02139-4309, USA, reviewed 1st June 2006, from http://www.researchgate.net/profile/Tomoya_Mori/publication/222032461_On_the_Evolution_of_Hierarchical_Urban_Systems/links/540e92e20cf2f2b29a3a8b5c.pdf.

Gebre, Y., Ayalew, G., Rahel, S. & Hiwot, W., 2009, 'Resilience In Children Exposed To Sexual Abuse And Sexual Exploitation In Mercato, Addis Ababa, Ethiopia', A Research Report Submitted, The Oak Foundation Addis Ababa, viewed 30 December 2009, from http://www.oakfnd.org/node/4373.

George, O., 2005, 'The Role of District Capitals In Regional Development: Linking Small Towns, Rural-Urban Linkages and Decentralisation in Ghana', A PhD Thesis 2005 Department of Geography Faculty of Social Sciences and Technology Management Norwegian University of Science and Technology, NTNU Trondheim.

Goodbye Economic Consultants (GEC), n.d., Balls Bridge Park, Balls Bridge, and Dublin rviewed 29th October 2014, from http://www.irishspatialstrategy.ie/docs/pdf/Transport%20and%20Regional%20Development.pdf.

Grey, D. E., 2009, *Doing Research In The Real Worl*d, 2nd Edn., SAGE Publication Ltd., 1 Oliver Yard 55 City Road, London.

Gunter, A., and Scheepers (2012): "Crisylida Capital": Hatching Informal Township Property Markets to Benefit Low-Income Residents in Johannesburg, South Africa, *Urban Forum*, 23(2), 165-180.

Gunter, A., (2013): Creating Co-Sovereigns and Empowered Citizens using Social Housing in Johannesburg South Africa, *Habitat International* 39(1) 278-283.

Gunter, A. (2014a). Renting shacks: Landlords and tenants in the informal. *Urbani izziv*, (25 (s), 96-107.

Gunter, A. (2014b): Mega events as a pretext for infrastructural development: the case of the All African Games Athletes Village, Alexandra, Johannesburg. *Bulletin of Geography. Socio-economic Series*, *23*(23), 39-52.

Gunter, A, and Manuel, K., (2016): A Role for Housing in Development: Using housing as a catalyst for development in South Africa. *Journal of Local Economic Development,*
HABITAT, 2000, *Informal Transport in the Developing World* (HABITAT, 2000, 301 p). Nairobi, 2000.

Hamley, W. G., 1871, 'A new sea and an old land: being papers suggested by a visit to Egypt at the end of 1869', Originally found at University of California and digital internet archive, reviewed 12 July 2012, from http://babel.hathitrust.org/cgi/pt?id=uc2.ark:/13960/t54f1pt3r;view=1up;seq=7.

Health and Safety Executive (HSE), 2005, 'Workplace transport safety an overview Health and Safety Executive', this is a web-friendly version of leaflet INDG199 (rev1), revised 11/05,

reviewed 12 July 2012, from http://www.sholland.gov.uk/NR/rdonlyres/0AD9535E-6480-43DC-8C7E-489A3920A2EC/0/indg199.pdf.

Holroyd Bus Lines (HBL) Pty Ltd, 1981, 'Policy and Procedures for Bus/Coach Charter Baxter's Putting Peoples First', Pty Ltd., ABN 74003113 246. Amended October 2007, Reviewed 12 July 2014, from http://www.baxtersbus.com.au/documents/PolicyandProcedures-Charters.pdf.

Hubert, H. D., 2004, Supply and Demand, Release Date, 6 January 2004, EBook Character set encoding: ISO-8859-1 #10612, reviewed 7th August 2012, from http://archive.org/stream/ost-business-supply-and-emand/Supply%20and%20Demand_djvu.txt.

Humanitarian News and Analysis (HNA), n.d., Ethiopia: Government moves to address road-accident toll, reviewed 6th Jan 2013, from http://www.irinnews.org/report/94165/ethiopia-government-moves-to-address-road-accident-toll.

Jean, P. R., Claude, C. & Brian, S., 2009, The Geography of transport systems, Second Edition, New York, Rutledge, 352 pages.

Jean, P. R., Claude Comtois & Brian Slack, 2006, The Geography of Transport Systems, first published 2006 by Rutledge 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN, United Kingdom.

Jochen, R., Margareta, F. & Tommy, G., 2010, 'Review of Evaluations of Soft Transport Policy Measures Transportation: Theory and Application Environmental', Social Science Series Vol.2, No1 2010, 518 ISSN 19463111, reviewed 13th March 2009, from http://www.inghum.com/ojs2/index.php/TTAP/issue/archive.

Jordan, C. & Emily, S., 2011, 'Ethiopian Agriculture: A Dynamic Geographic Perspective Development Strategy and Governance Division', International Food Policy Research Institute, Ethiopia Strategy Support Program II, ESSP 2 Working Paper No 017, March 2011, IFPRI-Addis Ababa, Ethiopia.

Kitchin, R. & Nicholas, T.J., 2000, Conducting Research in to Human Geography: Theory, SAGE publications London, Thousand Oaks. New Delhi.

Krugman, P., 1991, 'Increasing Returns and Economic Geography', Journal of Political Economy 99, 483–499, reviewed 10th March 2009, from http://www.princeton.edu/~pkrugman/geography.pdf.

Kageson, P., 2009, 'Environmental Aspects of Inter-City Passenger Transport', Joint Transport Research Center Discussion Paper No 2009-28 December 2009 Nature Associates Stockholm, Sweden.

Kuhn, T. S., 1957, 'The Copernican Revolution', the Copernican Revolution: Planetary Astronomy in the Development of Western Thought Cambridge: Harvard University Press. Atlanta, GA, U.S.A.

Kvale, S., 1996, Interviews an Introduction to Qualitative Research Interviewing, SAGE publications Inc., Thousand Oaks, California, USA.

Leedy, P. D. & Jeanne, E. O., 2001, Practical Research Planning and Design, 7th Edn., Publisher: Library of Congress; June 13, 2001.

Martha, S., J. & Ronald Clarke, V., 2000, 'Crime and Public Transport on Crime and Justice', Vol. 27 (2000), pp. 169-233, Published by The University of Chicago Press Stable URL, reviewed 13 March 2009, from http://www.jstor.org/stable/1147664.

Meket, B., 1997, 'Some Thoughts on Intra-Urban Transport Problems in Ethiopia The Case of the Anbessa City Bus TransportIn Ethiopian', Journal of Development Research A.A.U., Addis Ababa vol. 19 (1).

Mesfin, T., B., 2009, 'Spatial Metrics And Landsat Data For Urban Land Use Change Detection In Addis AbabaEthiopia', Dissertation Submitted In Partial Fulfilment For The Requirement of The Degree Of Master of Science In Geospatial Technologies In The Department Of Information Systems, Universitat Jaume I, and Castellon, Spain March 2009.

Michael, M., D. & Eric, M. J., 2001, Urban Transport Planning: A Decision–Oriented Approach 2nd edn., Hill Higher Education, Boston: McGraw-Hill, 2001. Michael, H. & James, C., 2006, 'Reengineering the Corporation: A Manifesto for Business Revolution', (Collins Business Essentials) Paperback, 10th October 2006, reviewed 13 March 2009, from http://www.amazon.com/Reengineering-Corporation-Manifesto-Revolution-Essentials/dp/0060559535.

Michael, S., 2005, 'Central Place Theory after Christaller and Losch: Some further explorations', Presentation at 45th Congress of the Regional Science Association, 23-27 August 2005, Vrije University Amsterdam In memory of Alfred Losch, 15 October 1906-30 May 1945.

Ministry of Finance and Economic Development (MoFED), 2006, Ethiopia: Status Report on the Brussels Programme of Action (BPoA) for Least Developed Countries (LDCs), Ministry of Finance and Economic Development (MoFED), January 2006, Addis Ababa.

Ministry of Education (MoE) of Ethiopia, 2010, Annual Abstract 2001 E.C. /2008-09 G.C. / Ministry of Education EMIS, Planning and Resource Mobilisation Management Process, March 2010 Addis Ababa, Ethiopia reviewed 1st March 2011, from www.moe.gov.et.

Ministry of Finance and Economic Development (MoFED) of Ethiopia, 2010, The growth and Transformation plan 2010/11 to 2014/15, Ministry of Finance and Economic Development, September 2010, Vol I. Addis Ababa.

Ministry of Finance and Economic Development of Ethiopia (MoFED), 2010, In Conjunction With: Ministry of Agriculture And Rural Development Global Agriculture and Food Security Programme Request For Funding Public Sector Window Agricultural Growth Program (GAFSP GAP Financing) Draft 29 September 2010.

Ministry of Transport and communication of Transport Authority (MoTC), 2011, 'Revised Commercial Passenger transport Quality Certificate and dispatch rule and regulation work flow', transl. February 2011, Addis Ababa.

Ministry of Urban Development and construction (MUDC) of Ethiopia in 2007, in Addis Ababa.

National Road Transport Policy (NRTP), reviewed 1st March 2012, from http://morth.nic.in/writereaddata/sublinkimages/Road_Transport_Policy27333191.pdf.

Organisation for Economic Co-operation and Development (OECD), 2010, 'The Practice of Cost-Benefit Analysis in the Transport Sector: A Mexican Perspective', Joint Transport Research Center Discussion Papers Continued by International Transport Forum Discussion Papers No: 2010/18, 01 Nov 2010, reviewed 1st March 2012, from http://www.oecd-

ilibrary.org/docserver/download/5km4q8hh4kmr.pdf?expires=1447462641&id=id&accname=guest&checksum=7AF35C59B7260C6B187E0FA43E3341C2.

Ofyar. T. Z., 2005, 'Integrated Public And Road Transport Network System For Bandung Metropolitan Area (Indonesia)', Proceedings Of The Eastern Asia Society For Transportation Studies, Vol. 5, Pp. 1281 – 1300, 2005, department Of Civil Engineering Institute Of Technology, Bandung Jalan Ganesha 10, Bandung 40132 Indonesia.

Oladele, A. O., 2010, 'Country Case Study: Ethiopia' prepared for the Center for Global Development, Working Group on UNFPA's Leadership Transition November 2010, reviewed 2nd January 2011, from http://international.cgdev.org/doc/Ethiopia-case-study.pdf.

Oliver, N., 2012, 'Models of Centrality' Etopoi Journals of Ancient studies, Special Proceedings of the International Conference Held in Etopoi, Berlin, 6th – 8th June 2012, Volume 3 (2012), pp. 217–223, Topoi Berlin, reviewed 21st March 2012, from http://journal.topoi.org.

Office of the Revision of Addis Ababa Master plan, ORAAMP, 1991 & 2001 in Addis Ababa.

Paul, O., 2014, Writing your thesis, 3rd edn., SAGE publication Inc., California USA.

Ranjit, K., 1999, *Research Methodology: A Step-By-Step Guide for Beginning*, British Library Cataloguing in Publication Data ISBN 0761962131 UK.

Raimi, A. A., 2007, 'Intra-Urban Transportation, Gender and Psychological Distress In Developing Countries', Nigeria, Paper Presented to The Pripode Workshop on Urban Population, Development and Environment Dynamics in Developing Countries Jointly Organised By Cicred, Pern And Ciesin with Support from The Aphrc, 11-13th June 2007, Nairobi, Kenya.

Road Sector Development program (RSDP), 2009, Road Sector Development program (RSDP 1997–2007, 10-year RSDP, reviewed 13th March 2009, from http://www.era.gov.et/Network/RoadClassification.aspx.

Romer, P. M., 1994, 'The Origins of Endogenous Growth', the Journal of Economic Perspectives 8 (1): 3–22, (Winter 1994), reviewed 13 March 2009, from https://www.aeaweb.org/articles.php?doi=10.1257/jep.8.1.3.

Selam Bus Private Limited Company (SBPLC), 2009, Selam Bus Share Co. Travel Rules and Regulations Www.Selambus.Com/ – Cached Selam Bus Line Share Company. April 2009, Selam Bus foundation document last updated on Friday, 11 June 2010, reviewed 13 March 2009, from www.selambus.com.

Selamta, n.d., The facts about Addis Ababa, Ethiopia, viewed 12 December 2010, from http://www.selamta.net/addis_ababa.htm.

Syed, S. A., Mahmudul, H. & Rubina, A. I., 2007, 'Reforming Intercity Bus transportation in Developing country: A passenger- Driven model', journals of Public Transportation, vol 10, No1, 2007, reviewed 13 March 2009, from http://www.nctr.usf.edu/jpt/pdf/JPT%2010-1%20Andaleeb.pdf.

Taylor, B., C. & Jordan, M. G., 2009, 'Neoliberalism: From New Liberal Philosophy to Anti-Liberal Slogan', Studies in Comparative International Development 44 (2): 137–161, reviewed 5 June 2009, from http://link.springer.com/article/10.1007%2Fs12116-009-9040-5.

Tegegne, E. G., 2011, 'Rural Urban Linkage in Ethiopia: Status, challenge, opportunities, and Future research directions', Regional and Local Development Studies (RLDS), Addis Ababa University on the preceding of demographic transition and Development in Africa 2011, Addis Ababa.

Temesgen, A., 2007, 'Ethiopian Road Transport Development: Problems, Challenges and Constraints', Paper to present at the fifth International Conference on the Ethiopian Economic Association, June 2007, Addis Ababa.

Thomas, O. P. & LaVerle, B., 1993, 'Ethiopia: A Country Study', Washington, D.C.: Federal Research Division, Library of Congress Washington, D.C.: Federal Research Division, Library of Congress Federal Research Division, Library of Congress, 1991. U.S. Library of Congress, Rev. edited by Harold D. Nelson and Irving Kaplan, 1981, Research completed July 1991, Includes bibliographical references (p. 347-376), reviewed 13 April 2009, from http://www.loc.gov/resource/frdcstdy.ethiopiacountrys00ofca_0/?sp=3. Washington, D.C.: Federal Research Division, Library of Congress

Transport State Transit, Buses and the Environment (TST), n.d., reviewed 16th December 2014, from http://www.statetransit.info/bus-fleet/buses-and-the-environment.

Transit Cooperative Research Program (TCRP), 2002, 'Effective Approaches Meeting Rural Intercity Bus Transportation Needs', KFH Group, INC. Bethesda MD TCRP report seven, Transportation Research Board National Research Council National Academy Press Washington, D.C. 2002, reviewed 10th April 2009, from http://www.tcrponline.org/PDFDocuments/TCRP_RPT_79.pdf.

Transport Integration Act (TIA), 2010, Version No 010 No 6 of 2010 Version incorporating amendments as at September 2010, reviewed 10th April 2009, from http://www.legislation.vic.gov.au.

United Nations Department of Economic and Social Affairs Population Division (UNDESAPD), 2011, Population Distribution, Urbanization, Internal Migration and Development: An International Perspective United Nations, ESA/P/WP/223 United Nations publication, United Nations, 2011.

United Nation Economic Commission for Africa (UNECA), n.d., 'Sustainable Development Report on Africa Managing Land-Based Resources for Sustainable Development', reviewed 10th April 2009, from http://new.uneca.org/Portals/sdra/sdra3/chap6.pdf.

United Nations Economic and Social Council Economic Commission for Africa (UNESCECA), 2009, Sixth Session of the Committee on Food Security and Sustainable Development regional implementation meeting for the 18th Session of the conference on sustainable development, 27-30 October 2009, Addis Ababa, Ethiopia.

United States Department of Agriculture (USDA), 2008, Crop Assessment Travel Report by foreign agricultural service report linking US agriculture to the world, reviewed 4th December 2014, from http://www.pecad.fas.usda.gov/highlights/2008/11/eth_25nov2008.

University of South Africa (UNISA), 2007, Policy on Research Ethics Approved – Council 21st September 2007 UNISA, all rights reserved, reviewed 4th December 2010, from http://www.unisa.ac.za/contents/faculties/service_dept/ice/docs/Ethics%20and%20research_Policy_2012.pdf.

Vasilis, V. A., Jakubauskas, G. & Barysienė, J., 2008, 'Analysis of Sustainable Freight And Passenger Road Transport Development Using Its Transport And Telecommunication', 2008, Volume 9, No 3, 4–8 Transport And Telecommunication Institute, Lomonosov 1, Riga, Lv-1019, Latvia Vilnius Gediminas Technical University Plytines 27, Vilnius, Lt-10223, Lithuania.

Walter, E. & Mathewos, H., 2001, Belg Season in North-Central Ethiopia: Rains late but farmers remain optimistic (Report of a joint UN-EUE/MoA/FAO mission undertaken from 19 — 29 March 2001), Agricultural Meteorologist/Agronomist, and Ministry of Agriculture (MoA) Addis Ababa, Ethiopia.

Wiemer, D. L. & Vining Aidan, R., 1989, Policy Analysis Concepts and Practice, Prentice Hall, 1989, Volume 9, Issue 1, pages 417.

Willem, N., 1999, 'Trade in Transport Services: South Africa and the General Agreement on Trade In Services Draft Report', Submitted To The Trade And Industrial Policy Secretariat (Tips), School of Economics, Money & Banking Faculty of Economic And Management Sciences, Potchefstroom University, August 1999.

World Bank, 2002, Cities on the Move, A World Bank Urban Transport Strategy Review 2002, the International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW Washington Dc 20433.

World Bank, 2005, 'Road Transport Service Efficiency Study in India', by Energy & Infrastructure Operations Division South Asia Regional Office, November 1 2005, reviewed 3rd March 2011, from http://www.worldbank.org/transport/transportresults/regions/sar/rd-trans-final-11-05.pdf.

World Bank Indicators Ethiopia, 2011, reviewed 1st November 2012, from http://www.tradingeconomics.com/ethiopia/co2-emissions-from-transport-million-metric-tons-wb-data.html.

World Bank group report of Local Economic Development, 2012, reviewed 28 November 2012, from http://www.worldbank.org/.

World Development Indicators database and CIA World Fact book World Development Indicators database, April 2007 viewed 3rd February 2008, from http://devdata.worldbank.org/external/cpprofile.asp?ccode=eth&ptype=cp.

World Health Organization (WHO), 2004, Global strategy on diet, physical activity and health Report by the Secretariat, Fifty-Seventh World Health Assembly Provisional agenda item 12.6, 17th April 2004, Geneva.

Yayeh, A., 2003, 'The Extent, Variations and Causes of Road Traffic Accidents in Bahir Dar', Addis Ababa University School of Graduate Studies, June 2003, Addis Ababa Press, Addis Ababa.

Zhao, C. Ming, L. & Zheng, X., n.d., 'Agglomeration Shadow: A Non-Linear Core–Periphery Model of Urban Growth in China (1990-2006)', reviewed from 31st Aug 2013, from http://www.gdn.int/admin/uploads/editor/files/2012Conf_Papers/2_2_Zheng%20Xu_Paper_T1.pdf.

Zeleke, G., Trutmann, P. & Deneke, A., 2006, 'Fostering New Development Pathways: Harnessing Rural-urban Linkages (RUL) to Reduce Poverty and Improve Environment in the Highlands of Ethiopia', Proceedings of A planning workshop on Thematic Research Area of the Global Mountain Program (GMP) held in Addis Ababa, Ethiopia, August 29-30, 2006.

Appendixes

Appendix I: Additional Data (Tables and Figures)

Annex 1: number of dispatch and service coverage of level three buses

SN	Dispatch's	June, 2012	July, 2012	Aug, 2012	Sept, 2012	Oct, 2012	Nov, 2012	Dec, 2012	Total	Average
1	Adiwa	30	30	36	30	30	30	30	216	30.8571429
2	Alaba	90	90	108	90	90	180	180	828	118.285714
3	Alem Degolo	30	30	36	30	30	30	30	216	30.8571429
4	Ambo	30	30	36	30	30	30	30	216	30.8571429
5	Arba Minch	30	30	36	30	30	30	30	216	30.8571429
6	Asebe Teferi	30	30	36	60	60	60	60	336	48
7	Assassa	60	60	72	90	90	60	60	492	70.2857143
8	Ataye	30	30	36	30	30	30	30	216	30.8571429
9	Awash Werer	0	0	0	30	30	30	30	120	17.1428571
10	Hawassa	90	90	165	180	180	120	120	945	135
11	Ayira	30	30	36	30	30	30	30	216	30.8571429
12	Bahirar-Mota	30	30	36	30	30	30	30	216	30.8571429
13	Bahirdar-Bure	30	30	36	30	30	30	30	216	30.8571429
14	Bako	30	30	36	30	30	30	30	216	30.8571429
15	Bedele	30	30	36	30	30	30	30	216	30.8571429
16	Bichena	30	30	36	30	30	30	30	216	30.8571429
17	Boniga	30	30	36	30	30	30	30	216	30.8571429
18	Butajira	30	30	66	30	30	30	30	246	35.1428571

19	Chenicha	30	30	36	30	30	30	30	216	30.8571429
20	Danigila – Debariki	30	30	36	30	30	30	30	216	30.8571429
21	Debere Brehan	0	0	0	30	30	30	30	120	17.1428571
22	Debre Brehan	30	30	36	30	30	30	30	216	30.8571429
23	Debre Marikos	120	120	132	120	120	120	120	852	121.714286
24	Debre Sina	30	30	36	30	30	30	30	216	30.8571429
25	Debre Tabor	30	30	36	30	30	30	30	216	30.8571429
26	Dejene	30	30	36	30	30	30	30	216	30.8571429
27	Demibi Dollo	30	30	36	30	30	30	30	216	30.8571429
28	Dessie Tenita	30	30	36	30	30	30	30	216	30.8571429
29	Dessie	30	30	36	30	30	30	30	216	30.8571429
30	Dessie Masha	120	120	132	120	120	120	120	852	121.714286
31	Dilla	60	60	66	60	60	60	60	426	60.8571429
32	DireDawa	120	120	112	90	90	90	90	712	101.714286
33	Doyo Gena	90	90	152	150	150	150	150	932	133.142857
34	Doyo Gena	30	30	36					96	32
35	Durame-Hossaina	30	30	36	30	30	30	30	216	30.8571429
36	Esitie	30	30	36	30	30	30	30	216	30.8571429
37	Fiche	30	30	36	30	30	30	30	216	30.8571429
38	Finicha	30	30	36	30	30	30	30	216	30.8571429

39	Finote Selam	30	30	36	30	30	30	30	216	30.8571429
40	Gayinit	30	30	36	30	30	30	30	216	30.8571429
41	Gida-Ayana	30	30	36	30	30	60	60	276	39.4285714
42	Giligel-Beles	30	30	36	30	30	30	30	216	30.8571429
43	Ginideberet	0	0	0	30	30	30	30	120	17.1428571
44	Goba	30	30	36	30	30	30	30	216	30.8571429
45	Goba	0	0	0	30	30	30	30	120	17.1428571
46	Goha Tsion	30	30	36	30	30	30	30	216	30.8571429
47	Gonder	60	60	66	30	30	30	30	306	43.7142857
48	Gore	30	30	36	0	0	0	0	96	13.7142857
49	Hagere Mariam	30	30	36	30	30	30	30	216	30.8571429
50	Harere	90	90	96	60	60	60	60	516	73.7142857
51	Hossaina	90	90	112	180	180	180	180	1012	144.571429
52	Hossaina	60	60	66	0	0	0	0	186	26.5714286
53	Jihur	90	90	96	60	60	60	60	516	73.7142857
54	Jimma	60	60	66	60	60	60	60	426	60.8571429
55	Kebuli Mugo	30	30	36	30	30	30	30	216	30.8571429
56	Kemisie	30	30	36	30	30	30	30	216	30.8571429
57	Kibire Menigisit	30	30	36	30	30	30	30	216	30.8571429
58	Koso Ber	30	30	36	30	30	30	30	216	30.8571429
59	Lalibela	30	30	36	30	30	30	30	216	30.8571429

60	Lera-Hossaina	60	60	72	60	60	60	60	432	61.7142857
61	Lera-Welikite	30	30	36	30	30	30	30	216	30.8571429
62	Lera-Welikite	30	30	36	30	30	30	30	216	30.8571429
63	Lerra-welikite	30	30	36	0	0	0	0	96	13.7142857
64	Limu	30	30	36	30	30	30	30	216	30.8571429
65	Mekane Selam	30	30	36	30	30	30	30	216	30.8571429
66	Mekele	150	120	112	120	120	120	120	862	123.142857
67	Menidi	30	30	36	30	30	30	30	216	30.8571429
68	Merito Lemariyam	30	30	36	30	30	30	30	216	30.8571429
69	Metema	30	30	36	30	30	30	30	216	30.8571429
70	Minijar	0	0	0	30	30	30	30	120	17.1428571
71	Mizani	30	30	36	30	30	30	30	216	30.8571429
72	Molale	30	30	36	30	30	30	30	216	30.8571429
73	Negele Borena	60	60	72	0	0	0	0	192	27.4285714
74	Nejo	30	30	36	30	30	30	30	216	30.8571429
75	Nekemite	60	60	66	60	60	30	30	366	52.2857143
76	Robie-shashemene	60	60	60	60	60	60	60	420	60
77	Sekota	30	30	36	30	30	30	30	216	30.8571429
78	Shashemene	150	150	168	180	180	150	150	1128	161.142857
79	Tepi	30	30	36	30	30	30	30	216	30.8571429
80	Wegidi	30	30	36	30	30	30	30	216	30.8571429

81	Welikite	60	60	72	60	60	60	60	432	61.7142857
82	Weliso	30	30	36	30	30	30	30	216	30.8571429
83	Wenido	60	60	72	60	60	60	60	432	61.7142857
84	Werabe	60	60	72	30	30	30	30	312	44.5714286
85	Wereilu	30	30	36	30	30	30	30	216	30.8571429
86	Wolita-Shashemene	30	30	36	30	30	30	30	216	30.8571429
87	Yavelo	30	30	36	30	30	30	30	216	30.8571429
88	Yiriga Chefie	30	30	36	30	30	30	30	216	30.8571429
89	Yirigalem	30	30	36	0	0	0	0	96	13.7142857

Source: (EFTA 2011)

Annex 2: national hollydays

Sn	National and Regional Holly days	Bus flow			Total flow	Number of Passenger transported			Total	Rank
		Mercato Main BT	Legahar BT	Mercato Small BT		Mercato main BT	Legehar BT	Mercato Small BT		
1	New Year	31	62	202	295	1697	1488	13712	16897	4
2	Epiphany	76	71		147	4235	1704		5939	8
3	Qulib Gebriel	95	34	516	645	5366	816	11376	17558	3
4	Meskel			1528	1528			19419	19419	2
5	Arefa			1983	1983			23455	23455	1
6	Christmas		33	925	958		792	14121	14913	5
7	Easter	119	41	421	581	6245	984	7215	14444	6
8	Astreo Mariyam			319	319			1597	1597	12
9	Errecha/Hora		98		98		2352		2352	10
10	Fereqasa		110		110		2640		2640	9
11	Ziquala		70		70		1680		1680	11
12	Sama Senbet		108	402	510		2592	5672	8264	7
	Total	321	627	6296		17543	15048	96567	129158	

Source: (EFTA 2011)

Annex 3: Five Years plans of Telecommunications & Transport Service

	Targets of Telecommunications in Five Years		
1	Targets	2009/10	2014/15
	No of fixed Line Telephone (million)	1	3.05
	Density of Fixed Line telephone (%)	1.36	3.4
	No of Mobile Telephone in (million)	6.52	40
	Coverage of mobile telephone (%)	8.7	45
	No of internet service in (million)	0.187	3.69
	Rural Tel com access within 5 km radius (%)	62.14	100
	Coverage of wireless telephone Service (%)	<50	90
	Global Link capacity (Gb/s)	3.255	20
2	Targets of Transport Service Sub Sector in Five Years		
	Increase the availability of seats Km (Billion)	25.8	32
	Total Distance coverage By Bus in Km	70 000	100 000
	Daily Motorised transport Supply of AA(Passenger seats) in (million)	2.16	3.08
	Coverage of Public Transport Supply %	14	48
	Waiting time for Public Transport In AA 9 Minutes)	45	15
	The average annual freight Distance covered (km)	80 000	120 000
	Traffic accident death rate (per 10 000 peoples)	70	27

Source: (MOTC, 2009 & 2011)

Annex 4: Number and Name of Associations by levels

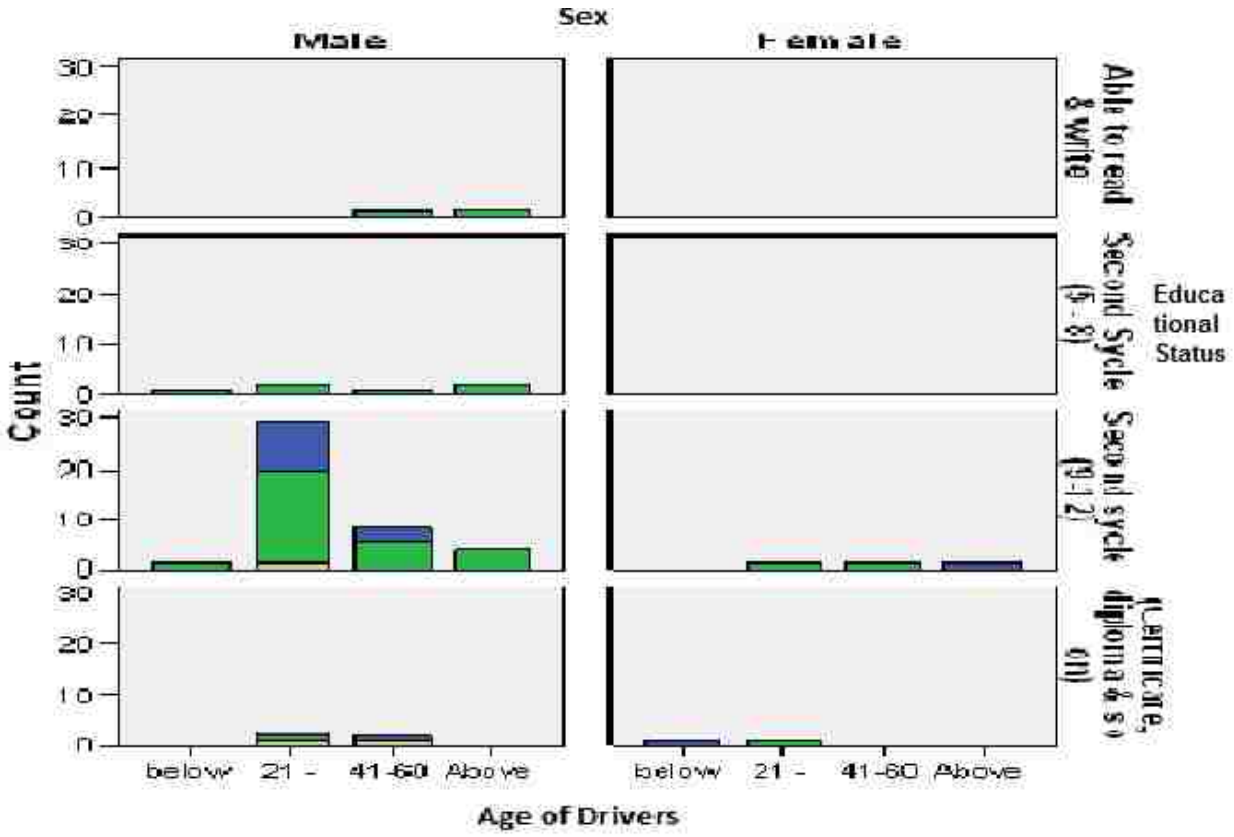
Sn	Name of Associations by levels	2011			2012		
		Amount of Bus	Loading capacity	Est. Employee	Amount of Bus	Loading capacity	Est. Employee
1	Hidasie 1st	55	2675	176	55	2675	176
2	Awash 2nd	31	1564	104	122	6036	416
3	Habesha 1st	53	3178	171	64	3178	210
4	Adis Fana 2nd	40	2243	131	40	2243	131
5	Waliya 1st	13	780	50	13	780	50
	Waliya 3rd	30	1800	100	30	1800	100
	Waliya (Other)	5	308	17	5	308	17
	Total	48	2888			2888	
6	Abissiniya 2nd	127	7101	392	128	761	395
7	Africa 3rd	83	4726	259	84	4726	262
8	Raiyi 2nd	67	3576	213	128	6902	404
9	Fetan 3rd	66	5643	210	67	5703	213
10	GTS 1st	14	840	52	14	840	52
	GTS 2nd	2	120	8	2	120	8
	GTS 3rd	13	652	47	13	652	47
	Total	29	1612		29	1612	

11	Tsegaye 2nd	4	227	18	4	227	18
	Tsegaye 3rd	5	273	21	5	273	21
	Total		500			500	
12	Abirar M. 2nd	1	60	5	1	60	5
	Abirar M. 3rd	4	245	18	4	245	18
	Total		305			305	
13	Medin 2nd	38	2153	120	38	2153	120
14	Brehan 2nd	46	2477	150	93	4844	303
15	Ethiopis 3rd	51	2748	165	51	2748	165
16	Addis Alem 2nd	27	1361	92	27	1361	92
17	Adis Zemen 3rd	21	1122	72	21	1122	72
18	Nib 2nd	37	1993	112	37	1993	112
19	Tsigereda 3rd	37	1909	112	37	1909	112
20	Emperor Fasil 2nd	2	120	8	2	120	8
	Emperor Fasil 3rd	3	182	13	3	182	13
	Total		302			302	

21	Eshet 2nd	5	3205	20			
22	Abay 3rd	12	655	43	12	655	43
23	Nile 2nd	39	2136	130			
24	Biherawi 2nd	21	1176	72	21	1176	72
25	Safari express PLC	2	110	8	2	110	8
26	Alem				19	1012	60
27	Post Bus (Sp.)	5	300	20	14	845	50
28	Sky Bus (Sp.l)	12	600	43	14	720	50
29	Selam Bus (Sp.)	29	1740	100	29	1740	100
	Total	1o54		3272	1307		3939

Source: (EFTA 2011)

Annex 5: Demographic and Socio-economic circumstantial of the Drivers/Operators



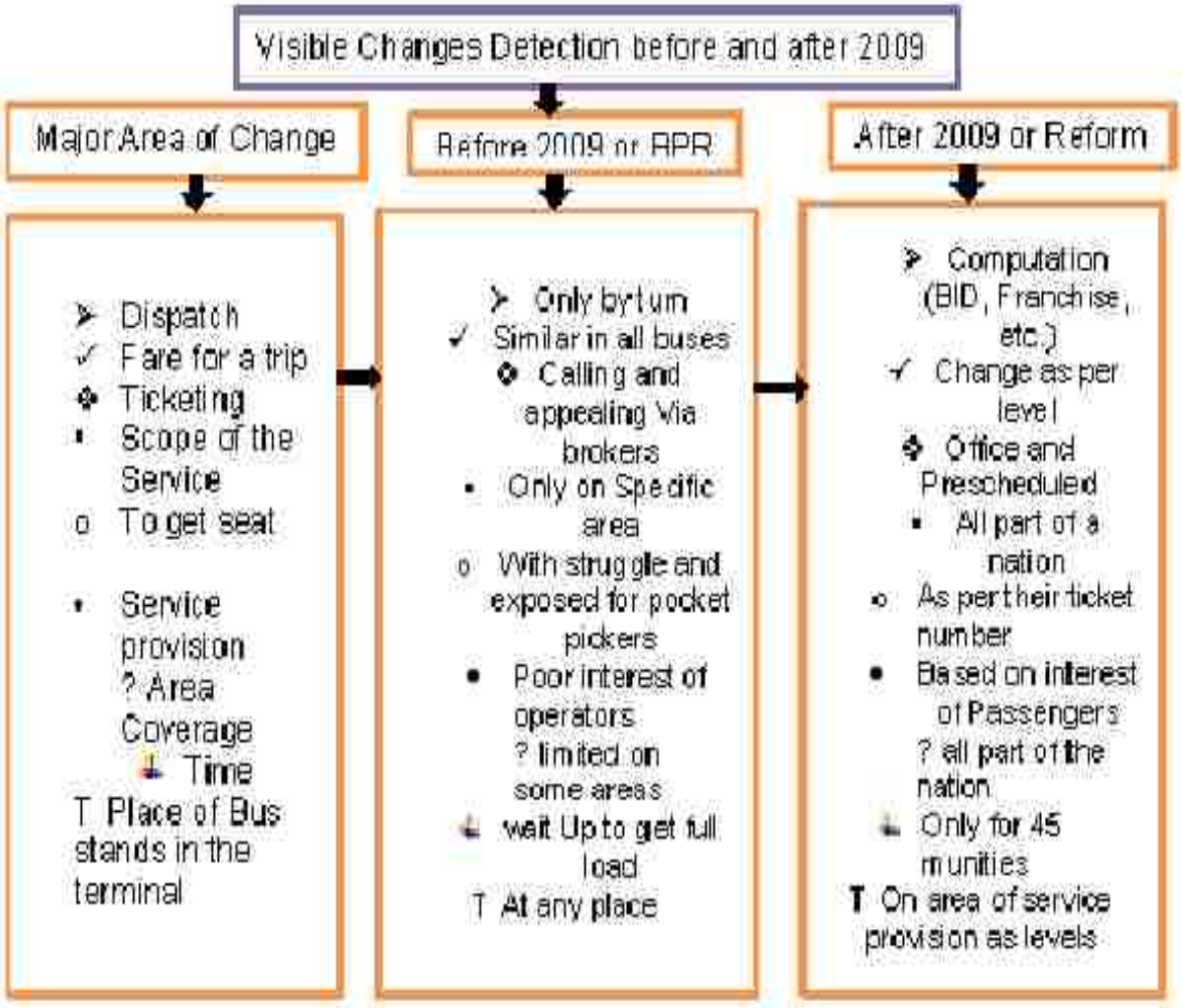
Source: Own field survey in 2011 and 2012

Annex 6: The nature of metropolitan link of Addis Ababa with hinterlands

Sn	Main Route & destinations towns	No of Major Towns	Total towns	Total Distance in Km	Average distance between Major towns	Average distance between all towns	Main outlets	Total Distance from O to D Places
1	Jinika via Hossaina	14	42	733	52.4	17.5	Jimma	733
2	Inde Silasie	27	78	1087	40.3	13.9	Dessie	1087
3	Gambela via Metu	13	53	789	60.7	14.9	Jimma	789
4	Bale Goba via Adama	11	19	454	41.3	23.9	Mojo	427
5	Assossa via Nekemit	12	42	661	55.1	15.7	Nekemite	661
6	Moyale via Dilla	18	39	771	42.8	19.8	Mojo	845
7	Bonga via Jimma	11	31	449	40.8	14.5	Jimma	449
8	Gonder via Bahir Dar	14	52	738	52.7	14.2	Gojam	738
9	Assaita/Semera	13	22	670	51.5	30.5	Mojo	588
10	Jijiga via Harar	21	43	628	30	14.6	Mojo	628
	Average	15.4	42.1	698	45	16.6 =17		700

Source: Compiled from GIS software and MOTC data of Jan 2012

Annex 7: Summarised changes detection before and after 2009 on the industry



Source: Prepared by researcher in 2013

Appendix II: Questionnaires

Annex 2A: Questionnaires for Operators

Long Distance Bus (LDB) Transport Survey

This survey questionnaire designed for partial fulfillment of PhD in geography. It has a component of the research being conducted on “LDB Transport: It’s Structure, Service Adequacy and the Role It Plays in Linking the Core to the Periphery of Ethiopia” You are kindly requested to provide reliable information pertaining to each question. The information to be obtained through this questionnaire will remain confidential and used only for the intended research. I would be very grateful if you would complete the questionnaire. Please return the questionnaire (completed or uncompleted) to the data collector, it should take approximately 30 minutes to complete. And also, I promise that one copy of this study result will be given to your Association for reliability of information. Thank you for your cooperation.

I. Demographic aspects of operators

1. What is your duty on this bus?

a. Owner only b. Driver only c. Both driver and owner d. Co-driver

e. Conductors f. Both owner & Conductor g. Other (please specify) ----------

2. Gender a. Male b. Female

3. Age a. less than 20 yrs b. 21-40 yrs c. 41-60 yrs d. above 60 yrs

4. Marital Status a. Single b. Married c. Divorce d. Widow e. Other (please specify) ---------

5. Educational level a. Not able to read and write b. Able to read and write

c. Primary education (1-8) d. Senior Secondary education (9-12)

e. Above secondary (please specify) ----------

6. Name of the Association you are currently working for ---------

7. Level of your driving License

a. First b. Second c. Third d. Fourth e. Fifth level f. other (please specify)

8. Gross driving service years in the industry/sector -------

9. Gross monthly income per a month? ----------

II. Conditions of the bus and Nature of Training

10. Estimate the maximum ages of your bus that currently driving (in years)? -------

11. In your opinion, what is the current condition of the bus that you are driving?

a. Too Old b. Old c. Relatively New d. Brand new e. Other (please specify) ------

12. The current Levels of your bus

a. 1st level b. 2nd level c. 3rd levels d. Not yet stated e. Other (please specify)

13. Fuel consumption of your bus per liter per kilometer is

a. Below 5 km b. 5-10 km c. Above 10 km

14. The average carrying capacity of your bus

a. 25 to 45 seats b. 45 to 60 seats c. 60 and above seats

15. For how long have you been driving this bus?

a. < 2 years b. 2-5 years c. 5-10 years d. >10 years

16. Average distance coverage of bus per day (in kilometer)

a. Below 200 b. 201 to 400 c. 401 to 600 km d. Above 600

17. If the answer for question number 16 is above 600 km how you can control driving fatigue? ----------

18. Before and after coming to this industry, have you taken special training except driving license? (Circle: Yes or No) If yes, what type of training please specify?

a. technical (mechanical) training b. ethical issues c. customer handling d. Other (please specify) ----------

19. If the answer for question number 18 is no, why? ----------

III. Supply – demand and nature of bus Dispatch

20. Place of destination of this journey ----------

21. on average, how long to get turn to start to load passengers? _____

22. After starting to load the passengers, averagely for how long you have took to get full load? _____

23. Do you sometimes leave the terminal without carrying full load of passengers (Circle: yes or no) if yes, on average for how many days per month? _____

24. If the answer for question number 23 is yes, please put your reason in rank, if your answer is more than one

a. lack of passengers b. allowed time is over to wait the passenger

c. to securing the existing passenger from suffering e. Other (please specify) ---------

d. I expect there will be a chance to get passengers along the road

25. If the answer for question number 23 is no, put your reason in rank, if your answer is more than one?

a. I can go on by loading available man along the route

b. reach to the destiny without having full load d. Other (please specify) ----------

c. by asking existing passenger to pay extra money

26. Do you made a round trip? (Circle: Yes or No) if yes, put your reason in rank, if your answer is more than one

a. Availability of passengers' b. it is the day of public market e. get temporal contract

c. Needs accessibility of the place d. road facility also matters

f. Other (please specify) ----------

27. If the answer for question number 26 is no, what are the reasons please put in rank, if your answer is more than one

a. inaccessibility of the place b. For the safety of vehicles d. lack of passengers

c. the date isn't public market e. Other (please specify) ----------

28. How do you see the demand of LDB transport? ----------

29. How do you see the supply of passenger road transport? ----------

IV. Socio – economic aspects

30. Have you joined passenger Association? (Circle: Yes or No) If yes, what type of benefits do you acquire, please put in rank if your answer is more than one?

a. To get dispatch service b. To be benefited from share plc

c. To get third party to strive to our right d. Other (please specify) ----------

31. If the answer for question number 30 is no, why? ----------

32. If the answer for question number 30 is no, do you know a bus that currently working in the industry that does not incorporated in Association? (Circle: Yes or No) If yes, why ----------

33. Average working days per week? _____

34. What do you do if a passenger has to leave later or earlier than its preferred time? Please put in rank if your answer is more than one

a. I should return the fare b. Rescheduling journey c. I do not bother

d. Advise him/her to sale the ticket to other passenger's

e. Change ticket with new coming passengers' f. Other (please specify) -------

35. Is the business is profitable? (Circle: Yes or No or do not know) if no, why? If your answer is more than one please put in rank

a. Availability of low road facility can have effect on the fitness of bus

b. the fuel price rise have an effect on the sector c. increment of maintenance and insurance cost d. Taxation and payment for insurance increase e. other (please specify) ----------

36. If the answer for question number 35 is yes, estimate the average daily net income?

37. If the answer for question number 35 is yes, If your answer is more than one please put in rank?

a. demand is high b. population growth makes mobility rise

c. economic activities brings highness of the mobility

d. new investors may joining the sector e. Other (please specify) ----------

38. Estimate the average income that you gain per trip? ---------

39. Estimate average fare charge per trip for government? ---------

40. Is the payment is compatible with the service that is given to passengers? (Circle: Yes or no or don't know) if no why? ----------

41. Do you think that the service you have been given to the passenger is compatible with the tariff? (Circle: yes or no or don't know) if no, why? ----------

V. Condition of Contractual agreement

42. Do you have made an agreement with government when you joined to this industry? (Circle: Yes or No) If no, why? ----------

43. If the answer for question number 42 is yes, what type of agreement please specify? ----------

44. If the answer for question number 42 is yes, for how long?

a. Below 6 month b. 6 month to 1 year c. More than 1 year d. Other (please specify)

45. If the answer for question number 42 is yes, how do you work in the sector?

a. by selecting work route b. to kindly serve the society

c. to work in all routes as preferred d. Other (please specify) ----------

46. By what way the signing of franchising contract of the route took place.

a. Bid b. Lottery/chance c. Interest of preference d. Other (please specify)

47. Have you ever made renewal of your initial agreement? (Circle: yes or no or don't know) If no, specify your reasons? ----------

48. Which "Metropolitan Areas" are you allocated most of the time? Specify at least 5 in terms of priority ----------

Why your journey is very much stuck with the areas mentioned, specify the reasons? _____

VI. Safety and Passenger satisfaction

49. On average, what is your speed limit of most journeys?

Below 40 km/hr b.40-80 km/hrs c. 80-120 km/hrs d.above120 km/hrs

50. Averagely, how many times the traffic police supervised you per trip? ------

51. Have you ever detained and accused by traffic police/control? (Circle: Yes or no) If yes, approximately how much per month? -------

52. On question number 52 if you claim yes, mention your reason in rank starts from the most recorded to less one

Transgression of traffic rule b. took the fare above the tariff c. by carrying overload d. by making accident e. Other (please specify) ----------

53. If your answer on question number 52 is no, why? ----------

55. Have you had an accident while driving your bus? (Circle: Yes or no) if no, why? ----------

56. If the answer for question number 55 is yes, averagely how many times per year?

57. How you evaluate the satisfaction rate of passenger in your own trip? ----------

58. Do you believe that the behavior of operators affect passenger satisfaction? (Circle: Yes or no) If yes, how do they affect? ----------

59. Does traffic officers' supervision have an advantage for the industry? (Circle: Yes or no or don't know) If yes, please specify your reason in rank?

Secure the safety of passengers b. minimises traffic accidents c. increase the flow of buses d. create revenue for governments e. Other (please specify) -------

60. What facility do you have for the safety of passenger?

Safety belt at every chair b. fire distinguisher c. insurance for passengers d. Other (please specify) ----------

61. If your answer on question number 58 is no, why for?

a. Traffic stopping here and there can suffer the passenger

b. exposed some traffic and controls to make corruption c. Other (please specify) --

62. Do you think that the safety of passenger is kept in your bus? (Circle: Yes or no or don't know) if yes, how it is kept? ----------

63. If no, why? ----------

64. As operators what do you suggest to secure passenger security?

a. Making proper and timely inspection b. Give cares for passengers' handling c. the load to be according to the stated limit d. drive on normal speed

e. Other (please specify) ----------

65. On average, at what time simple maintenance should takes place?

a. After every journey b. per week c. per month

d. after driving 5000 km d. Other (please specify) ----------

66. Do you daily or pre-trip inspections made for your bus? (Circle: Yes or no) if no why? ----------

67. Most of the time, at what time the government can inspect your bus.

a. Annually b. Twice a year c. in Two years interval

d. In three years interval e. Other (please specify) ----------

68. If your answer for question number 67 is annual, why? If possible, would you please attach a copy of your last inspected document? ----------

69. How the operational schedule of the dispatch of LDB undertaken? ----------

70. Is there availability of illegal operators in the sector? (Circle: Yes or no or don't know) if yes, estimate the average amount? ---------

71. What are the reasons for the emerging and availability of illegality in the sector? Please put in rank if your answer is more than one

a. Unable to fulfill the rule and regulation of the authority

b. Old nature of the bus and poor quality c. Lack of strong traffic controlling system d. Other (please specify) ----------

72. What is the effect of informal operators on LDB? ----------

73. List the most preferable sites/towns of illegal operators? ----------

VII. The roles and challenges of buses

74. Does the passenger vehicles has role for society, owners, and government? (Circle: Yes or No or not known) if yes, specify your reasons in ranks starts from main to minor?

a. More travel over long distance b. Connect dispersed suburb c. maximize the interaction

d. Secure environment from danger e. Lessen Fuel consumption f. Other (please specify) ---------

75. If the answer for question number 74 is yes, what type of role is specifically done for the society? If your answer is more than one please put in rank

a. it can bring high interaction b. bring information exchange c. rural – urban linkage

d. cultural interactions would be takes place e. Other (please specify) ----------

76. If the answer for question number 74 is yes, what role is specifically done for the government? If your answer is more than one please put in rank

Taxation makes revenue source b. protects environment from danger c. contributed for local and regional dev't d. Lessen Fuel consumption and increase GDP e. Other (please specify) ----------

77. Would you please mention the role of LDB that plays in links the Metropolitan areas? ----------

78. The existing level's difference between buses has benefits for the society, owners, and government. Please put in rank, if your answer is more than one

a. Create a sense of competation between buses

b. provides fascinated and suitable service for clients'

c. to make the journey based on their preference

d. passenger can pay based on the stated price according to the level

e. gov't can use it for taxation f. demolish aged and below standard buses

g. open a way to new investors join in to sectors h. Other (please specify) ----------

79. In your opinion, do you see the bus transport that properly serves the society? ----------
---

80. Have you encountered any challenges with buses? (Circle: Yes or No) if yes, specify If your answer is more than one please put in rank

a. complicated nature of the travelers' b. low facility of thebuses c. provision is too scarce
d. Lack of passengers at any time e. Other (please specify) --

81. What are the challenges pertaining to LDB transport for the different bodies listed below?

Driver ----------

Government ----------

Passenger ----------

Owner ----------

Other ----------

82. How can we overcome the aforementioned challenges, please propose in rank? ----------

VIII. Reason and future demand of the industry

83. What is your motive to join into this industry rather than freight transport? Please put in rank if your answer is more than one.

a. Passenger transport works only during day time but freight can work even night

b. Carrying human being can bring psychological boost so that it increase personal satisfaction

c. Lack of chance to hire in freight transport

d. Working on freight transport should separate for long time from host family

e. lack of interest to hire on it f. Other (please specify) ----------

84. If the situations facilitates to you on which types of passenger road transport do you want to employ?

a. Private b. Government c. NGOs d. What so ever e. Other specify ---------

85. If your answer on question number 84 is government, why for? Please put in rank if your answer is more than one

a. Has good working atmosphere and create job security

b. Work load is relatively low and kept passenger right

c. Free from the dominion of private owners

d. Timely maintenance and kept the security of buses

e. Not established for profit and work according to tariff f. Other (please specify) --

86. If your answer on question number 83 is private, why for? If your answer is more than two, please put in rank.

a. Get high salary b. an increase of fringe benefits as the income increase

c. relative availability of work freedom d. Other (please specify) ----------

87. As a driver/owner, is there a similarity and difference between hired in government and private? (Circle: Yes or no) if yes, what is your reason? ----------

88. In your opinion, how can be improved the bus services in/out of the town? ----------

89. For the future in which areas are you required to make study, please mention them in priority? ----------

If you have any questions and comment you can contact me via the following address

Fekadu K (Researcher) at (+251) 0916828803 or email fkdu2003@gmail.com,45434549@mylife.unisa.ac.za.

Thank you for taking the time to complete this questionnaire

Xxxxxxxxxxxxx end of questionnaire xxxxxxxxxxxxX

Annex 2B: Questionnaires for Passenger

Long Distance Bus (LDB) Transport Survey

This survey questionnaire designed for partial fulfillment of PhD in transport geography. It has a component of the research being conducted on “LDB Transport: It’s Structure, Service Adequacy and the Role It Plays in Linking the Core to the Periphery of Ethiopia” You are kindly requested to provide reliable information pertaining to each question. The information to be obtained through this questionnaire will remain confidential and used only for the intended research. I would be very grateful if you would complete the questionnaire. Please return the questionnaire (completed or uncompleted) to the data collector. It should take approximately 30 minutes to complete. Thank you for your cooperation.

I. Demographic profile

1. Gender---------- a. Male b. Female

2. Age

a. < 20 years b. 21-40 years c. 41-60 years d. above 60 years

3. Marital Status

a. Single b. Married c. Divorce d. Widow e. Other (please specify)

4. Educational level

a. Not able to read and write b. Able to read and write / informal

c. Primary education (1-8) d. Senior Secondary education (9-12)

e. Above secondary (Specify) ----------

5. Occupation ----------

6. Monthly income ----------

II. Distance, types of bus and condition of travel

7. Destination Place of this journey ----------

8. Most often which road passenger service do you use for long journey?

a. Mini bus b. Mid bus c. Large Bus d. other (please specify)

9. Estimate the average distance between your house and bus terminals in kilometer?

a. Below 3 km b. 3 to 6 km c. 6 to 9 km d. 10 and above km

10. On what type of transport do you used to come to the terminals?

a. Foot b. Cart c. Private car d. Bicycle e. Government vehicle f. Other (please specify) -------

11. What time do you prefer to use the bus services for your inter-urban movement?

a. Early morning b. late morning c. mid-day d. Late afternoon e. Other (please specify) --------

12. If you answer on question number 11 is one of the above alternatives, please specify its reason? --- ----------

13. How do you spend your time during your journey? Please put in rank, if your answer is more than one

a. Reading b. Listening music c. Speak with other d. Sleeping e. Other (If any specify)

14. Where do you prefer to sit in the bus during your most journeys?

At front b. At back c. In middle d. wherever e. Other (please specify) ----------

15. If your answer on question 14 is one of the alternatives would you please mention your reason in rank?

a. to visit the landscape b. kept from accident c. to reduce jerking effect

d. to get fresh air e. Other (please specify) ----------

16. Estimate the time to finish this travel?

a. >5 hrs b. 5 to 10 hrs c. <10 hrs d. other (please specify) ----------

III. Supply – demand, the nature of payment and bus flow situation

17. When do you get this ticket?

a. A day before journey b. On the day of journey c. During journey

d. above 2 day befor the journey e. Other (please specify) -----

18. In what way do you get this ticket?

a. Via Broker b. Relative c. myself d. Friends' e. Other (please specify) ---

19. Do you have a tendency to missing a bus after paying for ticket? (Circle: Yes or no) if yes, what do you do? If your answer is more than one, please put in rank.

a. Go to the Association office claim money c. Rescheduled the journey to other days d. simply left aside the fare d. I tried to catch up the bus by other transport e. Other (please specify) ----------

20. Do you get transport service as soon as you arrive to the terminal? (Circle: Yes or No) if no, justify the reason ----------

21. If no, on average for how long do you wait to get it? ----------

22. If your answer on question 20 is yes, estimate for how often?

a. Always b. Seldom c. Many times d. Other (please specify) --------

23. Mostly how many means of transport do you use from origin to destination?

Only one b. Only two c. Only three d. Above three

24. Have you ever canceled your journey due to lack of bus? (Circle: Yes or No or not known) if yes, justify? ----------

25. If your answer on question 24 is no, in what way do you made journey, if your answer is more than one please put in rank?

a. By Freight vehicles b. automobile c. government cars d. tourist vehicles

e. Other (please specify) --------

26. Do you have a tendency of using transport service for long journey other than bus or passenger transport? (Circle: Yes or No or not known) if yes, why? if your answer is more than one please put in rank

a. Lack of bus or passenger transport b. it shouldn't have passenger turnover like bus

c. by seeking better comfort and safety d. Fast nature of the modes and hurry to travel

e. Other (please specify) ------

27. On question number 26 is no, why? ----------

28. Is the charged amount that you paid to this travel is as to tariff? (Circle: Yes or No or not known) if no, justify? Please put in rank if your answer is more than one.

a. random and jeopardise increase of owners

b. low government interference in fare controlling

c . lack of alternative public transport

d. lack of awareness of the society on tariff e. Other (please specify) ----------

29. If your answer on question 28 isn't known, would you please mention your reason? if your answer is more than one please put in rank

a. Passengers don't have information about tariff change

b. concerned bodies not post the tariff change on visible place and announce via mini media

c. The users should not follow monthly change on tariff.

d. Other (please specify) ----------

30. Is the fee or fare that you paid for bus transport is compatible to the service you got from the sector? (Circle: Yes or No or don't know) If no, why?

31. If yes, how? ----------

VI. Role and nature of the safety

32. Do you use buses in your inter urban journey? (Circle: Yes or No) if yes, most often for what purpose do you use buses? Please put in rank if your answer is more than one

a. Work b. Education c. Social case d. Entertainment e. Business f. Other (Please specify) --------

33. If no, why? ----------

34. Do you have any benefits when you use bus transport for long journey? (Circle: Yes or no) if yes, specify your reasons? If your answer is more than one please put in rank

a. Enable to visit the areas along the journey and the surrounding

b. Cost of service is relatively low and able to afford

c. Getting High security because of normal driving system than other

d. can got relax and make free mobility e. relatively not congested f, other

Other (please specify) ----------

35. If no, mention the reason? Please put in rank if your answer is more than one

a. Feels high insecurity c. Feeling discomfort

c. expose and facing health problem d. lack of speed to hurry travelers'

e. poor handling of the passengers f. Other (please specify) ----------

36. Does the LDB has relevant for society, owners, and government? (Circle: Yes or No or not known) if yes, specify your reasons in ranks from main to minor?

a. More travel over long distance c. Connect dispersed suburb

b. Higher the interaction between society d. Secure the environment from danger

e. Lessen Fuel consumption f. Other (please specify----------

37. If the answer for question number 36 is yes, what role is specifically done for the society? If your answer is more than one please put in rank

a. it can bring higher interaction between society b. bring information exchange c. create rural – urban linkage d. cultural interactions can be takes place e. Other (please specify) ----------

38. If the answer for question number 36 is yes, what role is specifically done for the government? If your answer is more than one please put in rank

a. Taxation makes a revenue source b. protects environment from danger c. contributed for rural urban linkage d. Lessen Fuel consumption and increase GDP e. Other (please specify) ----------

39. Mention the roles of bus for Metropolitan linkage? ----------

40. Are there any areas or places surrounding your zone that you feel are poorly served by LDB? (Circle: Yes or no or don't know) If yes, please specify below? ----------

41. If yes, how some areas are poorly served? If your answer is more than one please put in rank

a. lack of demand b. inaccessibility of the place c. having worst landscape

d. the nature of road is poor e. political attention is poor f. other (please specify) -

42. Do you believe that drivers behavior affect passenger transport demand? (Circle: Yes or no or don't know) If yes, how do they affect? ----------

43. Do you think that the safety of passenger kept? (Circle: Yes or no) if yes, how? ----------

44. If no, why? ----------

45. Do you have a habit of opening the window during journey (Circle: Yes or no) if yes, why? Please put in rank if your answer is more than one

a. It brings fresh air for passenger and it reduces suffocation

b. It secures a passenger from transmittable disease

c. it can avoid bad smelling from the bus d. Other (please specify) ----------

46. If no, why? ----------

V. Challenges of the sector

47. Do you have any challenges within your bus transport in general? (Circle: Yes or No) if yes, specify?

a. Complex nature of travelers' b. Low facility c. passengers isn't accessible at any time

d. presence of congestion on the road e. Lack of passengers

f. Other (please specify) ----------

48. Do you observe the challenges on the sides of Driver? Please put in rank if your answer is more than one

a. carrying above the normal load and not tie safety belt during driving

b. not kept and violate the right of passengers

c. galloping over the normal speed and put the safety of passenger in danger d. violating traffic law and chewing chat during driving e. Other (please specify) ----------

49. Do you observe the challenges pertaining to bus serve specifically on the sides of government? Please put in rank if your answer is more than one

a. delayance of asphalt road construction b. low supervision of traffic and regulator

c. government subsidy to the sectors is low

d. very much low provision of buses according to the demand

e. Other (please specify) ----------

50. Do you observe the challenges pertaining to bus serve specifically on the sides of passengers? Please put in rank if your answer is more than one

a. don’t have awareness and knowledge and aptly not strife to keep their right

b. having knowledge gap between passengers

c. when the drivers transgressed the law and captured by traffic the passenger appeal the traffic on the behalf of drivers

d. passenger should agree with drivers and co drivers so that refrain to give information to police officers

e. Other (please specify) ----------

51. Do you observe the challenges pertaining to bus serve specifically on the sides of owners? If your answer is more than one put in rank

a. Thinking always for the daily income

b. lack of timely maintenance and poor facility

c. they don’t worry about the neatness of vehicles

d. carrying overload may loss the life span of vehicles

e. having poor courage to serve the society f. Other (please specify) ----------

51. How we can overcome the aforementioned challenges please propose in priority? ------
---

52. In your opinion, how can be improved bus services in/out of the town?

---

53. For the future in what areas require study? ----------

VI. Check List

Here are some rates of satisfaction on the service provided in the bus and terminals. Please put a tick remark under in the right column.

SN	Criterion	Very good	Fairly good	Would not matter	Bad	Very bad	Remark
		5	4	3	2	1	
1	The rate of satisfaction Within Bus						
1.1	Ventilation (window, light etc.)						
1.2	Space for legs						
1.3	Chair Conformability						
1.4	Passengers’ behaviour						
1.5	Roof distance						
1.6	Recreational issue like audio, video etc.						
1.7	Staff handling the passengers						

1.8	Availability of soft drink						
1.9	Threats of theft and robbers						
1.10	Neatness of vehicle						
1.11	Levels of Satisfaction within bus						
2	Security Issue						
2.1	Driving condition/speed						
2.2	General security of passengers						
2.3	Traffic police/regulator supervision						
2.4	Road nature						
2.5	Availability of traffic signals on road						
2.6	Rate of satisfaction						
3	Conditions in Bus terminals						
3.1	Seat/chair facility						
3.2	Rest/ waiting place						
3.3	Space for mobility						
3.4	Toilet provision						
3.5	Cafeteria situation						
3.6	provided Information for users						
3.7	Staff handling in bus terminals						
3.8	An Indicator (route number and destination)						
3.9	Security of passengers						

3.10	Population density (Crowding)						
3.11	Availability of Suggestion box						
3.12	Overall cleanliness of terminals						
3.13	Condition to get Ticket						
3.14	Availability of bus						
3.15	Tag provided for loaded items						
3.16	Proximity to residences						
3.17	General satisfaction situation						

If you have any questions, please don't hesitate to contact Fekadu K (Researcher) at (+251)0916828803oremail fkdu2003@gmail.com,45434549@mylife.unisa.ac.za.

Thank you for taking the time to complete this questionnaire

Appendix III: Interview Questions

Annex 3A: Interview Questions for Head of LDB Associations

1. Name of Association ----------

2. When do you come to this Association? ----------

3. For how long do you serve? ----------

4. The number of buses found at your Association at the beginning …….by now…

5. Is the number of buses in your Association is increase or decrease? If increase, why? ----------

6. If decrease, why? ----------

7. For how many individuals, your Associations create job opportunity. ----------

8. Does the allocation of different leveling of buses have benefits for government, passengers, owners, and drivers? (Circle: Yes or no) if yes, explain? ----------

9 What type of role does the LDB play for linking metropolitan areas? ----------

10. In what way, does your good office assign buses? ------

11. Most often on which town/route your buses are providing high and lowest service obtained areas, why? ----------

12. Do you think that the safety of passenger is considered in your Association at all times? (Circle: Yes or no or don't know) if yes, how it kept? ----------

13. If no, why? ----------

14. What strategy do you propose to ensure the safety passenger on both private and public buses? ----------

15. Is the supply of existing bus transport meets the growing need of the society? (Circle: Yes or no) if yes, explain? ----------

16. If no, explain the reason? ----------

17. Are the owner of private bus, have signed any agreements with the government to provide a service to the society? (Circle: Yes or no or don't know) if no, why? ----------

18. If the answer for question number 17 is yes, what type of contract do you have with the government or vis- a- vis? ----------

19. If yes, for how long? ----------

20. What are the benefits of this contract that brought for the owner of the bus, Associations, governments and society? ----------

21. Are the drivers driving on a franchise route via contract? (Circle: yes or no or don't know) If yes, for how long and explain? ----------

22. Have you ever renewed an initial agreement with bus owners? (Circle: yes or no) If yes, for how long? ------

23. If no, why? ----------

24. Are you aware of any bus Associations or buses that terminated the agreement with the government? (Circle: yes or no or don't know) if yes, why? ----------

25. What is the government reasons to make the current levels difference between buses? ----------

26. In your opinion, what are the biggest challenges of the industry?

a. Driver side ----------

b. Government side ----------

c. Passenger side ----------

d. Owner side ----------

e. Other side ----------

27. In your opinion how can we overcome the aforementioned challenges, please proposed the solutions? ----------

28. In your opinion, how can be improved the bus services in/out of the town?

---

29. In your opinion, what areas in the bus transport sector require to be investigation in the future? ----------

Thank you for taking time to complete these questions

If you have any questions and comment you can contact me via the following address

fkdu2003@gmail.com,45434549@mylife.unisa.ac.za

Annex 3B: Interview Questions for Owners

1. How long do you become an owner in this Industry? ----------

2. For how many individuals your buses are create job opportunity? How? ----------

3. What is your motive to be invested in this industry than freight? ----------

4. Most often on which town/route your buses are provide lowest and highest service provision routes, why? ----------

5. Do you think that the safety of passenger is considered in your bus at all times? (Circle: Yes or no or don't know) if yes, how it is kept? ----------

6. If no, why? ----------

7. What strategy do you propose to ensure passenger safety on both private and public buses? ----------

8. Is the supply of existing bus transport meets the growing demand of the society? (Circle: Yes or no) if yes, explain? ----------

9. If no, explain the reason? ----------

10. Are the owner of a private bus, have signed any agreements with the government to provide a service to society? (Circle: Yes or no or don't know) if no, why? ----------
---

11. If yes, what type of contract do you have with the government?

12. If yes, for how long? ----------

a. Below 6 month b. 6 month to 1 year c. More than 1 year d. Other (please specify)

13. What are the benefits of this contract that brought for the owner of the bus, passengers, governments and society? ----------

14. Have you ever renewed an initial agreement with government? (Circle: yes or no) If yes, for how long? ------

15. If no, why? ----------

16. Are you aware of any bus Associations or buses that terminated the agreement with the government? (Circle: yes or no or don't know) if yes, why? ----------

17. Is the industry is profitable? If yes argue? If no, mention the reason? ----------

18. Is there the probability of your bus that involved in informal system? If yes argue? if no mention the reason?

19. What are the government reasons to make current levels difference between buses? ----------

20. From the point of view of the bodies listed below, in your opinion, what are the biggest challenges when using bus transport?

a. Driver side ----------

b. Government side ----------

c. Passenger side ----------

d. Owner side ----------

e. Other side ----------

21. In your opinion how can we overcome the aforementioned challenges, please proposed the solutions? ----------

22. In your opinion, how can be improved the bus services in/out of the town?

----

23. In your opinion, what areas in the bus transport require to be study in the future? ----------

Thank you for taking time to complete this question

If you have any questions and comment you can contact me via the following address

fkdu2003@gmail.com,45434549@mylife.unisa.ac.za

Annex 3C: Structure interview to Heads and Experts at Federal Transport Bureau

1. Existing number of Association in the sector ---------- please explain it by using its amount in the last 5 years?

2. For how long do you serve in this Industry ----------?

3. Is the number of buses in the system is increase or decrease? If increase, why?

4. If decrease, why?

5. Does the allocation of different leveling of buses have benefits for government, passengers, owners, and drivers? (Circle: Yes or no) if yes, explain? ----------

6. What type of role does the LDB play for linking metropolitan areas? ----------

7 Most often on which town/route your buses are providing service, why? The lowest service obtained areas, why?

8. Do you think that the safety of passenger is considered at all times? (Circle: Yes or no or don't know) if yes, how it is kept? ----------

9. If no, why? ----------

10. What strategy do you propose to ensure the safety of passenger on both private and public buses? ----------

11. Is the supply of existing bus transport meets the growing need of the society? (Circle: Yes or no) if yes, explain? ----------

12. If no, explain the reason? ----------

13. Are the owner of a private bus, have signed any agreements with the government to provide a service to society? (Circle: Yes or no or don't know) if no, why? ----------

14. If the answer for question number 13 is yes, what type of contract do you have with the government or vis- a- vis? ----------

15. If yes, for how long? -------

16. What are the benefits of this contract that brought for the owner of the bus, governments and society? ----------

17. Have you ever renewed an initial agreement with bus owners? (Circle: yes or no) If yes, for how long? ------

18. If no, why? ----------

19. Are you aware of any bus Associations or buses that terminated the agreement with the government? (Circle: yes or no or do not know) if yes, why? ----------

20. Is there any policy gaps in the sector? If yes, please specify? ----------

21. Is there the probability of your bus is involved in informal system? If yes, argue? if no mention the reason?----------

22. In your opinion, what are the biggest challenges of the industry?

a. Driver side ----------

b. Government side ----------

c. Passenger side ----------

d. Owner side ----------

e. Other side ----------

23. In your opinion how we can overcome the aforementioned challenges, please forwarded your proposed solution starts from the most to the least in terms of importance. ----------
----

24. In your opinion, how can be improved bus services in/out of the town?

----

25. In your opinion, what areas in the bus transport sector need to be investigation in the future? ----------

Thank you for taking time to complete these questions

If you have any questions and comment you can contact me via the following address

fkdu2003@gmail.com,45434549@mylife.unisa.ac.za

Annex 3D: Questions of Focus Group Discussion (FGD)

1. For how long do you use Bus transport? ----------

2. Is the number of buses in the terminal is increasing or decreasing? If increasing, why?

3. If decreasing, why? ----------

4. Does the allocation of different leveling of buses have benefits for government, passengers, owners, and drivers? If yes, explain? ----------

5. What type of role does the LDB play for linking metropolitan areas? ----------

6. At what time do you take ticket? ----------

7. Do you think that the safety of passenger is considered in your most travel at all times?

8. What strategy do you propose to ensure passenger safety on both private and public buses?

9. Is the supply of existing bus transport meets the growing need of the society?

10. If no, explain the reason?

11. What is the government reasons to make the current levels difference between buses?

12. In your opinion, what are the biggest challenges of the industry?

a. Driver side ----------

b. Government side ----------

c. Passenger side ----------

d. Owner side ----------

e. Other side ----------

13. In your opinion how can we overcome the aforementioned challenges, please proposed the solutions?

Thank you for taking time to complete these questions

Appendix IV: Checklist and survey of Buses at Mercato Bus terminals

Sn	Plate number	Mid (24 to 44 Seat)	Large (>45 Seat)	Bus by Levels				Remark
				1	2	3	No	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

Appendix VI: Letters and Consent Forms

Annex 6A: Application for permission to conduct research

Fekadu K

P.O.Box 021

Arba Minch, Ethiopia

Federal Transport Authority

10 June 2011

P.O.Box

Addis Ababa, Ethiopia

Dear Sir,

This is a request for permission to conduct a research along the routes of four towns of Ethiopia such as Metehars, Hossaina, G/Guracha and Debre Sina. And I also needed permission to obtain exact information from the experts of your office at Mercato Bus terminal, at the office of EFTA, and MoTC, workers, Bus Associations and others. My intention is to complete PhD dissertations, designed for partial fulfillment of PhD in geography. The research being conducted on ""LDB Transport: It's Structure, Service Adequacy and the Role It Plays in Linking the Core to the Periphery of Ethiopia". The survey data will be mainly collected from operators and passengers along the travel. And it will be predominantly obtain during on-off-seasons. This exercise that the survey wills carryout twice time one survey at off-seasons and other in on-seasons.

For the success of this study, the cooperation of all informants are required. You are kindly requested to inform to aforementioned bureau to be willing to provide reliable information pertaining to each tools. Moreover, the information to be obtained from these offices would remain confidential and used only for the intended research. And also, I promise that one copy of this study result will be given to your office for reliability of information.

If you want to hear about me please communicate my advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za.

Thank you for your cooperation.

Your sincerely

Fekadu K

Encl:

Recommendation letter from the Department of Geography in UNISA

Approval of proposal and letter for ethical clearance form from CAES committee

Recommendation letter from the Department of Geography in Arba Minch University

Recommendation letter from the President of Arba Minch University

Annex 6B: Asking participant from the offices, Associations & Individuals for interview

Fekadu K

P.O.Box 021

Arba Minch, Ethiopia

12 June 2011

_____Office

Name _____

Possistion _____

Dear sir/madam,

Re: Request for interview

I am a PhD student in geography in the University of South Africa and doing dissertation on Transport sectors. I am particularly interested in experts in the office, head of LDB Associations and selected owners of the buses and wonder if you facilitate the aforementioned individuals for interview. If it could be possible to obtain their information from you so that please give me their names, address and phone numbers. Once, I completed the dissertation, I will send to you one soft copy for your office or it is summery in hard copy.

I realise that it will be unethical to use your name without asking your prior consent. Therefore, your name will not be mentioned in the presentation of the findings instead, if it required i can use the pseudo name. For this reason, I urge you to consider polling particular individuals asking them if they are willing to participate in this study. Therefore, would you please send to me the names, office address and phone numbers of those who agree to be interviewed. Meanwhile, I will be grateful if you could provide me with the names of likely candidate for my study.

If someone in hesitation to be voluntary and question for clarity please communicate my advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za. Please forward their names to me and I look forward to hearing from you.

Your sincerely

Fekadu K

Encl:

Interview schedule and 3 questionnaires

Permission letter from EFTA

I thank You Again!

Annex 6C: Asking participants for interview

Fekadu K

P.O.Box 021

Arba Minch, Ethiopia

12 June 2011

_____Office

Name _____

Position _____

Dear sir/madam,

Thank you to be accepting to be part of my study. It is my pleasure that to be consider that you are showing willing to participate in this study. The purpose of this letter is to inform you about your role as a participant. My interest is to obtain the detail information on structure, service adequacy and challenges of LDB transport and its role to metropolitan linkage. To do that I would like to conduct the study by using structure interview so that please boldly shares your reflection on both objective and subjective questions. I assure you that I will address this data with the utmost confidentiality.

I realise that I am taking up some of your precious time. I would be very grateful if you would complete the questionnaire. Please return the questionnaire (completed or uncompleted) to the data collector. It should take approximately 20 minutes to complete.

If someone in hesitation to be voluntary and question for clarity please communicate my advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za.

Thank you for taking the time to complete this questionnaire.

Your sincerely

Fekadu K

Encl:

Questionnaires

Permission letter from EFTA

I thank You Again!

Annex 6D: Asking Operators to fill the questionnaire

Operator's code: _____

Fekadu K

P.O.Box 021

Arba Minch, Ethiopia

_____Date

Name of Association _____

Position _____

Dear sir/madam,

Thank you to be accepting to be part of my study. It is my pleasure that to be consider that you are showing willing to participate in this study. The purpose of this letter is to inform you about your role as a participant. My interest is to obtain the detail information on the structure, service adequacy and challenges of LDB transport and its role for metropolitan linkage. To do that I would like to conduct by using this questionnaire so that please boldly tries to share your reflection on both objective and subjective questions. I assure you that I will address this data with the utmost confidentiality.

I realise that I am taking up some of your precious time. I would be very grateful if you would complete the questionnaire. Please return the questionnaire (completed or uncompleted) to the data collector. It should take approximately 20 to 30 minutes to complete.

If someone in hesitation to be voluntary and question for clarity please communicate my advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za. If you have any questions, please do not hesitate to contact me (Fekadu Kassa) at (+251) 0916828803 or email com,fkdu2003@gmail.com,45434549@mylife.unisa.ac.za.

Thank you for taking the time to complete this questionnaire.

Your sincerely

Fekadu K

Encl:

Questionnaires

Permission letter from EFTA

I thank You Again!

Annex 6E: Asking Passengers to fill the questionnaire

Passenger's code: _____

Fekadu K

P.O.Box 021

Arba Minch, Ethiopia

12 June 2011

Dear sir/madam,

Thank you to be accepting to be part of my study. It is my pleasure that to be consider that you are showing willing to participate in this study. The purpose of this letter is to inform you about your role as a participant. My interest is to obtain the detail information on the structure, service adequacy and challenges of LDB transport and its role of metropolitan linkage. To do that I would like to conduct the study by using the questionnaire and I also please confidentially share your reflection on both objective and subjective questions. I assure you that I will address this data with the utmost confidentiality.

I realise that I am taking up some of your precious time. I would be very grateful if you would complete the questionnaire. Please return the questionnaire (completed or uncompleted) to the data collector. It should take approximately 20 to 30 minutes to complete. If someone in hesitation to be voluntary and question for clarity please communicate my advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za. If you have any questions, please do not hesitate to contact me (Fekadu Kassa) at (+251) 0916828803 or email com,fkdu2003@gmail.com,45434549@mylife.unisa.ac.za.

Thank you for taking the time to complete this questionnaire.

Your sincerely

Fekadu K

Encl:

Questionnaires

Permission letter from EFTA

I thank You Again!

Annex 6F: Asking participants for FGD

Fekadu K

P.O.Box 021

Arba Minch, Ethiopia

Dear sir/madam,

Thank you to be accepting to be part of my study. It is my pleasure that to be consider that you are showing willing to participate in this study. The purpose of this letter is to inform you about your role as a participant. My interest is to obtain the detail information on the, structure, service adequacy and challenges of LDB transport and its role for metropolitan linkage. To do that I would like to conduct on-off journey passengers and operators within the compound of main bus terminal and office by using FGD (Focus Group Discussion) at the terminal. I also require from you is that boldly sharing of your experience, attitudes, perception and viewpoints. I assure you that I will address this data with the utmost confidentiality.

I realise that I am taking up some of your precious time. I would be very grateful if you would participate in this discussion patiently, because it would take approximately 20 minutes to complete.

If someone in hesitation to be voluntary and question for clarity please communicate my advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za. Thank you for taking the time to complete this questionnaire.

Your sincerely

_____

Fekadu K

Encl:

Questionnaires

Permission letter from EFTA

Thematic areas of discussion

I thank You Again!

Annex 6G: Application to require recommendation to get reliable information

Fekadu Kassa

P.O.Box 021

Arba Minch, Ethiopia

Arba Minch University

10 June 2011

President office

P.O.Box 021

Arba Minch, Ethiopia

Dear Sir

This is to write a vouch letter to Ato Fekadu Kassa Ayichew, he is a lecturer in Arba Minch University in the College of Social Science and Humanities in the Department of Geography and Environmental Studies. Since 2009, he has been working his PhD in the department of Geography in the University of South Africa (UNISA). The area of research that he is conducting entitled on “LDB Transport: It’s Structure, Service Adequacy and the Role It Plays in Linking the Core to the Periphery of Ethiopia”. His basic intention is to complete PhD dissertations that designed for partial fulfillment of PhD in transport geography. For the success of this study, the cooperation of all office is required. You are kindly requested to inform to the bureaus that to be administered within EFTA are willing to provide reliable information pertaining to each tools. And also, the information that to be obtained from these offices would remain confidential and used only for the intended research. Therefore your good office also cooperate with him by providing the required data. The University would like to appreciate in advance for your cooperation to the researcher in any way you can in connection with the project.

If you want to hear about the researcher please communicate his advisor Professor Tegegn G/Egiziabeher via tegegneg@yahoo.com or 0911896400 or Madam Nicola M. who is the head of the Department of Geography at UNISA via Ncole@unisa.ac.za and Mr Tesfaye Alemu, who is the dean of the College of Social Science and Humanities of Arba Minch University.

Thank you for your cooperation.

Your sincerely

Yosef Biru G.Egiziabeher

President of Arba Minch University

Annex 6 H: Approval Letter from CaES

UNISA university of south africa

2011-07-26

Ref. Nr.: 2011/CAES/020R1

To the student: **Student nr: 45434549**
Mr Fekadu Kassa Ayichew
Department of Geography
College of Agriculture and Environmental Sciences

Dear Mr Fekadu Kassa Ayichew

Request for Ethical approval for the following research project:

Passenger road transport in Ethiopia: Structure, service adequacy and its role for metropolitan linkage to the city of Addis Ababa

The application for ethical clearance in respect of the above mentioned research has been reviewed by the Research Ethics Review Committee of the College of Agriculture and Environmental Sciences, Unisa.

The committee is pleased to inform you that ethical clearance has been granted for the research set out in the Ethics application (Ref. Nr.: 2011/CAES/020R1) submitted and additional documents attached to the application.

Please be advised that the committee needs to be informed should any part of the research methodology as outlined in the Ethics application (Ref. Nr.: 2011/CAES/020R1), change in any way. Should that be the case, a new application, for the amendments, needs to be submitted to the Ethics Review Committee for review.

We trust that sampling, data gathering and processing of the relevant data will be undertaken in a manner that is respectful of the rights and integrity of all participants, as stipulated in the UNISA Research Ethics Policy.

The Ethics Committee wishes you all the best with this research undertaking.

Kind regards,

Prof E Kempen
CAES Ethics Review Committee Chair

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392, UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 (29 12 125 1150
www.unisa.ac.za

Annex 6 H: Approval Letter from Department

UNISA

28 July 2011

To whom it may concern

I hereby certify that Mr Fekadu Kassa Ayichew is a registered doctoral student in the Department of Geography. He is presently undertaking research on

"*Passenger Road Transport in Ethiopia: Structure, Service Adequacy and its Role for Metropolitan Linkage to the city of Addis Ababa*"

I would appreciate it if you could give Mr Fekadu Kassa Ayichew the necessary time and information for him to progress with his research. I trust that his research will contribute to the improvement of road passenger transport in Ethiopia.

Should you require any further information regarding Fekadu Kassa's research, please not hesitate to contact me.

Regards

Melanie Nicolau
Chair: Department of Geography
UNISA
nicolmd@unisa.ac.za
Tel 011 471 2084

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392, UNISA 0003, South Africa
Telephone: +27 12 429 3111 Facsimile: +27 429 12 429 4150
www.unisa.ac.za

Curriculum vitae/Resume

Fekadu Kassa Ayichew was born on the 14th of September 1975 in Southern part of Ethiopia, Dilla town. I have certificate in teaching first cycle from Arba Minch Teacher Training Institute (TTI) in 1995. Since 1993 to the mid of 2004 I had worked in Dilla Donbosco Sallasian Society in Walleme elementary and junior school as a teacher. In July 2003, I received BED degree in Geography from the then Debub University, Dilla College of Teacher Education and Health Science. After graduating, I was also employed in Hawassa Municipality as a management expert and housing unit head and a part time instructor in the Wisdom Teacher Training Institute in Hawassa. In 2005, I also obtain scholarship from Addis Ababa University and joined the University for Postgraduate Studies in the department of Geography and Environmental Studies specialisation in regional and urban planning. Again, in 2007, I received M.A degree in human geography specialisation on Regional and Urban Planning (RUP). The topic of my master thesis was focused on 'Urban Rental Housing challenges in Ethiopia particular emphasis on the city of Hawassa from Landlord and Tenant perspectives." In line with my postgraduate studies and after graduation, I also employed at lecturer and vice dean position in the Horn of Africa College of Business and Teacher Education in Addis Ababa and a part time instructor at the College of Lion Ethiopian Tourism and Hotel management in Addis Ababa.

In February 2008, I joined Arba Minch University as a lecturer in the department Geography and Environmental Studies. Beside this, I also get certified professional educators in advanced higher diploma programme (HDP) that to be eligible to teach in higher institution from Dilla University in 2010. Moreover, in 2009, I become PhD student in UNISA (University of South Africa) in the department of Geography with collaboration of Ethiopian Ministry of Education (MoE). My dissertation topic was focus on "LDB Transport: It's Structure, Service Adequacy and the Role It Plays in Linking the Core to the Periphery of Ethiopia". This study presents the results of my PhD study with the help of Gunter Ashley (PhD).

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