

## Informal transport and its effects in the developing world - a case study of Addis Ababa, Ethiopia

[O transporte informal e seus efeitos no mundo em desenvolvimento  
- um estudo de caso de Addis Abeba, Etiópia]

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### Abstract

This paper appraises the current situation of passenger road transport in Addis Ababa, Ethiopia, by a case study of long distance bus transport. Emphasis is given on the probability, area and service coverage of informality, and the effect of informal operators on the formal transport industry. The study shows that the manifestation of informality on the long distance bus market is relatively insignificant (about 13%) compared with small and mid-scale buses. The sector also serves about 15 major towns such as Mekele, Dire Dawa, Shashemene, Wolita Soddo, Jimma, Bahir Dar and Gonder Towns. The most relevant effects of informal operators on formal industry and long distance bus in particular are the accelerated increase in the rate of accidents, lack of tax payments and driving over the distance limit. Informality also leads the legal operators into illegality. Thus, one can infer that the accelerating rate of informality becomes a threat for the formal sector operators in general and the long distance bus market in particular, in the nation and developing countries.

*Key words: informality, formal operator, area coverage, service coverage, urban transportation.*

### Resumo

Este artigo avalia a situação atual do transporte rodoviário de passageiros em Addis Abeba, Etiópia, por meio de um estudo de caso do transporte de ônibus de longa distância. Ênfase especial é dada à probabilidade, cobertura de área e de serviço da informalidade, e o efeito de operadores informais na indústria formal de transportes. O estudo mostra que a manifestação da informalidade no mercado de ônibus de longa distância é relativamente insignificante (em torno de 13%) quando comparado com ônibus pequenos e médios. O setor também serve 15 cidades como Mekele, Dire Dawa, Shashemene, Wolita Soddo, Jimma, Bahir Dar e Gonder Towns. Os efeitos mais relevantes dos operadores informais na indústria formal, e nos ônibus de longa distância em particular, são as taxas de crescimento acelerado dos acidentes, a falta de pagamentos de impostos e a direção acima dos limites de distância. A informalidade também acaba por levar os operadores legais para a ilegalidade. Assim, pode-se inferir que a taxa acelerada de informalidade torna-se uma ameaça aos operadores do setor formal em geral, e para o mercado de ônibus de longa distância em particular, em toda a nação e em países em desenvolvimento.

*Palavras-Chave: informalidade, operador formal, cobertura de área, cobertura de serviço, transporte urbano.*

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## Introduction

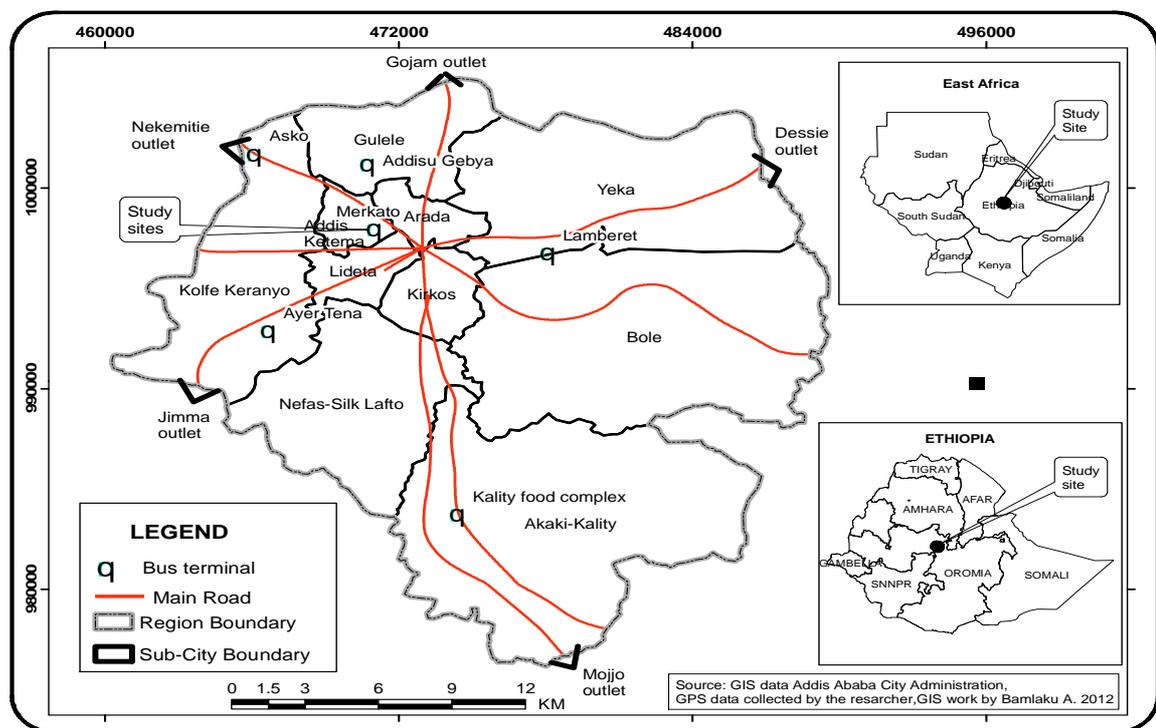
Ethiopia is found in the Horn of Africa with the area coverage approximately 1,221,900 square kilometers, it is nearly the size of France, Germany and the United Kingdom combined (AACC, 2009). Ethiopia is also astronomically locates  $3^{\circ}$ - $15^{\circ}$ N and  $33^{\circ}$ -  $48^{\circ}$ E (ERA, 2005 and CSA, 2007). The elevation ranges from 1,500 to 3,000 meters above sea level. World Bank (2008) depicts that Ethiopia has a population of 76.5 million in 2007 that made the nation the second most populous in Africa, after Nigeria, but the existing population of Ethiopia will be more than 80 million and it will reach 106 million by 2020 (CSA, 1998).

The physical set up of Addis Ababa is found at the heart of the nation and is located at  $9^{\circ}02'N$  to  $9.03^{\circ}N$   $38^{\circ}44' E$  to  $38.74^{\circ} E$  (ERA, 2005 and CSA, 2007). Addis Ababa is the capital city of Ethiopia and Africa. The name Addis Ababa, which means "New Flower" in Amharic, and Hora Finfinnee ("hot springs") in Oromo language. Another Oromigna name of the city is also "Sheger" (AACGO, 2011). Again, it is the largest city in Ethiopia, with a population of 3,384,569 according to the 2007 population census (CSA, 2007). And various estimates depict that until 2020 the city is expected to host 6-7 million inhabitants. The City of Addis Ababa has the dual status of both a city and a state capital (CSA, 2007 and MoFED, 2006) – Figure 1.

The focus of this study is to assess Informal transport and its effects in the developing world - a case study of Addis Ababa, Ethiopia. It is specifically focus on the probability, area and service coverage and effect of informal operators on the formal passenger road transport and long distance Bus transport. In specific narration, it also focuses more on whether is there a probability of informal operators in long distance bus transport. And it is focus on the service and areas coverage of the informal system, and informal operators' effect on formal industry.

The public transport service in the entire world offers by both formal and informal transport. It was chiefly observed on the majority of the service within the metropolitan area and also on some specific outer and regional services was also included (UITP, 2010). A simple definition of the informal PRT is the operation that unlawful to the industry. The term best reflects the operators in the sector that functionalize their buses in the informal system, somewhat driving

outside the officially sanctioned public transport sector. It has known for their illegal operation that found on non-sanctioned status that makes them illegal (Habitat, 2000). The term informal public transport is used to refer to collective PRT with little or no control of its operations by an overall regulatory authority, it is usually characterized by an unplanned and ad-hoc service offer, insufficient or no respect for routes and no published or fixed fare structure (UITP, 2010). In short, they are also unsanctioned in their actions as the whole. In some place, operators' lack the necessary permits or registration for market entry in what is a restricted and regulated market place (Habitat, 2000).



**Figure 1 - The geographic placement of Ethiopia and the capital Addis Ababa**

As Gomez Meyer, (1990) depict the sector primarily consists of Mini buses, minibuses, and other modes that often lumped together under marked scaled down versions of the collective ride transport that capture the full spectrum of service options that lie between conventional buses and single passenger taxis. The formal or informal characteristics of public transport in Africa primarily relate to both the regulatory and operating mode of the transport and its internal management system). However, Informal transport is just one of many sectors of the underground economy that thrives in many third-world countries. It has also similar feature that is seen in reality of Ethiopia and study areas. Whereas, the formal public transport

industry also infers the provision of scheduled transport services, offered by a legal company that has to adhere to an authority's regulations, and most of the time, it is operated under a formal contract and legal base. As a consequence, and in order to make the comparison between formal and informal transport within the context of this report clearly, the Minibus category used to represent the informal sector and large and medium buses to represent the formal sector. However, in reality, there are some overlaps between the two. Even though, as to UITP (2010) studies, a large part of daily trips in African cities carried out by formal bus transport, but it is dominated by the informal operators. Its rate is ranging high on small buses seat from 4 to 30 seats than Mid and large buses.

In many Africans cities, there is the use of informal transport mostly for they can make to inter urban travel. It shows that they don't have other traveling option and no alternative way to make intercity travel than that of the formal one and even the unavailability of other modes like air and railways transport at all part of the nation. In Ethiopia, the word informality also refers the operators that fail to wait their turn and begin to load without their turn. However, by its very nature no bus operators are considers as informal by itself. In rare case, it describe for those who haven't meet the certification requirements of the commercial PRT such as minimum vehicle size, maximum age, or fitness standards and leveling divisions (MOTC, 2011).

Brasileiro et al. (2001), he thoroughly proved that the prevalence of illegal operators in developing countries has a pillar challenge in the sector. More recent is the urge of illegal transportation in the inter-city and regional transportation market. Particularly in Brazil, the amount of detected illegal bus operators' more than fifty illegal coach terminals, which are used by coaches that run to the different corners of the country. Besides the coaches, the illegal inter-city transportation has been increasingly practiced pre dominantly by microbuses, which leave São Paulo City for the inner part of the São Paulo State or even for the Northeast. Where, in selected areas, it goes to be in downing manner in terms of supply and demand. For instance, in Sub-Saharan African countries, the supply of informal buses fell by 12 percent between 1986 and 1989, when population was growing by 6 to 9 percent (Habitat, 2000).

In some parts of the world, it has been have had adverse effect on the industry. The informal operators have lured large numbers of customers from public buses that the formal services are in serious jeopardy of collapsing. In Buenos Aires, massive losses in patronage have

forced to have dramatic cuts in the bus services that along selected corridors, undermine the ability to coordinate and fare systems because of the loss in critical mass from 1992 to 1999, franchise bus operators loss of 25 percent of their patronage-represents 3 million trips per day to the private for hire cars (called remises) and illegal collective vans (Barbero, 2000). The small vehicles that enjoy several advantages over the bigger ones: it takes less time to load and unload, they arrive more often and they stop less frequently (Glaister, 1990).

This study seeks to provide a global portrait the insights into the informal transport sector of the developing world. As the experience of the nations as the whole, the informal sector is often ignored, and when recognized, it is often maligned for several centuries. Till now no enough study were conducted in Ethiopia but the effect of informality on both formal industry and LDB is very high. For instance, Fekadu (2012), made study on the adequacy and service provision of LDB but not focus on special one. Again, ERA (2005) designed national urban transport policy examined only the general nature of road network rather than the inter-urban passenger transport. Mintesnot and Takano (2007) also made a diagnostic evaluation of public transportation mode choice in Addis Ababa with a special focus on intra-urban government bus transport. As AACC in (2009) that entitled on the management of commercial road transport in Ethiopia. Therefore, the researchers want to fill this gap and try to investigate the probability, area and service coverage and its effects on both formal PRT and long distance bus transport in the city. This study attempts to bridge this gap focused on comprehensive analysis of the main issues together with some remedies in Africa at large and Ethiopia in particular.

With regard to significance of the study, it brings is to generate new body of knowledge, to validate and to refine the existing body of knowledge. The major contribution of the this study will provides imputes for policy makers and planners, advice or consultant and other. Also, it is basically brings epistemological impute on the part of philosophy to the field of human geography. Particularly for transport geography, urban geography, economic geography, social and cultural geography, and other disciplines such as sociology, psychology, and economics. And it could serve as an important base for passenger, owners, drivers, planners and investors to make decision on policy and investors in the road passengers' transport and LDB transport. It also provides information on potential areas that could be an area of concern for further research.

To introduce the upcoming section, the objective and methodological section contains the detail description of both objectives and methodology of the study. In any study, both words such as objectives and methodology are highly interrelated and interwoven each other. It refers methodology is intended to answer the objectives. The objective part is also focuses both the general and specific ways. With regard to methodology, it hosts the idea related that to reflect how this study is conducted and the result appears. On the results and discussions part also consists the probability of informality on LDB, the major destination towns of the informal operators in Ethiopia, and the effects of informality on the formal industry and LDB Transport. And at the last, it also forwarded some remedial solutions.

## **1. Objectives and methodology**

The focus of this study is to assess the probability, area and service coverage and effect of informal operators on the formal PRT and LDB transport. Therefore, as per the insight of this objective the following methodological mechanism is undertaken. On the subject of place and study site selection, it is carryout in the city of Addis Ababa. In the city, the informal operators are galloping throughout the city but special attention is given in areas around Mercato bus terminals. Currently there are about three bus terminals that rigorously giving the service to the society are Mercato, Shegole and Kality bus terminals (Figure 1). This study conducted in the whole city but more emphasis is given around Mercato bus terminal in terms of service provision and geographical setting was placed in the hearth of the city. It has been the main and the only national bus terminal that serves the whole nation and placed at the center. And also, it has high accumulation of informal operators around these terminals.

Both qualitative and quantitative approaches were chosen for research analysis, but high emphasis is given to qualitative and less weight for quantitative approaches. The primary sources were obtained via interview, structured interview (questionnaire), observation tools from the informal and formal operators and focus group discussions. The additional data also collected by the instruments used for this study are maps and other. In this way, selected types of informants distinguished; principally the selected few informants were taken from the informal transport users who were on and off the bus terminals for triangulation purpose that used FGD as complementary. The informal operators also selected by convenient sampled.

And the key government officials those are currently work on the formal PRT such as heads of bus terminal, head of Associations, head of traffic officers of the city.

The main informants particularly off-journey passengers at their loading place were parts of Focus group discussions (FGDs). It comprises 4 or 5 participants that targeted within their informal bus terminals. Observation was guided by check list mainly focus on the nature, roles, reasons and its overwhelming situation of the sector. More often, it took mostly at early and late evening for some consecutive days. In addition to this, the researcher also made certain travel towards two or three direction via informal operators. The analysis made based on some quantitative like the inferential statistics mainly (linear regression and logistic regression) and the high emphasis also given for qualitative and content analyses were also undertaken based on open ended questionnaire and informal oral and structured interview. It was primarily carried out by using thick description on the issue.

## **2. Results and discussions**

This study presents the informal transport and its effects in the developing world. It focus on the probability, area and service coverage of informal operators and its effect on the formal PRT in general and LDB transport in particular. Here under, it explains the probability of informality on LDB transport and it also shows on the area and service coverage of informal industry. And it has the effects of informal operators on both the formal industry and LDB transport. And, it also holds the remedial solution to tackle the problem.

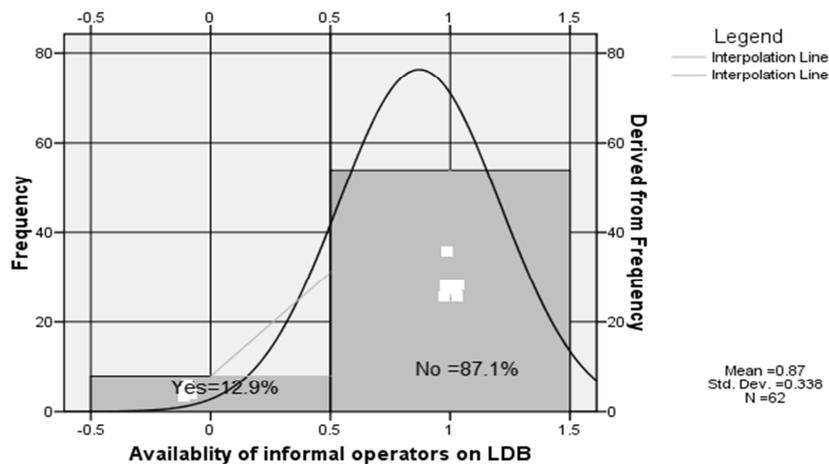
### ***2.1 The probability of informality on LDB***

The pertaining reality is observed in the study area shown that informality doesn't the only phenomenon that is seen simply on the small and medium scaled passenger road transport (PRT) but also it is seen on the long distance bus (LDB) transport. As the survey prevails that out of the total long distance buses, the insignificant amount of LDB (about 13%) is involved in the informality sectors. On Figure 2, note that the availability of informality is very insignificant compared with the small scale buses. However, one of the major reasons for this slight convenience of informality in the system is the availability of high idle time and high demand to make money on formal LDB industry. For instance, as the EFTA report explored

that out of the existing pre scheduled program that is specified to LDB, about 80% of the trips only are covered by each bus per month. But, the rest 20% (about 5 to 7 trips) are collapsed. In fact, again the survey depict that it carry that they spend various days without work. This by itself makes that the provider became idle and rushes to run and join into the informal sector. As the survey pointed that the long distance bus transport work below 20 days per month only but they are pay a whole monthly salary for drivers, co-drivers, and conductor as well. Thus, the rise of idle time in that leads the formal industry into informality.

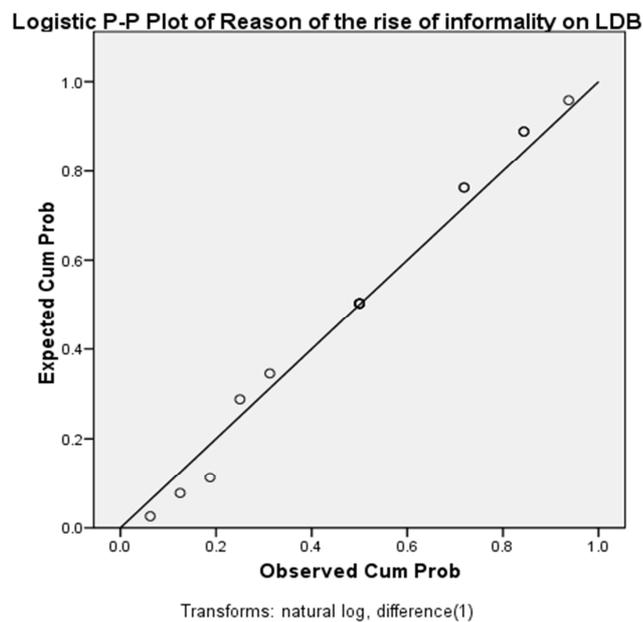
According to the reflection of respondents the long distance buses don't yet involve in the informality. Because, it prefers by the users and will take too long time to get full load. In spite to their high carrying capacity, their oldness, poorness in quality, lowness in speed and takes high waiting time to load contributes a lot for the lessen to be involves in the informality business. However, during on-journey seasons, it is expects to involve in the informality due to high demand rise. It is found that the large buses aren't as such preferable by informal users because it takes more than 1 hour to get full load and not flexible to hold passengers even to collect and drop the passenger from and at their homes and office or work places like that of Mini bus transport. In general, the prevalence of informality is very less and even not available in the long distance buses. However, this doesn't mean that long distance buses don't involve in the informal sector.

Figure 2 also describes that there are no accessibility of the informal operators to be seen on LDB (87%), it is also found that the majority of LDB operators aren't involve on the informality sector. As the survey depict that about 45% of users of the informal operators reflects that it is gone up due to poor traffic control and legal procedure that take long time (high queue). The other equal value is constituted by the oldness of the buses and difficult to fulfill the rule and regulation of the authority. These reasons also impede the large buses that aren't involved in informal sector. Thus, the nature of informality isn't carrying out only on the long distance journey but also in the sector as the whole regardless of the distance limit. The tendency that is to be involves in the informal sector that is seen less in LDB transport.



**Figure 2 - Availability of informal operators on LDB transport<sup>1</sup>**

This histogram is a visual summary of the distribution of values. The overlay of the normal curve helps to assess the skewness or kurtosis. In this data, the histogram is also much skewed to positive side (right). At the time of this survey has shown relatively equal number of operators reflected that LDB operators isn't involve in the informal business.



**Figure 3 - Availability of informal operators on LDB transport<sup>2</sup>**

<sup>1</sup> Own field survey in 2011 and 2012.

<sup>2</sup> Idem.

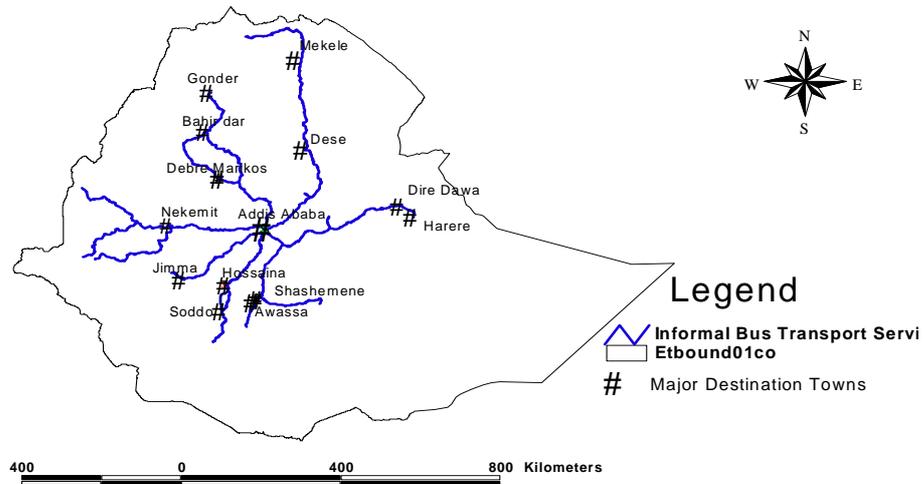
The linear regression also estimates the coefficients of the linear equation, involve one or more independent variables, that best predict the value of the dependent variable. And it has also similar task with Logistic regression. As the Figure 3 explains that the resulting scatterplot appears to be suitable for linear regression, with two possible causes for concern. The variability of the availability of informality on long distance bus transport that appears to increase with increase diameter. In this figure the point on the far right of the graph has less influence on the lay of the regression line. However, this P-P plotted residuals should follow directly with the 45-degree line, it indicates that the normality assumption is violated. In terms of the rise of informality of LDB is a likely influence the regression line and all the points that are observes and expects of the chi square is best fitted to express this model.

The impeding factors of LDB that isn't be easily participated in the informal system is the difficulty to get enough passenger as early as possible. It also the result of its high loading capacity that holds above 60 seats compares to small and Mid-buses. As the survey depict that it takes long time i.e. more than 1 hours to get full load.

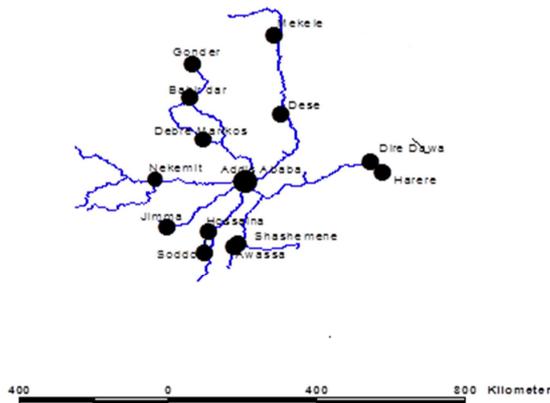
### **2.1.1 Major destination towns of the informal operators in Ethiopia**

This study explores that the informal bus service don't provides in all parts of a nation like that is found on formal industry. However, it goes where there is a demand to get service and to see the access of road facility. According to this survey, it's rate is covers about 75 to 100 informal buses (Mini, Mid and large) that made mobility per day that radiating from Addis Ababa along all direction of the nation. It serves the society in all direction according to the demand and interest of operators. As is the evident and pertain realities, the informal operators address its service to the selected major towns (Figures 4, 5 and 6).

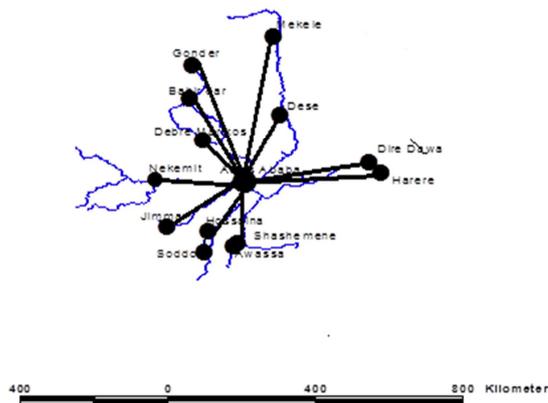
**Major Destination Sites of Informal Bus Transport in Ethiopia**



**Figure 4 - Major destination towns of informal bus transport**



**Figure 5 - Real transport network**



**Figure 6 - Graph representation of transport network**

With regard to the real and graphic representation of the informal Transport network. As the survey expresses that the informal service provides for about 15 major towns. As CSA (2007) and MoUDC, (2007) the total number of large towns in the nations are about 15. It is found that the sector serves the major destination towns of the nation. However, at the time of this survey, the pertinent data depicts, it is directly give serves to the society towards Dessie, Mekele, Dire Dawa, Harere, Shashemene, Awassa, Hossaina, Wolita Soddo, Jimma, Nekemite, Debre Markos, Bahir Dar and Gonder towns. It is the fact that these towns have suitable Asphalt road and shows high demand to utilize the sector. However, for the future its service also extends to medium cities/towns. And its service also reaches to for about 70 medium towns of the nation. However, in terms of service coverage as to Fekadu (2012) explored the distance coverage of LDB is about 200 towns (20%) of the total (924 in CSA, 2007).

## ***2.2 Effects of informality on the formal industry and LDB transport***

Everything has its own effect either negative or positive. In this regard, let us give weight to see the negative effects of informality, it is because of the positive effects of this sector are obvious. Even as to UITP, (2010) studies refer that a large part of daily long distance travels in African cities that is carries out by formal PRT. But, it is dominated by the informal operations rather than formal collective transport with small vehicles that ranging from 4 to 30 seats creating many dysfunctions in the transport system. In this study, the considerable number of respondent however indicates that there are some aspects that are identified as the negative effects of informality. Amongst, the following are worth fully mentions as the adverse effects of informal operators on formal LDB in particular and formal industry at large.

The pertinent reality in the study area indicate that the informal operators also accelerate the rate of accidents. It is found that most of the operators of informal buses commonly work at early morning or late evening and in rare case it carry passengers at the night. They often make journey during night and early morning by violates the rule and regulation of Transport Authority. As the reality and the rule and regulation of MOTC have indicates that all Buses aren't run at night or after 12 o'clock which makes for the safeness of the travel. However, the informal sector don't subdue to the rule and regulation and continue to driving at 24/7

whereas the dispatch which provides from the formal industry isn't makes travel at night. At the time of this study, many informal operators work day and night without even get proper rest. Commonly, they are usually operates on the long distance by the single drivers with hard fatigue. For this reason, the drivers also exposes to utilize stimulant/drug while driving like chewing chat, smoking ganja and other drugs during and before the beginning of the travel. This finding also strengthens on the report of Transport Authority of (2011), they are predominantly operates by using drug and this also leads to accident. On average, they serve like the majority of FLDB operators i.e. about 400 to 600 kilometers per a trip (Fekadu, 2012). The fact that there is no trend that operated by shifting drivers to overcome the fatigue.

However, the informal Mini and Mid bus has also been operates on the long distance mobility, which is the only areas allow for large buses. Most of the time, the majority of informal buses are drive over the permit distance limit, and carry beyond loading capacity of the bus. As to the manuals of MOTC, (2011) prevail that the normal driving distance for small buses (11 to 23 seats) and permit distance to drive below 150km. However, in medium buses (24 to 44 seats) and works within 150 to 250 km distance from the origin place. But the small buses are drive beyond the permit place above 150 km distances. However, this study explores that most of informal Mini buses drive for about 400 km per day.

This implies that over utilize of their buses insecure the passengers and the property. It also elevate the rate of accident, is primarily increase because of restlessness nature of the job and fatigue of the drivers. This type of mobility of the sectors also harms the life of users and pokes the society and property into danger. They drive in over speedy ways to make money and rush for the round trips. The other effect that can be seen from the side of informal operators is driving during night and early morning. They may also make collide with wild animals. And it also exposes the passenger for vagabond and gangster that hid along the route in the night and early morning. Due to this, most of the informal operators drive in speedy way to evacuate from them. Even in day time, they are being very fast to evacuate in the sight of traffic police and regulator because of their unlawful nature. This implies that the informal industry is unsafe for the users. It is suspect and exposes to accident so far.

It makes inquiries over tariff payment and not paid reasonable tax according to their distance and income. It is found that most of the informal transports are expect to get more than 50% rise. In rare case, it is also carries out in double price of the formal tariff. They couldn't even

pay the income tax for bus terminal and Association. Even, they don't pay for tax, service charge for Bus Terminals and commission fee to the respective Association for the reason that of the nature of travel undertaken out of working hours during night and early morning. And it also gets an informal income for the informal operators and owner of the vehicles. From this one can conclude that this growth can attain negative effect on the economy of the society (passenger) and the nation, it also brought an adverse effect on the country economy as well.

The other effect is occurs due to the accelerating rate of informality also lead the legal operators into illegality. And it pushes the legal operators that are rise to be engaged into informality. It is the fact that the business that gets from informal business calls the other formal operator into informality. It is due to the passiveness of the government in this aspect and delays of decision call the other formal operators that join into informality. The other elicit factor also forces the legal operators that lead it into informality, because of the delay on their turn to load from formal industry. This implies informal operators bring effect on formal LDB transport is force to be cancels their turn, due to lack of the present and potential passenger snatches by the illegal operators. This is one of the effects of informality on formal industry.

This continues cancel of the legal operators from the formal flight shows the way for the legal operators that come into illegality business. Owing to its rate, the day to day rise of the informal industry also endangers the legal operators into problems. This implies that defy the legal operators that escape out of the legal industry and often make flight during night and early morning as per informal operators. In fact, this study also specifies that they take-off and snatched the newly coming passengers from the legitimate LDB. This action of the informal operators expresses the effect on the LDB and other formal PRT operators. Thus, this passiveness of government reaction on the existing informal operators also leads the other formal operators into informality.

The study result discloses that, it led the passenger into suffrage by hides the bus within irregular place to load the passenger. Mostly, the operators load the passenger by hide the buses from the traffic police and government bodies that are allow being in charge of the industry. The observation realizes that, the passenger also expects to make travel long distance on foot for some kilometer with full of bends and twists route within the residence areas of the city. It is found that the temporal bus terminal is averagely carries out more or

less within 1 to 2 km radius of the main Bus Terminal. But in rare case, it also carries out in a place where on the radii of more than 2 km.

The informal operators don't run their business in the constant place similar to the formal operators. Instead they possibly used to utilize it by shift their terminals. They utilize of different informal and temporal Bus Terminals in the areas of the surrounds places of the main and other terminals. This timely shifting of the terminal is also for the purpose to provide the service free from the insight of the regulator and traffic police. In general, this placement and the temporal shift of the terminal by itself accelerate the suffrage of the passengers by searching the place and the bus. This action of the operators lead the passenger into problem and the passengers also expose for the mobsters.

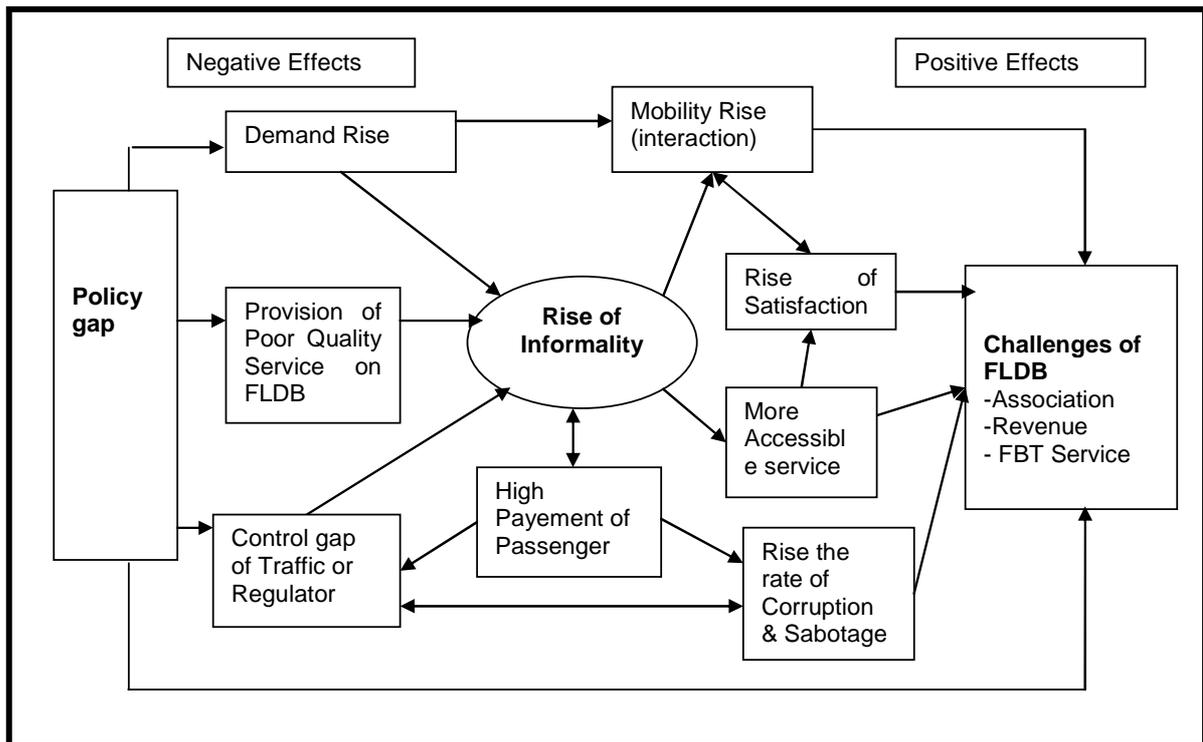
It is also instituted that due to the fear of traffic officers and regulators, they are usually changed their style accordingly. At this study displays that the informal operators notably change their loading sites from time to time. This survey explores that they begin to load the passenger from their usual bus terminal. For instance, along south direction towards Awassa and Shashemene at Legahar and around jolly Bar; and to Hossaina town carry at Sebategna and Gojam Verenda areas in the city. And towards Wolita Soddo towns are also carries around Mercato Tana area in Mercato and Wabi Shebele area around Mexico square and other sites. It is found that the informal operators are frequently loaded by the help of participation of various conductor or broker or the so called 'Woyala' who load the passengers either by appeal or lobby or begging the passengers. The loading of passenger on informal system is carried out by call personally and it takes much time to get full load.

This temporal shift of informal terminals and buses aggravate the pain of passengers and leads to dissatisfaction. For instance, it is practice by carrying the passenger by Mini bus taxi which is standing at a place where city taxi users by the help of brokers (Woyala). And it is commonly dumps the passenger around the outskirts of the city or peri-urban areas. Then after, the assigned informal Mini bus follows the taxi which carries intercity travelers and shifts the carried passenger at the outskirts of the city. This implies that they want to escape from the sight of regulators and traffic officers. In rare cases, this taxi also drops the loaded passenger on dumps place at peri-urban areas and waiting the informal bus for long time. But informal Mini buses become after high waiting time and suffrage of the passengers. This shift also exposes the passenger for insecurity and rise of dissatisfaction.

Lastly, it opens certain loops for the smuggler that especially for those who are the traders that shipping military armament, drugs similar to ganja, Mariwana, heroin and human traffics and other. It is found that the sector is exposes for smugglers, because of the fact that the operation is carryout out in night and tries to far from the sight of the regulator. Most of the time, it is found that the majority of passengers that make journey on night and early morning are traders specially smugglers. And in rare case, it includes government and private worker. Thus, this industry is commonly utilizes at night time and early morning this is open the loops for smugglers.

In general, Figure 7 demonstrates that the cumulative effect of the informal bus transport and how it interlink within the sector. Informal PRT is those who are involve within unlawful dispatch of the industry, it constitute of Mini buses, Mid buses and other modes that often lumps together of service options. It has a big inter link with various variables that sees in this study. The study found that this sector has high and obvious link within various variables; such as the demand rise have direct effect on the mobility rise and informality at large but it also indirectly links with other variables. However, this high rise of informality in the sector, it have also been brings a considerable negative effect directly on the Bus Association or owners and operators that works on Formal bus terminals. This will also bring lessen of the demand on FPRT and corruption and sabotage. And it also operates by expend over tariff payment. This also directly affects the individual income and indirectly affects the GDP of the nation by lessens the government income that also goes in a decrease manner, and other.

The demand rise, the poor quality of FLDB, and the gap of traffic officers have also seen in policy gaps. And it also has long effect on the challenge of the sector. As the figure explored that it also had direct effect on the rise of informal transport. Whereas, informality is also has a role to pprovide for mobility rise, provides high and accessible service, and rise of satisfaction, highly available and accessible at any time. Therefore, it also contributes more for the provision of the accessible service for the users at any time than that of formal industry.



**Figure 7 - Schematic diagram of informal transport effects<sup>3</sup>**

## 2.3 Summary

As the finding of this study prevails that out of the total LDB is found in the nation, the insignificant amount (about 13%) of LDB involve in the informality sector. The major reasons for the probability of informality in the system of long distance buses are the availability of high idle time and demand to make money. It is evident that main reason is that about 45% is due to poor traffic control and not waiting to pay tax for government. The rest various operators of the LDB (87%) aren't involve in the informality.

However, the survey shown that the large buses aren't as such preferable by informal users because it takes more than 1 hour that to get full load and not flexible to hold passengers even at their homes and office or work places similar to the informal operator. Thus, the probability of informality is very less and even not observed in the LDB. However, this doesn't mean that a LDB don't take part in informality. With regard to ownership, at the moment of this study, it is found that no buses that is registers as the property of NGO and government organization.

<sup>3</sup> FBT = Formal Bus Terminal, FLDB = Formal Long Distance Bus, and LDB =Long Distance Bus. Source: the researcher, 2011 and 2012.

However, all PRT are operate and owns by private individuals. Therefore, the informality is engulfs by privately owned operators.

The effects of informal operators also reveal on the formal LDB operators in particular and the formal industries at large. It also accelerates accidents, the informal PRT commonly work at early morning or late evening and in rare case at the night. The fact that there is no trend that operates by shift of the drivers to overcoming the fatigue. It also enquires over tariff payment and not paid reasonable tax according to their distance and income. Most of the informal transports expect to get more fare i.e. 50% rise of the normal tariff. And it leads the legal operators into illegality and marginalizes the legal operators, because of the accelerating rate of informality.

## **Conclusion**

In this section both conclusion and recommendation are stated together. Based on the preceding discussion, the following key points are provided as possible suggestions to improve the overall nature of informality in the sector. The following remedial strategies are forward:

- It requires an integrative work with stockholders at various bodies

The supply and demand mismatch is primarily created because of lack of integration between the stockholders. The study revealed that one of the severe factors for the prevalence of present congestion in the terminal is mainly due to lack of organized integration between stockholders. For instance, the main reasons for congestion is due to all Universities of the nation are call their students within the similar time; mostly called their students in one week and usually on the similar day. It is notices that they are commonly calling their student without the consent of MoTC. It also considers among the challenges of the industry that worsens the provision of supply and demand. This study indicates that it is also exacerbate the congestion and creates the mismatch between the supply and demand of the industry. It is found that informality increase because of lack of integration of concerned bodies. Such as traffic officers, transport bureau, regulators, even the passengers and other. Therefore, it requires an integrative work with stockholders at various bodies

- Set clear policy ground and strong enactment on the informal long distance transport.

In this study, it is found that certain issues that have policy, but the majority aspects aren't in the nation. As the study tells that the informality is served for long years but till now no remarkable reaction should be taken either to stop it or to reduce its amount. However, in the nation there are certain policy areas that want to stop the rate of informality but its enactment is very poor. In this study, some points that need policy are age limit of vehicles and buses, human and property effect of informality, environmental effect of informal motorized road transport, and other. It is particularly for intercity long distance mobility and later on medium and on taxi service. Therefore, set clear policy ground and strong enactment on the informal long distance transport is a must.

- Regulate the supply and demand of the sector and the LDB Associations should provide accessible and qualified formal bus service.

This study notices that, there is a mismatch of supply and demand both in terms of quality and quantity. In the formal industry, till now there is no trend that works in 24/7 or 18/7. Almost, the service provision of all PRT carries on day time (12/7) only. This is a little bit contributes for the present congestion on the industry because of provides the service in day time only. It is found that peoples are wanted to make mobility based on his/her interest at any time. This gap of the service provides for formal industry by open the room for the rise of informal passenger transport due to the preference of the society that want to serves as simple as convenient. Again, the low provisions of the service from the formal industry and unimproved the quantity and quality of service provision from the formal industry stir the rate of informality. Therefore, the government regulates the supply and demand of the sector and the LDB Associations should provide accessible and qualified formal bus service.

- Expand the utilization and application of radar with high detective resolution to detect the informal operators and their speeds.

The forgoing fact and the study finding disclose that the industry is full of informal operators and they rush for make round trips and think to make business. This activity also exaggerates the prevalence of accident and causality on the long distance buses. However, it doesn't work well because of lack of committed officials and low awareness. Even, the highest injury of

vehicles also occurs along the routes. In spite of the lowness of the quality of drivers and the condition of speedy driving and other cases also raises the accidents. Therefore, the government should control them by the help of technological assisted instruments like radar.

- Require proper and timely data handling of transport authority at all levels.

At the time of this study, big challenges of this industry lacks of proper data for the study. It is observed that there is mishandling and poorly organized data of buses at bus terminals. In fact, for effective planning, policy making and research analysis, organized data is important. However, due to this gap the researcher also try to use the scholar and expert guess to know the amount of and probability of informality. Therefore, it requires timely and effective handle of data.

And the other solutions are requiring strong Traffic Management to reduce the rate of informality and maximize the security and satisfaction of passengers. And also teach the society to utilize the service only from the formal industry that safeguards them from the exploitation and insecurity of informal operators.

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