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Extra Load Carriage, Rate of Passengers Turnover on Intercity Mini and Mid Bus Transport and Its Effect in Africa: Emphasis on the Service Radiates from Hawassa to Other Towns in Ethiopia

Fekadu Kassa Ayichew

Arbamnich University, Department of Geography and Environmental Studies, Ethiopia

Abstract:

The study aims on the nature of intercity Mini Bus transport Service that radiates from Hawassa to other areas in SNNPRS and Oromia region in Ethiopia specifically focus on the rate of extra load, turnover and its effect. The study was conducted based on both primary and secondary sources. The primary was distinguished; principally collected from the key government officials at Mayor Office, head and experts in the bus terminal were selected. The qualitative approaches were used done via document and content analysis is carried out by using thick description on the issue. In both on-off seasons, the average estimated extra load of both buses is about 3 to 5 individuals. But it is maximized during on-season that reach more than 10 individuals per trip. And the study also shows that the estimated rate of turnover of both bus systems is almost equivalent on the Asphalt road but in worst stage on gravel and dry weather road. However, the surveyed rate of turnover from the origin to destination place within 100 kms about 20 times. On average, it is usually takes place at every 5 kilometer interval. This rise is occurs owing to the availability of passenger along the road and lack of supervision of traffic officer. The turnover and extra load has positively correlated, if the extra load increases the rate and effect of turnover also increase. The major effect is it can disgrace the seat holder passenger, due to over tie up sitting and over carrying also expose for transmission of respiratory disease. And it also delays the normal duration of the travel time more than 1 hour with in 100 km distance.

Key words: Mini Bus, Mid bus, extra load, operator, turnover, seat holder, on-off season

1. 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). She shares frontiers with Eritrea, Sudan, Kenya, Somalia, and Djibouti (Map 1 and fig 1). Whereas, the physical setting and situation of SNNPRS has the total area of (110,930.90 sq.km), the elevation also lies within 500–3500m, and astronomical 04^o43'–8^o58' North latitude and 34^o88'–39^o14' East longitude. However the study city, Hawassa, lies in (929.80 km square). The city is the first ranked big town in the SNNPRS region, and in the second position in the nation. The elevation of the town ranges 1501 – 3000m, and 06^o83'–07^o17' North latitude and 38^o24'– 38^o72' East longitude (CSA, 2007 and Fekadu, 2010).

Transport has a necessary role to play for economic growth and social development of Ethiopia. Land transportation in general is among other modes, and road transport in particular is the most widely used transport sectors all over the world. It also provides a base for local, national, regional and international flow of goods and passengers. Asnake (2006) states that the road transport sector plays significant role in developing the national economy through direct contribution to GDP and employment. Indirectly, it also provides services that are indispensable for the development of other economic sectors. In this study, it was focused on the intercity bus transport. The overview of the sector has differed in developed and developing countries.

Historically, since the 1960's, the intercity bus service and ridership of developed country have been declining compared to the travel that made by personal vehicles, rail and commercial airlines has grown. However, from 1980 through 2002, the rate of intercity buses has been declining by 4% annually and in 2006 the decline was reached to 10% (Schwieterman, 2008). However, because of the improvement that made in the sector, the intercity bus service has been the fastest growing mode of travel from 2007 through 2010 (Schwieterman, 2010). The statistics shown that the scheduled intercity bus service in the United States increased by 8% in 2006 to 2007 and nearby 10% from 2007 to 2008 (MDT, 2011).

In terms of intercity movement, developing countries focus on all forms of bus transport mostly carried out in large, Midland Mini buses. In Africa, it the challenge to the mobility in the interurban transports in short distance is Mini bus and the medium is dominantly by Mid buses and large bus transport. As per AACC (2009) explored that the intercity bus services that can be seen in different ways as per the passenger perspective. The public transport is viewed differently in urban public and interurban public transport service provision. If one looks at the situation, over the period 1992-2003, the service coverage of interurban public

transport has shown significant progress compares with the African continent, the total amount and access to intercity bus services in Ethiopia remains very low.

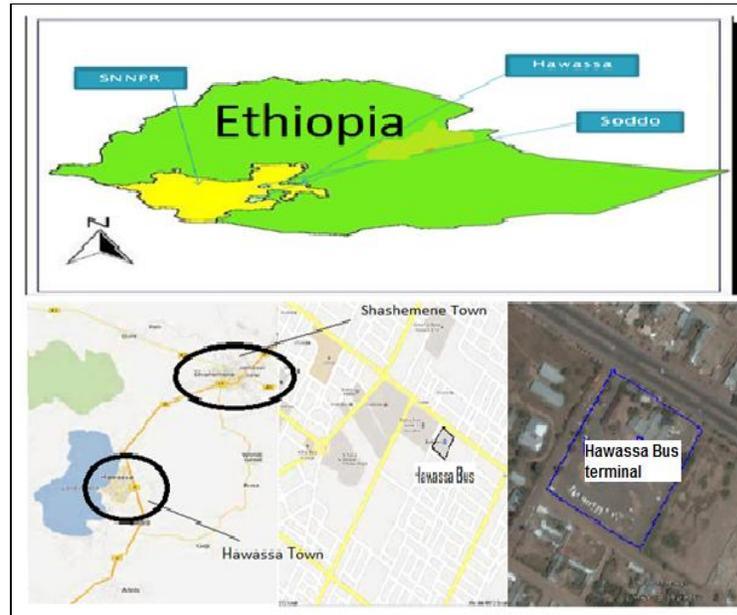


Figure 1: The Geographic Placement of Ethiopia and Hawassa's Bus Station
Source: Adapted from Google Earth 2012

However, few studies are conducted the general rate of all Passenger Road Transport (PRT) that links intercity bus transport in Ethiopia. According to Fekadu (2013) the annual rise of bus transport is occupied by the small and medium scale buses. The small scale transport has shown an abrupt rise than the other. As the figure shows that the year before 2003, the initial rate of small buses in the nation are about 11,952 (about 12,000). But, the growth trend of the industry has been increasing. It also signifies that the growth rate of small bus transport in the nation is very high. The rest bus types (Medium and large) have also shown slow growth. In short, the small buses are vastly outnumbering the medium and large buses. On average, both buses have shown uniform rate of rise in the sector i.e. below 200 buses that increases annually. In terms of total size, the small bus transport is greater than medium and large buses, it is accounted about 17 times of the number of large buses and about 10 times of the medium buses. This high rise of the number of small buses, has even led them into informal transport.

This study seeks to provide a global portrait that insight into the Mini and Mid Bus transport of the developing world. As the experience of the nations as the whole, this sector is often ignored, and when recognized, it is often maligned for several centuries. However, this sector, extensively and commonly serves the society and it is also as the striking issues in the study area. In Ethiopia up to now no enough studies have been conducted on this aspect, and very few studies have been conducted. For instance, Fekadu (2013) focuses on the role, rate and reasons of the informal operators in the city of Addis Ababa and the annual report and some studies of EFTA in 2011. But, no study is done on the service provision of both Mini and Mid bus transport. Therefore, the researcher is interested to dig out this aspect and want to investigate the role, rate and extra load, and turnover of passenger and its side effects of the Mini and Mid bus transport radiates from the city of Hawassa. This study attempts to bridge this gap by focusing on comprehensive analysis of the main issues together with some remedies in Africa at large and Ethiopia in particular.

2. Objectives and Methodology

The focus of this study is to assess the service provision of Mini and Mid Bus transport in the developing world. The aim of this study is to focus on the nature of intercity Mini and Mid Bus Service that radiates from Hawassa to other areas in SNNPRS and Oromia in Ethiopia. However the specific objectives are 1) to explore the roles of the sector, 2) to examine rates of extra load of passengers and 3) to scrutinize the frequency of turnover and its Side effects. Therefore, the following methodological mechanism is also undertaken to get reliable information. The data collection tools were focused on qualitative approaches and carry out by using primary sources that obtains via interview, observation tools, and focus group discussions. And some secondary sources are also used.

The themes and area scope of the study is selected purposefully at the headquarter of the SNNPRS region, Hawassa. On the subject of place and study site selection, it is found in the center so that the bus terminals that thoroughly provides service carriage in the region. The bus terminal of the city also selected in terms of service delivery and geographical setting. The bus terminal of Hawassa was selected because of it is the capital of the SNNPRS region and it is a strategic city to serve the adjacent towns of Oromia region. It is also an area that interlinks more than two regions (Oromia and SNNPRS). However, this study didn't focus on long distance bus that radiate from Hawassa.

The informants were distinguished, and taken the users who were on and off the bus terminals. Both the Mini and Mid Bus operators and users were selected by convenient sampled. And the key government officials those are currently working on the formal PRT such as heads of bus terminal, head of bus Associations, head of traffic officers, experts at regional transport office and other bodies of the city. The main informants, particularly focused on the off-journey passengers at their loading place, were parts of Focus group discussions (FGDs), it comprises 4 or 5 participants. The observation technique was guided by check list that focus on the service provision of Mini and Mid Bus transport and its overwhelming situation. More often, it took mostly on the whole day particularly focuses on early and late evening for some consecutive days. In addition to this, the researcher made a travel by using Mini and Mid Bus travel towards different directions of the region and adjacent regions. The analysis of the study is also supported by dense description, that clarifies the issue.

3. Result and Discussion

This study addresses the overall situation of the sector which specifically focuses on three basic issues such as roles, rate of extra carriage and turnover of passengers, and its effect. This presents on the roles of intercity Mini and Mid bus transport are discussed hereunder.

3.1. Roles of Intercity Min and Mid Buses Transport

The role of both intercity Mini and Mid buses travel has obvious significance. It is found that both bus transports that have served the society in any distance but the Mini bus only serves within short distance. And it is a better means to deflate the existing demand found along the road while on travel. Compares to Mid and large distance bus, the Mini bus transport has been served more to reduce the saturated peoples found along the road. It is the fact that their rate of flow is very higher than Mid and large buses. This implies that it has shown a higher flow per day than others. This implies it gives an immediate relief for the reduction of the demand of passengers' along the lines.



Figure 2: Mini Buses Are Waiting to Get the Turn and to Get The Full Load

At the moment of this study, it is found that most Mini buses work within 100 km interval from the origin town. It commonly provides, a high flow and service coverage along a short distance mainly in 20 to 50 km intervals and less flow is recorded to 100 km and above distance. The Mini Bus transport, in busiest flow at shortest travel from Hawassa to Shashemene town, accounts about 40 buses per day on-journey season. Therefore, it link more on the short distance. For instance, among the dispatch from Hawassa, the second busiest service of Mini Bus is seen from Hawassa to Dilla and Hawassa to Alaba routes. With regard to the time and the nature of service provision most of the Mini buses have begun their service at early morning about 9 pm up to 8 pm, it takes more than 17 hours per day. On average they might work more than 14 hours within a day including the time spent by waiting their turn at the terminal. This implies they can work the possibility of thrice round trips per day in short distance and they may work at least two round trips in long distance (about 100 km). In this time range, it serves the society in both short and medium distance travel. Thus, the small scale buses are working more than 14 hours per day where it is less in Mid bus transport. In some case, it is the only traveling mechanisms that make the intercity links in the nation within short distance travel. And it involves, loading and unloading the passengers along the line to reach the destination towns. It provides the adhoc service for the society that is require short travel. Therefore, this sector is worthy to serve the society found along the two sides of the road than the medium and large size buses. This action also links the small town found along and the major towns that are found in a geographic nearby area that connects the towns found along short distance interval. As per the EFTA (2011) rules and regulation shown that the allowed distance limit for Mini Bus transport that can work within (below 150km). This implies it can link more for the society that is found within a short distance. Indirectly, it contributes more to the formation of emerging new and upgrading of old towns. Thus, the Mini buses transport interlinks mainly for short distance on the Asphalt routes while Mid buses serves more on short and Medium distance on both gravel and Asphalt roads.

And it links more in areas found at the intermediate rural and urban places as well. It also links the intermediate society within the origin and destination towns. However, Fekadu (2013) explores that most of informal Mini buses serve the society on an average, for about 300 km radius from the epicenter of Addis Ababa per day. This implies that it contribute to make long distance travel informally. In addition to this, one of its roles is for the flow of information via passengers and drivers or conductors. Even though, it is very much valuable in short distance travel of the country than the transmission of radio and television broadcast. And it also plays a leading role in the distribution of the postal service as well.

3.2. The Amount of Getting Extra Load of Mini and Mid Bus Transport and Its Factors

The study truly prevails that most of the time, the sector can get a full load from the terminal and they can get the passenger as extra loads found along the route. The operators estimated that they can carry up to 2 to 3 persons, an extra load is not considered as normal and usual aspects for both operators and government officials. This extra carriage is also taken as a compensation cost for their meal and also it is used to substitute the unprofitability of the industry. It is found however, that in certain abnormal cases, they can carry very high extra load. This rise is the fact that the availability of passenger along the road and lack of supervision of traffic officer. On average, one bus carries about 3 to 5 individuals and in specific cases, Mini buses only carry nearly 10 individuals as an extra load during on-seasons. The figure will be raised on Mid bus. For instance, the settled rule of the Mini bus is to carry up to 12 to 14 individuals including conductor or co-drivers and drivers. However, infrequently, it is found that one Mini bus carries double of the normal trip (24 passengers) commonly in short distance and less in medium distance intervals during both off and on- seasons. This implies that the extra carriage is undertaken very high on small scale buses than Medium. The other factors that are shown are the extra carriage of passenger is high on both the systems when they driving on gravel or dry weathered road. It is commonly found that almost in all weathered roads there would be no traffic officers and the operators also are not willing to work on it. However, on gravel road Mid buses are also works in short distance. Even the rate of extra carriage is very high on gravel road at inaccessible part of the nation than on Asphalt because it is place hide from the regulators. Therefore, the rate of extra carriage is higher on gravel road than on asphalt. The Mini buses are operated on Asphalt and Mid bus works on both Asphalt and gravel (paved or dry weather road).

It is found that the time span of travel to carry extra load on very small distance (below 20 km) and short distance (20 to 30 km) on Asphalt road. This implies that the fact that trigger high turnover at the intermediate places which is the town found along the route between origins to destination. The other factor is the prevalence of high demand. In this sector, as it is found that most small towns and some major and medium towns of the nation has public market day at least one day per week. It is also considered as the rise of demand so that it is created better working condition for operators who are working in short distance (20 to 30 km radius) and less in Medium distance travel on Asphalt road.

It is found that most buses carry extra passengers when the traffic officers are unavailable along the road. And as the survey and observation indicate that they are commonly absent from the workplace by the name of lunch or brunch, and in late afternoon and night, and weekend days. This is because of no prevalence of traffic and regulators are found along the road during lunch time. Therefore, this factor also accelerates the number of the informal buses and overload carriage of people takes place. In general, the obvious reason for carrying extra load is to maximize the revenue of operators and owners. And they don't worry about the privacy of female passengers. Thus, the unavailability of regulator has played a key factor to carry an extra passenger than the presence of demand.

3.3. Rate of Turnover Ofintercity Bus Transport and Its Side Effects

3.3.1. Rate of Turnover and Its Factors

In this study, both extra carriage and turnover are inseparable things. The turnover has an outstanding contribution to the rise of extra passengers. In Mini bus travel, the turnover is very high than Mid. It is because of the service provision along short distance and is carried in the form of on-off passenger as the form of extra passengers along the lines. It is found that the turnover takes place on an average, on every 5 kilometer interval. This does not mean that they don't drop the passenger below 4 km. For instance, the estimated rate of turnover of the Mini buses within 100 km distance about 20 times. This implies it can undertake at every few kilometers of movement (below 5 km). However, the estimated and enumerated turnover within one trip of 100 km distance to reach to destination is about 20 times. In some case, it is increased when the bus begins its journey without carry full load and this figure would be recorded more than 20 times. In most part of the nations, intermediate place found between major and medium towns are not getting the timely and proper Mini and Mid bus transport service to the society. This implies that this unassigned by itself also stir a lot for the rise of extra carriage and turnover. Thus, the turnover is shown high on Mini bus if they are going to drive for long distance and relatively less within medium distance travel.

The fluctuation of turnover and extra carriage has various factors. The most notable factor to prefer to work on the area along specific conditions that are made as a pre-condition such as the demands of people, the road access, presence of public market and other. They also serve the society in the area that has access to Asphalt road and exceptionally, on gravel or weathered roads. In limited lines that are found within the shortest distance that commonly served by Mini bus transport and rarely by Mid transport. This implies the factor for the turnover is not similar all over the nation.

It is found that the main reasons for the rise of turnover and extra load are mainly due to the accessibility of passenger along the route, and the government didn't assign any buses that service within certain intervals along the line. The most arguable reasons are the unavailability of traffic officer along the road at optimum distance intervals. And it also practices because of the carelessness nature of the operators. And also, the minor reasons are accessibility and settlement of small towns and rural areas in the short distance. In rare case, the rate of turnover is too low when there is availability of traffic officer on the road. It also is very sound for keeping the comfort of passengers and speed of the travel. This implies the unavailability of traffic officer is a number one factor to carry extra load and turnover. Therefore, the regulator and traffic officer should supervise their assigned lines without rest at every equivalent distance.

In general, on both Mini and Mid bus transport the rate of turnover begins as of driving some distance from origin place is lesser than around destination places. However, in medium and long distance buses it is commonly carried out at after half distance of the whole journey and around the destination towns; however, it is very high when it reaches the destination places. This implies

that it is higher near to destination town is due to the passengers are completes the journey. Then after, the operators try to carry a substitute passenger on the blank space.

3.3.2. Side Effects of Carrying Extra Load and Turnover

The Side effects of the turnover or carry on-off passengers along the road has an impact on the other passengers mainly who are beginning the journey from Origin to Destinations. The turnover or carry on-off passengers has brought negative effect on the passengers mainly on travelers who are loaded from the origin places and want to reach to the destination and it has less effect on the extra loaded ones. For instance, it is practiced during loading and unloading time of the passengers and property along the line. This implies that is specially exposing more on those passengers who begin their journey from origin to destination than those who are carried along the route. Thus the rate of turnover increases the agony of passengers who are traveling from the origin and destination places. In comparison, it also distresses the extra passenger than the seat holders. It stimulate that the suffrage of passengers because of it carry the extra load. Thus, it has a high effect on the normal travelers who has got the seat from origin towns and less effect on the extra carrying passengers.

The main theme of the operator gets full load is loaded as per the seat level so that they can convey the passenger within a reasonable time frame. However, if they hold an extra load the rate of turnover would increase more than one hour within 100km. The side effects of turnover and carry extra load has an effect on seat holders, passengers consume their time by a reduction of 1 hour. For every loading and unloading procedure along the route, it takes about 2 to 5 minutes. On average, it consumes about 3.5 minutes per every turnover. The survey and observation shown that within 100 km interval one Mini bus would make turnover for about 20 times. In terms of time it delayed the normal trips of the bus that ranges from 50 to 70 minutes on one trip in the 100 km interval. Almost the estimated rate of turnover on Mid and Mini buses are a bit differs. On average, it consumes about 65 minutes. For instance, from Dilla to Shashemene town it would take about 2 hours. However because of the presence of turnover, the travel times to complete the journey are also ranges from half hours to 1 hour at the normal time below 100km distance. Hence, it brings the deferment of the passenger by 1 hour per each trip within 100 km.

The other slight effect of turnover affects the privacy of passengers because of carrying an extra load. If the number of extra loaded passengers is increased, the turnover would also increase. This also triggers the rate of dissatisfaction the fact that lessens the well being of the former passenger. And also, commonly the operators are forced the passenger that formerly occupies the seat, also suffers more by the coming of an extra passenger. They may sit very tightly without the allowed seat capacity and carry by adding at least one individual on each seat beyond its scope. It is found that didn't keep the privacy of the adjacent travelers with seat holders. It lessens the comfort ability of the passenger who gets the seat, it also violates the right of passengers who are already seated and loaded as an extra that holds the bus without a seat. Thus, the extra carriage contributes for the rise of turnover and also it has affected both seat holder and extra loaded one.

The side effect of carrying the extra load comes from carry the passenger with their property within the buses. And the extra carriage of passengers would also bring health effect on the passengers. It is the fact that the presence of suffocation because of carrying overloaded passengers. And it also exposes the passengers and operators for transmission of the respiratory disease. In general, the turnover has lessened the comfort ability of the passenger who gets the seat and would also bring health effect. And it also delayed the journey of the passenger who begins from their travel from origin to destination. Thus, the turnover has high correlation with extra carriage and it also consumes time, spoil the privacy of passengers, exposed the passenger to health effect.

4. Summary and Possible Solutions

4.1. Summary

The study aims on the nature of intercity Bus transport Service that radiates from Hawassa to other areas in SNNPRS and Oromia region in Ethiopia specifically focus on the rate of extra load, turnover and roles. The data were collected by interview, Focus group discussion (FGD), and observation tools. The analyses carry out by using qualitative approaches. The finding proclaims that the role of both Mini and Mid bus transport has provided similar roles in the community. It is found to serve more in short distance travel and especially Mini bus is played more to deflate the existing demand along the road than Mid. And the Mini bus service provided for 14 hours per day. It also provides accessible service to the society to deflate the boosted demand along the road than Mid bus. Thus, it interlinks the society in both rural and urban places along the road. In the study area, both Mini and Mid Buses would carry out about 2 to 3 extra passengers are taken as a normal load even by the regulator but not only for operator at every trip. In both on-off seasons, the average estimated extra load of both buses reached in 3 to 5 individuals. But it is maximized during on-seasons that reach more than 10 individuals.

And the study shows that the estimated rate of turnover of both bus systems is almost equivalent on the Asphalt and gravel road but it will be increased on gravel. It is found that Mid bus is commonly works on gravel and dry weather road and the rate of extra load and turnover is in worst stage. However, the rate of turnover within 100 km from the origin to destination is for about 20 times. On average, the turnover is usually takes place at every 5 kilometer interval. This rise occurs the fact that availability of passenger along the two sides of the road and lack of supervision of traffic officer. The turnover and extra load are positively correlated, if the extra load increases the rate and effect of turnover also increase. The major effect is that it can disgrace the seat holder passenger, owing to over time sitting and the over-carrying also expose the passenger for respiratory diseases, and it also leads to delay of the time to complete the journey by 1 hours within 100 km distance.

4.2. Possible Suggestions

Based on the preceding discussion, the following key points provide possible suggestions to improve the overall nature of the Mini and Mid bus transportation service. The following remedial strategies are forwarded the way how best it can be accomplished:

- Assign and produce enthusiastic Officers or Regulators along the routes,
- Provide enough supply of qualified Mini and Mid buses at major and medium towns,
- Assign substantial traffic officers or regulators at equivalent distances for the whole days even they take lunch should be carried out by Shift,
- Integrated work with stockholders is also required,
- The Association should open their liaison offices in the adjacent towns and
- Upgrade the awareness of the society and set policy for those who carry as extra passengers and the government tries to aware the society and begin to punish the passenger than the operator.

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