Drivers' and Passengers' Perspectives on Factors Influencing Intercity Bus Travel Time on the Accra-Takoradi Route, Ghana: an Exploratory Approach

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Abstract

The purpose of the study is to qualitatively ascertain the factors influencing intercity bus transport travel time on the Accra-Takoradi route in Ghana. The cross sectional study involved the use of in-depth interviews conducted on fourteen drivers and forty two passengers of GPRTU, VIP, VVIP, ISTC, MMT, DIPLOMAT and FORD on the route. This was supported with participants and non-participants observations. The identified determinants were time of departure, purpose of travel, day/night journey, volume of traffic on the route, place of refueling, number of stoppages for passengers, the nature of the road, the type of bus, approved rest stops, speed limit, the presence of MTTD officials, presence of toll booths, volume of passengers' luggage and so on. Recommendations were proffered to reduce tension that might be generated by lack of understanding between the driver and the passengers on the travel time.

Key words: Travel time, passengers, drivers, intercity bus

Introduction

Transport is one of the most important contributors to GDP in both developed and developing countries. In the developed countries it accounts for more than 10 percent of GDP and its services are a precondition for economic activities as well as educational, recreational, business activities. This involves people moving from one location to the other to fulfill any of these activities. Location may necessitate passengers making intra urban, intra village or intercity trips. Different modes are present to enable this movement depending on the type or size of settlement. There are five forms of intercity transport: train, bus, automobile, aircraft and boats (Roza et al, 2013) depending on the country under observation. For instance in Pakistan two modes of intercity public transport are common on the West Bank: shared taxi and bus (Al-Sahili &Sadeq, 2004). In Ghana and Nigeria, private cars or government vehicles (Abane, 2011), buses, aircraft and at times train or boats are the modes of intercity transport. Each mode has specific characteristics that influence its preference. Automobile or private car travel offers greater advantages of convenience, route choice flexibility, and time saving etc.

The use of intercity bus holds many advantages over the use of either private or commercial automobile for the individual, for the community and for the cities from the standpoint of such factors as energy conservation, environmental impact, social equity and economy. Fare and travel time attributes make the intercity bus the most popular transport mode from the passenger's perspective. These attributes have been seldom exploited to their fullest extent by developing countries (Khisty, 2003). An efficient and cost effective intercity bus transport system essentially connects people to daily life over short, medium, and long distance. These passengers hope to spend minimum time in arrival at their destination. These may have been borne by previous experience, word of mouth, advertisement and expected distance between origin and destination. Any deviation from the expected travel time engenders a form of inconvenience on the part of the passenger and driver, miscalculation of fuel usage by the driver, result in tension between the driver and passengers which invariable affect perceived quality. This is because transit travel time and operating speed influence service attractiveness, operating cost and system efficiency (Bertini and El-Geneidy, 2004).

More so, most intercity bus transport service providers do not provide scheduled trips and this, when added to the travel time constitute a problem. Contemporary researches have focused more attention on the use of travel

time (Lyons et al., 2007; Small, 2012; Clayton 2013) with less attention accorded what influences travel time. Therefore this study generally seeks to identify the determinants of travel time on Accra-Takoradi route, Ghana. The specific objectives are to: explain travel time?; enumerate factors influencing passengers' and drivers' perception of travel time; identify the causes of misunderstanding of travel time between the driver and the passenger.

Literature review

Jain and Lyons (2008) define travel time as the time consumed in order to travel to a destination and the price paid for fulfilling the purpose of reaching that destination. Travel time according to Lyon and Wardman (2013) has been classified into four:

- Time as a "gift" to the traveller-time out and transition time;

- Clock time versus experienced time- stretching and compressing experienced time;

- Task-oriented concept of time-decoupling ownership of time from journey purpose; and

- No effective and practical means of measuring knowledge worker productivity.

Travel time in this study refers to the time spent on board a vehicle from origin to destination. This does not include out-of-vehicle and in-vehicle waiting time. Travel time in other words is the time at take-off to the last designated station for the passenger or driver. Travel time from origin to destination is otherwise referred to as lead time of transportation (Kolluru & Ponnam, 2009). Travel time usually contains several different elements. For a transit trip, it includes walking into the station or bus stop, waiting time for bus services, traveling time in the transit vehicle and walking time to the destination (Rabi & McCord, 2006). Each of these aspects is measured in many ways by different indicators. Excessively long travel times constitute unproductive time, which cannot be utilized and waiting times constitute unproductive time, which cannot be utilized (Mbara & Celliers, 2013). This assertion has been extensively looked at by Lyon et al. (2007) and Jain and Lyons (2008) to see travel time rather than being wasted but can and do possess a positive utility.

Similarly Clayton (2012) asserts that, previous studies have suggested that engaging in activity during travel time increases the utility of a journey. There have been many studies that sought to establish the monetary values of travel time (savings) (for further details see Mackie et al 2003). Lyon et al. (2007) note that, travel time continued to be seen in mainstream transport studies as a cost incurred by individuals and society as means to enjoy the benefits available at the destinations of journeys. Tam et al. (2011) highlight that, business air passengers are more sensitive to travel time while non-business air passengers are more sensitive to travel cost. In addition to the relationship between travel time and travel cost, Nam et al. (2005) point out that, travel time reliability plays an important role in making mode choice decisions. When making a travel mode choice, especially air passengers do allow extra time, generally referred to in the literature as a safety margin, in order to avoid late arrival (Tam et al., 2011).

Ewing et al. (2004) observed that school bus travel times could have been determined only with great effort. The factors are distance from home to pick up point, routing from pickup point to school, routing from school to drop-off point, distance from drop-off point to home, number of bus stops along the way and average running speed on each route. Roza et al. (2011) posit that female respondents preferred to use the intercity bus because of shorter bus travel time as they do not feel comfortable being in train for a long time.

Fieldwork challenges

Many challenges were encountered during the data collection stage. It was difficult to talk some passengers and drivers into taking part in the study due to general distrust of researchers (Binge, 2003). Interviewing passengers at the station was a challenge because of the short out-of vehicle waiting time and in-vehicle boarding time. However, with persistence the exercise was carried out with the selected categories of passengers. It was revealed that passengers are relaxed on board a moving vehicle. So they tended to attend to the questions with zeal. Therefore, the passengers' interviews were held mostly on-board as there seemed relaxed and have ample time for the interviews, whereas drivers were interviewed while their buses were on scale.

There is dearth of research utilizing observations and non-participant observations in Ghana. The researcher had to rely on similar studies conducted in developed countries. These studies were largely intra urban. Participants do not spend up to the four hours that intercity passengers and drivers are exposed to in this context. The researcher in the process divided the journey into nine stages: Accra-Kasoa, Kasoa-Winneba, Winneba-Apam, Apam-Mankessim, Mankessim-Cape Coast, Cape Coast-Komenda-Junction, Komenda Junction-Beposo, Beposo-Sekondi Junction, and Sekondi-Junction- Takoradi.

Reliability and validity

The rationale of the study was explained to the interviewees and they were accordingly told that anyone could opt out at any time if the need arises. Incidentally, only those that were willing and ready to participate were interviewed. Two passengers declined participating in the exercise because they were busy. Subsequently, the in-depth interviews were subjected to contents checking by the interviewees. The recorded interviews were played back to the interviewees for amendments and clarifications.

Study area and Methodology

As indicated in Figure 1, the study area covered travellers on the Accra-Takoradi route. Accra is the administrative and political capital of the Democratic Republic of Ghana covering more than $1000km^2$ of land or about 45% of Greater Accra Region. Accra was also one of the key centres during the struggle for independence. Takoradi (one of the twin city Sekondi-Takoradi) is a city with vibrant port activities. With Sekondi, the twin city covers $200km^2$ of land and a population of about 500,000. It is the most important settlement in the Western Region with primary role in maritime transport since 1928 when the Takoradi Harbour was completed. The opening of the Jubilee field has added another dimension to the prominence accorded the region. The Accra-Takoradi route as indicated in Figure 1 is 215 km and with a travel time of 3-4hours depending on the vehicle being used and other endogenous and exogenous variables on the routes.

A letter of intent was sent to 15 identified intercity transport operators on the route but only seven indicated their interests after meeting with the researchers. These transport operators were supposed to have either city as its take off or final destination. Besides, each must have an operational station for take-off and final destination. Therefore, GPRTU, FORD, MMT, DIPLOMAT, VVIP, VIP and ISTC were able to meet the criteria and agreed to take part in the study.

The study design is exploratory as it is not designed to come up with final answers or decisions of the observed phenomenon. This exploratory study will provide insights into what caused the prevailing travel time in the study area. The passengers and drivers were purposively selected for the in-depth interviews. Aside the in-depth interviews, the researchers conducted participants and non-participants observations. The buses in which the researchers carried out the participants and non-participants observations were accidentally sampled. The buses loading upon arrival were accidentally selected for the study. For the participant observation, the researchers acted as passengers on board these buses whereas for the non-participant observations, the researchers were interested on the time spent in moving in-between Accra-Takoradi cities. The research was carried from November 2013-February, 2014. The interviews and observations were conducted from between 7am and 9pm depending on departure and arrival time of the researchers. Six passengers and two drivers were purposively chosen from each of the seven service providers on the route. In all, forty-two passengers were eventually interviewed. In order to carry out the observation, the route was purposively divided into 9 sections based on their strategic locations: Accra-Kasoa, Kasoa-Winneba, Winneba-Apam, Apam-Mankessim, Mankessim-Cape Coast, Cape Coast-Komenda-Junction, Komenda Junction-Beposo, Beposo-Sekondi Junction, and Sekondi-Junction- Takoradi.

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Figure 1: Map of Southern Ghana showing the study route
Source: Cartography and Remote Sensing Unit, (2014).
Results and discussion

There are endogenous and exogenous factors influencing travel time by public transport user-drivers and passengers. All that a passenger wants to arrive at the destination within a certain time period. This may be tied to the frequency of use of that mode of transport by the passengers. Moreover, first timers also have their own expectation when it comes to travel time which may have been informed by word of mouth or advertisement. Drivers more or less would want to arrive at destination within the estimated travel time as this affects fuel consumption causing reduction in revenue, tiredness or fatigue emanating from long driving amongst others.

A passenger on board FORD on this observed:
I am going to Takoradi and I have to come back today. As I always do, with FORD, I know I can get to Takoradi within 3 hours because of the seat capacity of the bus. The big buses spend much time on the road as there are many passengers on board.
The number of passengers on-board a bus really affects travel time. As these passengers would invariably want to alight when they get to their various destinations, more time would be spent doing such. This was also observed with MMT buses where the drivers spent more travel time than other service providers. This attribute affects perception of travel for other large buses. Unlike GPRTU and FORD buses carrying 12-15 passengers.
A passenger on board MMT notes:
"The bus just stops everywhere. At times I get irritated. I try not to board it when I am in haste. The bus stops everywhere especially after Cape Coast when going to Takoradi. Besides, most of the passengers on board are with their luggage, hence more time is spent in off-loading. But when you are coming from Takoradi, you may not spend more than 4 hours as against when going to Takoradi".
Passenger's purpose of travel was found to influence perception of travel time. On this attribute a passenger on board ISTC reveals:
I was billed to travel by flight to Accra this afternoon but because it rained cat and dog, I missed my flight. I had to call to find if the scheduled bus had left because it was about two o'clock and I had to be in Accra for a meeting by 6pm.
This passenger was the last passenger to come on-board at the Takoradi terminal and was spotted making series of calls. The passenger could have opted for other transport operators on the route but chose ISTC because of the scheduled trips. He envisaged the bus arriving in Accra before 6pm. Incidentally, the bus got to ISTC yard by

5:36pm and he flagged down a chattered taxi. Tam et al (2011) observed that business air passengers are more sensitive to travel time.

A MMT driver remarked:

"We are told not to travel beyond 80 km per hr. Besides the buses are programmed in such a way that you cannot run more than 80 km/hr. By that I spend 3 hour without any traffic on the way. But if there are traffic jams then I might spend 4 hours".

An ISTC driver observed:

If not for traffic, a driver has to spend four hrs. there are pockets of traffic jams on the way. Even if the driver is able to escape the ones in Accra, he will meet the one at Fijai.

This issue of traffic jam was raised by all the 14 drivers surveyed for interviews. The volume of traffic really determines how fast a vehicle can go. Despite the maximum speed limit signal being installed on the route. A driver on approaching a town/settlement is mandated to travel at 50km or below per hour and on leaving could run maximum of 80km per hour. Trips on the route seemed to be faster from Kasoa to Winneba and traffic built up beyond till Cape Coast. The settlements from Winneba-Cape Coast are very close to each other. Hence, drivers are limited to move at 50km per hour. Just after Komenda, the number of settlements reduces and the drivers could move at 80km per hour. At 50km per hour, it is expected that an intercity bus should arrive at the other end within four hours. The speed is slower when the bus has just taken off and when it is approaching the last bus stop. Tam et al 2011 in a study observed traffic congestion influenced travel time

In addition to the volume of traffic on the road, a DIPLOMAT driver observed:

"The Accra- Takoradi road is snaky and one has to be cautious when driving. The driver has to be careful especially when the bus driver has an articulator before him".

On the route, there is a section labeled "Gomoa 13 curves" found within Winneba-Apam stretch of the route. This section has claimed a number of lives and Toyota Ghana mounted sign posts to indicate the number of lives lost on each of the section. Drivers are forced to move slower when approaching these curves. More so, there is a sharp curve just after the police barrier on approaching Cape Coast and drivers are forced to slow down because of the snaky of the road. Another snaky section of the can be found when approaching Beposo from Komenda junction.

The volume of traffic is noted to be less at night than in the day time. Hence if a driver is even moving at recommended 50km will arrive at the destination within four hours. Night driving only accounts for 25% of all driving and there is usually significantly less traffic during these hours (PENNSTATE, 2007 retrieved on 16th June 2014 from www.ehs.psu.edu/help/info_sheets/driving_at_night_info_sheet.pdf)

 A DIPLOMAT driver noted:

I spend three hours at night when there is less traffic on the road. But during the day time I spend up to4- five hours. Visibility is highly reduced during the night as against the day time but there is less traffic.

There are pockets of police checkpoints on the route. The first check point from Accra was just after Winneba and the second one was located on approaching Mankessim. There were other three checkpoints dotted before arriving at Takoradi. The number of these checkpoints increases at night with the presence of police at the junction of all the major urban areas on the route. The drivers are forced to slow down as fellow drivers warned on-coming drivers of the presence of policemen on the route and they in turn slow down to avoid being caught over speeding.

The presence of three toll booths on the route affects travel time as traffic builds up on approaching. One of the toll booths was at Weija where, more traffic was witnessed the second one was at Cape Coast with the last one at Beposo. Places of refueling added to the travel time. Only MMT and ISTC fueled their buses before departure. Other service providers refueled midway. Some of the service providers used the passengers' resting time in-between the journey to refuel their buses. Filling stations at Mankessim and Winneba were the preferred spots when the drivers refuel their vehicles and allow passengers to ease themselves.

There are a number of speed ramps constructed very close to settlements along the route. The drivers have no choice than to slow down when approaching these speed ramps. Some drivers have been raising questions about the usefulness of these speed ramps. Some of the ramps are very high (such as the one at Fetteh, Buduburam and along UCC) and they pose danger to the users which call for a further research.

Kolluru and Ponnam (2009) made an attempt to empirically analyze the impact of variables like average number of fast moving vehicles per day, average slow moving vehicles per day, drivers rest hours, average number of light/heavy vehicles ratio, number of population habitats on particular routes on travel time from origin to destination. Lohmiller and Friedrich (2012) categorized factors influencing travel time reliability into primary factors (demand, weather conditions and accidents) and secondary factors – heavy goods vehicles, day of week, time of day, local traffic rate and commuter traffic rate. The authors further looked at the effects of these factors

on travel time. Demand factor offers the highest temporal occurrence, whereas accidents have the highest severity on travel time.

Critical incidents involving determination of travel time

Lack of understanding between the drivers and passengers on the route may cause strained relationship. A passenger on board a bus has an expectation pertaining to travel time. As a result of these exogenous and endogenous factors earlier explained, critical incidents will occur and will invariably affect perceived quality. Edvardson(1998) revealed that critical incidents are special, problematic, sensitive or directly unpleasant to the individual who has not received what he/she expected. These critical incidents can arise anywhere and occur even when the best service is delivered.

On critical incidents involving determination of travel, an ISTC driver remarked:

"Passengers always accuse us of keeping longer than necessary on the road. They assume that it should take about 3 hours to get to Takoradi meanwhile it should be minimum of 3hrs 30minutes.

Another DIPLOMAT driver retorted:

"It is only inexperience driver that tells a passenger that inquired to know the travel time between Accra-Takoradi. When a driver does that and he is unable to meet such expectation then there would be a problem. The passenger would be uneasy thinking one has been driving slowing. Our problem has always been with the regular customers. if she/he was able to arrive at the other end, then he is expecting to arrive at the same or better than the former travel time. Then you will hear such passengers accusing the driver of moving very slow".

Conclusion and recommendations

It is about time that passengers and drivers began to see the travel time between Accra-Takoradi differently as there are a number of primary and secondary determinants (Lohmiller and Friedrich, 2012) influencing travel time. From the in-depth interviews with the drivers, passengers, participants and non-participant observations, the following factors determine travel time on Accra-Takoradi route-seating capacity/size of a bus, speed of the bus, number of bus stops, volume of passenger' luggage, place of origin and destination, scheduled trips, speed limit on the route, volume of traffic, pockets of traffic jams, number of settlements along the route, nature of the road, presence of law enforcement agencies (such as the members of Motor Traffic and Transport Department of the Ghana Police Service), speed ramps, maximum speed limit, presence of toll booths, rest stops and places of refueling. These factors are not that different from Kolluru and Ponnam (2009) and Lohmiller and Friedrich (2012). But Lohmiller and Friedrich further succinctly categorized these factors into primary and secondary factors.

These determinants may not come to the fore in all the intercity bus transport but a combination of several of these will affect travel time. Large buses tend to spend more travel time than mini-buses because of factors such as the volume of passengers and luggage, number of stops, speed of the bus and recommended rest stops. This may make mini-buses attract more passengers than large buses. If this trend continues, the recommendation in the Urban Transport Policy about the use of high occupancy vehicles to reduce traffic congestion and minimize fuel usage will not be achievable in the foreseeable future. Besides, the immediate answer to this lies in offering scheduled trips by all transport operators.

Passengers and drivers should be aware that, the travel time for today on the route may differ from that of tomorrow. Even the travel time in the morning may be different in the afternoon. Moreover, travel time for mini buses (such as FORD, GPRTU) differs from large buses (such as MMT, ISTC and VVIP) because of vehicular size, number of passengers, speed of the bus, volume of luggage and recommended places of rest. GPRTU and FORD buses do not have a recommended place of rest but transit the two cities unless there is a demand from the passengers.

The relevant government agencies (MMTD, Ghana Highway Authority and toll collectors) should offer their best in expediting speedy but efficient services on the routes. A further study could be extended to look at determinants of travel time on Ghanaian highways and the use of travel time on these routes by passengers.

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