

Social and Economic Effects of Road Traffic Delays on Commuters in Selected Cordons of Lagos, Nigeria

***Agunloye, O. O & Salau, T. I.**

Department of Urban and Regional Planning,
University of Lagos, Akoka, Yaba, Lagos State, Nigeria
ooagunloye@gmail.com & oagunloye@unilag.edu.ng

This investigation examined commuters' perception of socio-economic effects of road traffic delay with a view to significantly reducing the continuous effects from selected cordons of Lagos Island, Lagos Mainland and Lagos East of Lagos, Nigeria. The study adopted survey research design to obtain primary data on social and economic effects of traffic delay on commuters, which included variables such as time wastage, lateness to work, additional transport fare, loss of job, tiredness. The research area is Lagos Island, Lagos Mainland and Lagos East. The sampling frame for this study evolved from the average number of commuters at selected nodes of 7am to 6pm of selected days (Monday, Wednesday and Sunday) on selected areas of zones. The sample size for this study was two hundred and forty-eight (248) commuters (114 commuters at Lagos Island cordons, 75 commuters at Lagos East cordons and 79 commuters at Lagos Mainland cordons), which translated to copies of administered questionnaire. The sampling technique used for this research was the purposive sampling. The statistical tools included frequency tables, cross tabulation and other outputs. Results revealed that the 5 major effects on commuters were returning-home-late, lateness to work, waking-up-too-early, tiredness and discomfort with Commuters' Perception Index (C.P.I.) of 4.15, 4.01, 4.01, 3.99, 3.82 while the five lower index of road traffic delay were time wastage, loss of job, street fighting, results in anger and disappointment experience with C. P. I values of 3.48, 3.35, 3.33, 2.75 and 2.03 respectively. The study concluded that the overall statistical socio-economic effects of road traffic delay in Lagos Island, Lagos Mainland and Lagos East is 3.72 C. P. I. The study therefore suggests an effective co-ordination of efforts by Lagos State government and other relevant agencies involved in traffic management in selected nodes of investigation among others.

Keywords: Socio-economic, Effects, Road, Traffic, Delays, Commuters

Introduction

Road junctions (nodal points) in major cities in Nigeria are confronted with road traffic delays (operational and fixed), which tends to contend possible solutions from different relevant authorities over the years. Journey times from one point to another within a town have remained unreliable as residents continued to face disturbing inconveniences in mobility (Hassan, 2016). It has been established that road traffic delays increase travel cost and caused physical and psychological discomfort. It creates worry and frustration, touchiness, high blood

pressure and cardiac irregularities (Ogunsanya, 2002).

The problem of intra-urban traffic delay in Lagos, Nigeria has been studied by Bashiru and Waziri (2008). In the study, it was revealed that 57% of commuters and motorists spent between 30 to 60 minutes on the road due to traffic congestion. They also found that the worst traffic congestion occurred on Mondays. This also applied to the related study of Agbonika (2011) for Abuja City. Bashiru and Waziri (2008) listed the causes of traffic congestion in Lagos to include the following: Presence of

pot holes/bad road, trading activities, on-street parking, loading and discharging of passengers, illegal bus stops, flooding/poor drainage, vehicle breakdown, narrow road sections, religious activities, high volume of traffic, lack of parking space and lack of traffic light at some road intersections. Furthermore, Aworemi *et al.* (2009) studied traffic congestion in Lagos Metropolis. In agreement with Bashiru and Waziri (2008), the study noted the following major causes of traffic congestion. These include: poor road condition, inadequate road infrastructure, accident, inadequate traffic planning, drivers' behaviour and lack of integrated transport system. Also, the focus of the study was on the problems that cause traffic congestion, but did not cover the social and economic effects of traffic delay.

Fadare (1998) admitted that traffic congestion on six converging roads in the central business district of Benin is chaotic. Among the factors responsible for this are street trading, on-going parking, inadequate public mass transit buses, poor traffic control and road management, traffic light failure, too many cars on the roads, poor road design and poor drainage. The study suggested that elaborate research should be commissioned in other areas of cities and that government should evolve a good traffic control and management policy to address the problems in Nigeria. However, the result considered factors responsible for street trading but did not measure fixed and operational traffic delays.

Associated with the traffic congestions are problems of parking. Parking demands far outweigh the available supply in most Nigerian cities (Ogunbodede, 2008). This results in road-side parking and illegal parking, which are common features in urban centres of Nigeria. The ineffective regulation of parking has further worsened the situation. Other causes of road congestion in Lagos included pot holes/ bad roads, trading activities, on-street parking, loading and discharging of passengers, illegal bus stops, poor drainage, vehicle breakdown, narrow road sections, religious activities, lack of parking space and traffic

lights at some intersections. There is a need for proper traffic management and control of vehicle ownership in order to decrease environmental pollution from the road transport sector (Bashiru & Waziri, 2008).

Previous relevant studies revealed that poor traffic management is a major problem of the Lagos transport system (Ogunbodede, 2008; Bashiru & Waziri, 2008). Oni (2012) also argues that traffic congestion is a major transportation problem in Nigeria cities. Although, these studies were carried out in Lagos, Nigeria but did not amount to a particular zone of influence. From the foregoing, Lagos Island, Lagos Mainland and Lagos East nodal points are affected with high incidences of road traffic delay, especially during the journey 'to and fro' work. This is a situation in which the demand for road mode exceeds the supply. In other words, the demand for passenger movements per day exceeds the transportation resources available to meet these needs. The paradox in geometric growth in vehicle ownership in the state without corresponding land use planning and sustainable transportation planning strategies in the state is another reason to worry (Hassan, 2016).

Population and economic pressures generate increased demand for transportation networks and this is accompanied by significant environmental effects. Although the Lagos state is one of the smallest states in terms of space in Nigeria having a total area of 357,700 hectares, it is undoubtedly the most densely populated states in Nigeria due to its commercial and economic activities. The population of the city stands at about 18 million inhabitants with a current estimated growth rate of 6% each year. There is migration from the rural centres to Lagos as it occupies over 60% of the industries in Nigeria as 45% of nation's skilled manpower resides in the city, this is because Lagos is the hub of nation's economic activities (Hassan, 2016).

Ogunbodede (2003) carried out the traffic congestion in Akure Nigeria using GIS approach. It was claim that traffic

congestion is as a result of the increasing growth in motor vehicles without a steady development in transport facilities such as traffic management techniques, road network and parking spaces. The study also emphasized on illegal roadside parking and absence of geospatial information necessary to tackle the spatial problem as other causes of traffic congestion. The study further suggested the use of a dynamic Traffic Information System (TIS) structure to monitor congestions in Akure City.

Raheem *et al.* (2015) did a study on cause, effect and possible solution to traffic congestion in Basorun-Akobo Road in Ibadan Oyo State that due to increase in population and the attraction of human activities into urban region which in turn leads to the growth of vehicle ownership and use, there is demand for road space which has led to increase in the number of public transport operation. Subsequently, the demand for road space is greater than the supply because the rate of provision of transport facilities is less than the rate of growth of vehicle ownership and use which result in traffic congestion has been analysed using experimental and theoretical approaches. These involve traffic counting and delay survey. A result of the survey shows the effect of traffic congestion, such as Waste of time, Delay movement, Accident, Inability to forecast travel time, Fuel consumption, Road rage and environmental pollution. In the company of the suggested solutions to the traffic congestion are Road dualization, Provision of Adequate Parking Space, Construction of the proper Drainage System and Installation of Traffic Control Devices. The aforementioned studies differ from what this research intends to investigate because the investigation took place in Oyo and not Lagos state. Besides, this study concentrates on users (commuters') perception of the existing socio-economic effects of road traffic delay in Lagos Island, Lagos Mainland and Lagos East in Lagos, Nigeria with a view to proffering possible solutions to the attendant effects.

Research Methods

The study adopted survey research design to obtain primary data on social and economic effects of traffic delay on commuters, which included variables such as time wastage, lateness to work, additional transport fare, loss of job, tiredness the research area is Lagos Island, Lagos Mainland and Lagos East. The sampling frame for this study evolved from the average number of commuters at selected nodes of 7am to 6pm of selected days (Monday, Wednesday and Sunday) on selected areas of zones. The sample size for this study was (114 commuters at Lagos Island cordons, 75 commuters at Lagos East cordons and 79 commuters at Lagos Mainland cordons) two hundred and forty-eight (248) copies of questionnaire. The sampling technique used for this research was the purposive sampling as the sampling procedure entailed the identification of the nodes in the study area, secondly identification of the nodal legged with delay, thirdly, identification of nodes with bus stop. Fourthly, selection of commuters at the identified nodes in order to conduct surveys with commuters during the delay period through the structured questionnaire. The descriptive statistics included the use of frequency tables, cross tabulation, Likert scale outputs.

Results and Discussion

The studies of Agunloye and Ilechukwu (2011) examined travels pattern and socio-economic characteristics of rail transport passengers in Lagos metropolis, Nigeria and implied some of the following variables as effects of road traffic delay on commuters.

Time wastage as an effect

The study revealed in Table 1 that at Lagos Island, 11(9.6%) respondents strongly disagreed that time wastage was an effect on commuters, 10(8.8%) respondents disagreed that time wastage was an effect, 13(11.4%) respondents moderately agreed that time wastage was an effect, 26(22.8%) respondents agreed that time wastage was an effect while, 54(47.4%) respondents strongly agreed that time wastage. At Lagos east, 2(2.7%) respondents strongly disagreed that one of the social and

economic effects of traffic delay was time wastage, 5(6.7%) respondents disagreed that one of the social and economic effects of traffic delay was time wastage, 11(14.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was time wastage, 28(37.3%) respondents agreed that one of the social and economic effects of traffic delay was time wastage while, 29(38.7%) respondents strongly agreed that one of the social and economic effects of traffic delay was time wastage. At Lagos mainland, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic delay was time wastage, 3(3.8%) respondents disagreed that one of the social and economic effects of traffic delay was time wastage, 4(5.1%) respondents moderately agreed that one of the social and economic effects of traffic delay was time wastage, 29(36.7%) respondents agreed that one of the social and economic effects of traffic delay was time wastage while, 42(53.2%) respondents strongly agreed that one of the social and economic effects of traffic delay was time wastage.

Lateness to work as an effect

According to the survey carried out, it was observed that; at Lagos Island, 7(6.1%) respondents strongly disagreed that one of the social and economic effects of traffic delay was lateness to work, 17(14.9%) respondents disagreed that one of the social and economic effects of traffic delay was lateness to work, 13(11.4%) respondents moderately agreed that one of the social and economic effects of traffic delay was lateness to work, 25(21.9%) respondents agreed that one of the social and economic effects of traffic delay was lateness to work and 52(45.6%) respondents strongly agreed that one of the social and economic effects of traffic delay was lateness to work. At Lagos east, 4(5.3%) respondents disagreed that one of the social and economic effects of traffic delay was lateness to work, 14(18.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was lateness to work, 33(44.0%) respondents agreed that one of the social and economic effects of traffic

delay was lateness to work and 24(32.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was lateness to work. At Lagos mainland, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic delay was lateness to work, 6(7.6%) respondents disagreed that one of the social and economic effects of traffic delay was lateness to work, 7(8.9%) respondents moderately agreed that one of the social and economic effects of traffic delay was lateness to work, 26(32.9%) respondents agreed that one of the social and economic effects of traffic delay was lateness to work and 39(49.4%) respondents strongly agreed that one of the social and economic effects of traffic delay was lateness to work.

Additional transport fare as an effect

The study as revealed in Table 1 showed that 19(16.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was additional transport fare at Lagos Island, 19(16.7%) respondents disagreed that one of the social and economic effects of traffic delay was additional transport fare, 11(9.6%) respondents moderately agreed that one of the social and economic effects of traffic delay was additional transport fare, 19(16.7%) respondents agreed that one of the social and economic effects of traffic delay was additional transport fare and 46(40.4%) respondents strongly disagreed that one of the social and economic effects of traffic delay was additional transport fare. At Lagos east, 3(4.0%) respondents strongly disagreed that one of the social and economic effects of traffic delay was additional transport fare, 13(17.3%) respondents disagreed that one of the social and economic effects of traffic delay was additional transport fare, 9(12.0%) respondents moderately agreed that one of the social and economic effects of traffic delay was additional transport fare, 21(28.0%) respondents agreed that one of the social and economic effects of traffic delay was additional transport fare and 29(38.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was additional transport fare.

At Lagos mainland, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic delay was additional transport fare, 3(3.8%) respondents disagreed that one of the social and economic effects of traffic delay was additional transport fare, 13(16.5%) respondents moderately agreed that one of the social and economic effects of traffic delay was additional transport fare, 34(43.0%) respondents agreed that one of the social and economic effects of traffic delay was additional transport fare and 28(35.4%) respondents strongly disagreed that one of the social and economic effects of traffic delay was additional transport fare.

Failure of appointment as an effect

Based on the result of analysis from Table 1, the study revealed that 13(11.4%) respondents strongly disagreed that one of the social and economic effects of traffic delay was failure of appointment at Lagos Island, 20(17.5%) respondents disagreed that one of the social and economic effects of traffic delay was failure of appointment, 36(31.6%) respondents moderately agreed that one of the social and economic effects of traffic delay was failure of appointment, 17(14.9%) respondents agreed that one of the social and economic effects of traffic delay was failure of appointment and 28(24.6%) respondents strongly agreed that one of the social and economic effects of traffic delay was failure of appointment. At Lagos east, 1(1.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was failure of appointment, 15(20.0%) respondents disagreed that one of the social and economic effects of traffic delay was failure of appointment, 26(34.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was failure of appointment, 22(29.3%) respondents agreed that one of the social and economic effects of traffic delay was failure of appointment and 11(14.7%) respondents strongly agreed that one of the social and economic effects of traffic delay was failure of appointment. At Lagos mainland, 1(1.3%) respondents strongly disagreed that one of the social and economic effects of

traffic delay was failure of appointment, 10(12.7%) respondents disagreed that one of the social and economic effects of traffic delay was failure of appointment, 15(19.0%) respondents moderately agreed that one of the social and economic effects of traffic delay was failure of appointment, 18(22.8%) respondents agreed that one of the social and economic effects of traffic delay was failure of appointment and 35(44.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was failure of appointment.

Waking-up-too-early as an effect

Result in Table 1 revealed that 8(7.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was waking-up-too-early at Lagos Island, 12(10.5%) respondents agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 19(16.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 25(21.9%) respondents agreed that one of the social and economic effects of traffic delay was waking-up-too-early and 50(43.9%) respondents strongly agreed that one of the social and economic effects of traffic delay was waking-up-too-early. At Lagos east, 6(8.0%) respondents agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 16(21.3%) respondents moderately agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 26(34.7%) respondents agreed that one of the social and economic effects of traffic delay was waking-up-too-early and 27(36.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was waking-up-too-early. At Lagos mainland, 1(1.3%) respondent strongly agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 6(7.6%) respondents agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 5(6.3%) respondents moderately agreed that one of the social and economic effects of traffic delay was waking-up-too-early, 24(30.4%) respondents agreed that one of the social and

economic effects of traffic delay was waking-up-too-early and 43(54.4%) respondents strongly agreed that one of the social and economic effects of traffic delay was waking-up-too-early.

Returning-home-late as an effect

According to the survey carried out, it was observed that 3(2.6%) respondents strongly disagreed that one of the social and economic effects of traffic delay was returning-home-late at Lagos Island, 12(10.5%) respondents disagreed that one of the social and economic effects of traffic delay was returning-home-late, 20(17.5%) respondents moderately agreed that one of the social and economic effects of traffic delay was returning-home-late, 22(19.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was returning-home-late while, 57(50.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was returning-home-late. At Lagos east, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic delay was returning-home-late, 4(5.3%) respondents disagreed that one of the social and economic effects of traffic delay was returning-home-late, 11(14.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was returning-home-late, 21(28.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was returning-home-late while, 38(50.7%) respondents strongly agreed that one of the social and economic effects of traffic delay was returning-home-late. At Lagos mainland, 7(8.9%) respondents disagreed that one of the social and economic effects of traffic delay was returning-home-late, 5(6.3%) respondents moderately agreed that one of the social and economic effects of traffic delay was returning-home-late, 26(32.9%) respondents strongly agreed that one of the social and economic effects of traffic delay was returning-home-late while, 41(51.9%) respondents strongly agreed that one of the social and economic effects of traffic delay was returning-home-late.

Loss of job as an effect

The study showed in Table 1 the result of analysis on social and economic effects of traffic at the selected study areas. At Lagos Island, 25(21.9%) respondents strongly disagreed that one of the social and economic effects of traffic delay was loss of job, 28(24.6%) respondents disagreed that one of the social and economic effects of traffic delay was loss of job, 49(43.0%) respondents moderately agreed that one of the social and economic effects of traffic delay was loss of job, 6(5.3%) respondents agreed that one of the social and economic effects of traffic delay was loss of job and 6(5.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was loss of job. At Lagos east, 10(13.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was loss of job, 24(32.0%) respondents disagreed that one of the social and economic effects of traffic delay was loss of job, 24(32.0%) respondents moderately agreed that one of the social and economic effects of traffic delay was loss of job, 8(10.7%) respondents agreed that one of the social and economic effects of traffic delay was loss of job and 9(12.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was loss of job. At Lagos mainland, 10(12.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was loss of job, 13(16.5%) respondents disagreed that one of the social and economic effects of traffic delay was loss of job, 26(32.9%) respondents moderately agreed that one of the social and economic effects of traffic delay was loss of job, 16(32.9%) respondents agreed that one of the social and economic effects of traffic delay was loss of job and 14(17.7%) respondents strongly agreed that one of the social and economic effects of traffic delay was loss of job.

Anger as an effect

According to Wojuade (2005), one of the effects of delay is anger of commuters. The study as revealed in Table 1 showed that 9(7.9%) respondents strongly disagreed that one of the social and economic effects of

traffic delay was anger at Lagos Island, 21(18.4%) respondents disagreed that one of the social and economic effects of traffic delay was anger, 37(32.5%) respondents moderately disagreed that one of the social and economic effects of traffic delay was anger, 22(19.3%) respondents agreed that one of the social and economic effects of traffic delay was anger while, 25(21.9%) respondents strongly agreed that one of the social and economic effects of traffic delay was anger. At Lagos east, 8(10.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was anger, 12(16.0%) respondents disagreed that one of the social and economic effects of traffic delay was anger, 23(30.7%) respondents moderately disagreed that one of the social and economic effects of traffic delay was anger, 23(30.7%) respondents agreed that one of the social and economic effects of traffic delay was anger while, 9(12.0%) respondents strongly agreed that one of the social and economic effects of traffic delay was anger. At Lagos mainland, 7(8.9%) respondents strongly disagreed that one of the social and economic effects of traffic delay was anger, 8(10.1%) respondents disagreed that one of the social and economic effects of traffic delay was anger, 18(22.8%) respondents moderately disagreed that one of the social and economic effects of traffic delay was anger, 21(26.6%) respondents agreed that one of the social and economic effects of traffic delay was anger while, 25(31.6%) respondents strongly agreed that one of the social and economic effects of traffic delay was anger.

Street fighting as an effect

Based on the result of analysis from Table 1, the study revealed that 16(14.0%) respondents strongly disagreed that one of the social and economic effects of traffic delay was street fighting at Lagos Island, 21(18.4%) respondents disagreed that one of the social and economic effects of traffic delay was street fighting, 27(23.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was street fighting, 15(13.2%)

respondents agreed that one of the social and economic effects of traffic delay was street fighting and 35(30.7%) respondents strongly agreed that one of the social and economic effects of traffic delay was street fighting. At Lagos east, 5(6.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was street fighting, 27(36.0%) respondents disagreed that one of the social and economic effects of traffic delay was street fighting, 15(20.0%) respondents moderately agreed that one of the social and economic effects of traffic delay was street fighting, 18(24.0%) respondents agreed that one of the social and economic effects of traffic delay was street fighting and 10(13.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was street fighting. At Lagos mainland, 5(6.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was street fighting, 11(13.9%) respondents disagreed that one of the social and economic effects of traffic delay was street fighting, 14(17.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was street fighting, 21(26.6%) respondents agreed that one of the social and economic effects of traffic delay was street fighting and 28(35.4%) respondents strongly agreed that one of the social and economic effects of traffic delay was street fighting.

Discomfort as an effect

Prior result of the analysis as presented in Table 1 revealed that 3(2.6%) respondents strongly disagreed that one of the social and economic effects of traffic delay was discomfort at Lagos Island, 12(10.5%) respondents disagreed that one of the social and economic effects of traffic delay was discomfort, 29(25.4%) respondents moderately agreed that one of the social and economic effects of traffic delay was discomfort, 28(24.6%) respondents agreed that one of the social and economic effects of traffic delay was discomfort while, 42(36.8%) respondents strongly agreed that one of the social and economic effects of traffic delay was discomfort. At Lagos east,

2(2.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was discomfort, 12(16.0%) respondents disagreed that one of the social and economic effects of traffic delay was discomfort, 10(13.3%) respondents moderately agreed that one of the social and economic effects of traffic delay was discomfort, 35(46.7%) respondents agreed that one of the social and economic effects of traffic delay was discomfort while, 16(21.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was discomfort. At Lagos mainland, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic delay was discomfort, 12(15.2%) respondents disagreed that one of the social and economic effects of traffic delay was discomfort, 8(10.1%) respondents moderately agreed that one of the social and economic effects of traffic delay was discomfort, 25(31.6%) respondents agreed that one of the social and economic effects of traffic delay was discomfort while, 33(41.8%) respondents strongly agreed that one of the social and economic effects of traffic delay was discomfort. This result complements the findings of Agunloye (2012) who assessed socio-economics and travel demands of passengers along Lagos-Abeokuta Road, Lagos, Nigeria.

Tiredness as an effect

According to the survey carried out, it was observed that 6(5.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was tiredness at Lagos Island, 6(5.3%) respondents disagreed that one of the social and economic effects of traffic delay was tiredness, 27(23.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was tiredness, 31(27.2%) respondents agreed that one of the social and economic effects of traffic delay was tiredness and 44(38.6%) respondents strongly disagreed that one of the social and economic effects of traffic delay was tiredness. At Lagos east, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic

delay was tiredness, 7(9.3%) respondents disagreed that one of the social and economic effects of traffic delay was tiredness, 11(14.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was tiredness, 33(44.0%) respondents agreed that one of the social and economic effects of traffic delay was tiredness and 23(30.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was tiredness. At Lagos mainland, 9(11.4%) respondents disagreed that one of the social and economic effects of traffic delay was tiredness, 5(6.3%) respondents moderately agreed that one of the social and economic effects of traffic delay was tiredness, 25(31.6%) respondents agreed that one of the social and economic effects of traffic delay was tiredness and 40(50.6%) respondents strongly disagreed that one of the social and economic effects of traffic delay was tiredness.

Air pollution as an effect

Result of analysis as shown in Table 1 revealed that 11(9.6%) respondents strongly disagreed that one of the social and economic effects of traffic delay was pollution at Lagos Island, 11(9.6%) respondents disagreed that one of the social and economic effects of traffic delay was pollution, 25(21.9%) respondents moderately agreed that one of the social and economic effects of traffic delay was pollution, 25(21.9%) respondents agreed that one of the social and economic effects of traffic delay was pollution and 42(36.8%) respondents strongly agreed that one of the social and economic effects of traffic delay was pollution. At Lagos east, 2(2.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was pollution, 6(8.0%) respondents disagreed that one of the social and economic effects of traffic delay was pollution, 20(26.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was pollution, 26(34.7%) respondents agreed that one of the social and economic effects of traffic delay was pollution and 21(28.0%) respondents strongly agreed that one of the

social and economic effects of traffic delay was pollution. At Lagos mainland, 3(3.8%) respondents strongly disagreed that one of the social and economic effects of traffic delay was pollution, 8(10.1%) respondents disagreed that one of the social and economic effects of traffic delay was pollution, 6(7.6%) respondents moderately agreed that one of the social and economic effects of traffic delay was pollution, 25(31.6%) respondents agreed that one of the social and economic effects of traffic delay was pollution and 37(46.8%) respondents strongly agreed that one of the social and economic effects of traffic delay was pollution.

Wastage of fuel as an effect

According to Wojuade (2005), one of the effects of delay is wastage of fuel. The study as revealed in Table 1 showed that 7(6.1%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wastage of fuel at Lagos Island, 18(6.1%) respondents disagreed that one of the social and economic effects of traffic delay was wastage of fuel, 19(16.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was wastage of fuel, 20(17.5%) respondents agreed that one of the social and economic effects of traffic delay was wastage of fuel, 50(43.9%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wastage of fuel. At Lagos East, 1(1.3%) respondent strongly disagreed that one of the social and economic effects of traffic delay was wastage of fuel, 14(18.7%) respondents disagreed that one of the social and economic effects of traffic delay was wastage of fuel, 23(30.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was wastage of fuel, 20(26.7%) respondents agreed that one of the social and economic effects of traffic delay was wastage of fuel, 17(22.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wastage of fuel. At Lagos Mainland, 5(6.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was

wastage of fuel, 8(10.1%) respondents disagreed that one of the social and economic effects of traffic delay was wastage of fuel, 13(16.5%) respondents moderately agreed that one of the social and economic effects of traffic delay was wastage of fuel, 24(30.4%) respondents agreed that one of the social and economic effects of traffic delay was wastage of fuel, 29(36.7%) respondents strongly agreed that one of the social and economic effects of traffic delay was wastage of fuel.

Wear and tear of vehicles as an effect

Based on the result of analysis from Table 1, the study revealed that 7(6.1%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle at Lagos Island, 7(6.1%) respondents disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle, 33(28.9%) respondents moderately agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle, 29(25.4%) respondents agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle and 38(33.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle. At Lagos east, 2(2.7%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle, 13(17.3%) respondents disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle, 31(41.3%) respondents moderately agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle, 13(17.4%) respondents agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle while, 16(21.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle. At Lagos Mainland, 11(13.9%) respondents disagreed that one of the social and economic effects of traffic delay was wear and tear of vehicle, 8(10.1%) respondents moderately agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle,

24(30.4%) respondents agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle and 36(33.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was wear and tear of vehicle.

Poor health status as an effect

According to the survey carried out, it was observed that 6(5.3%) respondents strongly disagreed that one of the social and economic effects of traffic delay was poor health at Lagos Island, 11(9.6%) respondents disagreed that one of the social and economic effects of traffic delay was poor health, 37(32.5%) respondents moderately agreed that one of the social and economic effects of traffic delay was poor health, 27(23.7%) respondents agreed that one of the social and economic effects of traffic delay was poor health while, 33(28.9%) respondents strongly agreed that one of the social and economic effects of traffic delay was poor health. At Lagos East, 12(16.0%) respondents disagreed that one of the social and economic effects of traffic delay was poor health, 26(34.7%) respondents moderately agreed that one of the social and economic effects of traffic delay was poor health, 21(28.0%) respondents agreed that one of the social and economic effects of traffic delay was poor health while, 16(21.3%) respondents strongly agreed that one of the social and economic effects of traffic delay was poor health. At Lagos Mainland, 2(2.5%) respondents strongly disagreed that one of the social and economic effects of traffic delay was poor health, 10(12.7%) respondents disagreed that one of the social and economic effects of traffic delay was poor health, 7(8.9%) respondents

moderately agreed that one of the social and economic effects of traffic delay was poor health, 21(26.6%) respondents agreed that one of the social and economic effects of traffic delay was poor health while, 39(49.4%) respondents strongly agreed that one of the social and economic effects of traffic delay was poor health.

Likert Scale Output of Commuters Perception of Social and Economic Effects of Road Traffic Delay on Commuters

This sub section draws attention to the perceived effects of road traffic delay on commuters' social and economic area of their life. This study used 5-point Likert scale in the order of; 1-strongly disagree, 2-Disagree, 3-moderately agree, 4-Agree and 5-Strongly agree.

The study showed in Table 1 that commuters' opinion on the effects of road traffic delay (social and economic) were returning-home-late, time wastage, lateness to work, waking-up-too-early, tiredness, discomfort, air pollution, additional transport fare, wear and tear of vehicle, poor health, wastage of fuel, failure of appointment, results in anger, street fighting and loss of job with commuters index values of 4.15, 4.14, 4.01, 4.01, 3.99, 3.82, 3.81, 3.74, 3.73, 3.73, 3.70, 3.48, 3.35, 3.33 and 2.75 respectively. The result revealed that the 5 major effect on commuters were returning-home-late, time wastage, lateness to work, waking-up-too-early, tiredness while the five least commuters' perception index of road traffic delay were wastage of fuel, failure of appointment, results in anger, street fighting and loss of job.

Table 1: Commuters' Perception of Social and Economic Effects of Road Traffic Delay on Commuters

S/N	Factors	Scale					S.W.V.	C.P.I.
		1	2	3	4	5		
1	Returning-home-late	4	23	36	69	136	1114	4.15
2	Time wastage	14	28	28	83	125	1111	4.14
3	Lateness to work	8	27	34	84	115	1075	4.01
4	Waking-up-too-early	9	24	40	75	120	1077	4.01
5	Tiredness	7	22	43	89	107	1071	3.99
6	Discomfort	6	36	47	88	91	1026	3.82
7	Pollution	16	25	51	76	100	1023	3.81
8	Additional transport fare	23	35	33	74	103	1003	3.74
9	Wear and tear of vehicle	9	31	72	66	90	1001	3.73
10	Poor health	8	33	70	69	88	1000	3.73
11	Wastage of fuel	13	40	55	64	96	994	3.70
12	Failure of appointment	15	45	77	57	74	934	3.48
13	Results in anger	24	41	78	66	59	899	3.35
14	Street fighting	26	59	56	54	73	893	3.33
15	Loss of job	45	65	99	30	29	737	2.75

Conclusion and Recommendations

The study concluded that the overall statistical socio-economic effects of road traffic delay in Lagos Island, Lagos Mainland and Lagos East is 3.72 C. P. I, which revealed a high level of agreement with the investigated effects. while it recommends that since the five major effects of road traffic delay were late return from work, late arrival to work, early rise from bed, fatigue and discomfort; the condition of traffic control devices and traffic control management should be improved in order to enhance free flow of goods and people, and provides greater conveniences to vehicle operators in the selected zones of Lagos. Pedestrian crossings should be marked at intersections where there is substantial conflict between vehicle and pedestrian movements. Marked crosswalks should also be provided at other appropriate points of pedestrian concentration or where pedestrians would not otherwise recognize the proper place to cross.

The designs of the road intersections in the study area should be reviewed such that the

methods to the intersections should also be channelized to separate traffic streams. Also, road-side hawking and trading and all forms of commercial activities should be strictly restricted from operations. Town planning control mechanism should be used to control developments around the intersections. The public transportation system in the city should be improved by introducing high-occupancy vehicles like bus rapid transit (BRT) to work alongside with taxis coaster and danfo for the conveyance of people in the study area. This will reduce the number of vehicles on the road. Besides, there is need to signalize the intersections by installing traffic lights and signals to serve as substitute for the ineffective human labour of traffic management.

In addition, there is the need to provide multi-storey parking spaces in the selected areas and along the intersecting roads. There should be the installation of NO PARKING and NO WAITING signs at the intersections to discourage arbitrary parking. Many of the problems identified at the studied zones are

common to other road intersections in the city. The recommendations made are therefore useful for solving the road traffic delay problems at the selected cordons of the state. Moreover, there should be an effective co-ordination of efforts by different tiers of governments and agencies involved in traffic management in the mega-city of Lagos such as LASTMA and others. LASTMA and others involved in traffic management should be committed and dedicated with a view to ensuring free flow of traffic on the road.

Acknowledgment

I hereby acknowledge Tertiary Education Trust Fund (TETFUND) for sponsoring this research with a grant.

References

- Agunloye, O. O. and V.U. Ilechukwu (2011). Travels Pattern and Socio-Economic Characteristics of Rail Transport Passengers in Lagos Metropolis, Nigeria. *International Journal of economic development research and investment* 2(1) , 115-126.
- Agunloye, O.O. (2012). Assessment of Socio-Economics and Travel Demands of Passengers along Lagos-Abeokuta Road, Lagos, Nigeria. *GRP Journal of Environmental Planning and Management*, 5(1), 62-72
- Agunloye, O.O., Akindeju, F.O., Olufemi, & I.C.C Nwokoro (2016). Road Traffic Operational Delay along Lagos-Ikorodu, Lagos, Nigeria. *Proceedings of the international conference on infrastructure development in African ICIDA* 10-12 July 2016 Johannesburg, South Africa, 596-608.
- Al-Mogin, S. (2005). The impact of adverse Effects and Environmental Effects of Mobility on the Sustainability of Transportation. Sustainable Transport in Developing countries. *Proceedings Environment 2005 International Conference*. Abu Dhabi, UAE: Environmental Agency (ERWDA), pp 177.
- Bashiru, A. R. & Waziri, O. O. (2008). Analysis of intraUrban Traffic Problems in Nigeria: A study of Lagos Metropolis. *Indonesian Journal of Geography*, 40(1), 31-51.
- Brownfield, J., Graham, A., Eveleigh, H., Ward, H., Robertson, S., & Allsop, R. (2003). Congestion and accident risk. Department for Transport, Road Safety Research Report No. 44. [Retrieved from <http://www.dft.gov.uk>].
- Fadare, O. S. (1998). Traffic Congestion and Control in the Central Business District of Benin City, Nigeria. *Nigerian Journal of Economic and Social Studies*, 40(2), 209-228
- Federal Road Safety Corps. (2013). Flying vehicles on Nigerian Roads. A Publication of the Federal Road Safety Corps Produced by the Policy, Research and Statistics Department.
- Hassan, O. M. (2016). Analysis of road traffic delays (fixed and operational) in selected nodes of Oshodi Apapa Expressway, Lagos, Nigeria. Unpublished MSc thesis, University of Lagos, Nigeria.
- Joint Transport Research Centre (2007). *Managing Urban Traffic Congestion*. Bedfordshire: OECD and ECMT.
- Moses, S. O. (2011). Information technology applications in transportation system. *Proceedings of the National Conference of Nigerian Society of Engineers* in Calabar.
- Odeleye, J. A. (2008). A study of Road Traffic Congestion in selected Corridors of Metropolitan Lagos. OECD (Organisation for Economic Cooperation and Development) and ECMT (European Conference of Ministers of Transport).
- Ogunbodede, E.F. (2008). Urban Road Transportation in Nigeria from 1960 – 2006: Problems, Prospects and Challenges. *Ethiopian Journal of Environmental Studies and Management*, 1(1), 145 – 164
- Pabst, M. (2014). Gridlock-GGA-Good Government. Procedures. In *Transportation Research Record*: Washington, D.C., pp. 204-212.

- Raheem, S.B. Olawoore, W.A. Olagunju, D.P. & Adeokun E.M. (2015). Traffic Delay. Department of Civil Engineering, The Polytechnic, Ibadan. Nigeria.
- Wojuade, C. A. (2005). A Study of Intra-Urban Traffic Delay At Beere And Mokola Nodes In Ibadan, Oyo State, Nigeria. Unpublished MSc thesis, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Zahra, S.A., Sapienza, H.J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: a review, model and research agenda. *Journal of Management Studies*, 43(4), 917–55.