Trend Analysis of Crime Incidences and Crime Vulnerability Differentials on Urban Transport Facilities in Ibadan

Article *in* Journal of Intelligent Transportation and Urban Planning · April 2014

DOI: 10.18005/ITUP0202002

CITATIONS
8

READS
1,411

2 authors:

Dickson 'Dare Ajayi
University of Ibadan
7 PUBLICATIONS **80** CITATIONS

SEE PROFILE

Adeyinka Ajayi
Redeemer's University
14 PUBLICATIONS **33** CITATIONS

SEE PROFILE

Trend Analysis of Crime Incidences and Crime Vulnerability Differentials on Urban Transport Facilities in Ibadan

D.D Ajayi[*1], A. P. Ajayi[2]

[1] Department of Geography, University of Ibadan, Ibadan, Nigeria
[2] Department of Transport and Tourism, Redeemer'S University Mowe Ogun State, Nigeria
[*1]ajayidd@yahoo.com; [2]kunmi_ayo@yahoo.com; [2]ajayia@run.edu.ng

***Abstract*-There is a noticeable increment in the rate of criminal attacks on transport facilities globally and some evidences of such abound in Nigeria, a most worrisome trend is that most criminals are increasingly finding passengers veritable targets for criminal acts. In this study, the temporal pattern of crime incidences across five selected bus stops and the variables that may likely determine the chances of becoming crime victims in Ibadan were analyzed. Crime records for six years (2003-2008) were statistically and descriptively analyzed alongside primary data obtained through a questionnaire survey of 250 respondents, who were frequent users of these terminals. The result validated the established findings that frequencies and concentration of criminal acts usually significantly differs temporally and spatially. It was equally revealed that criminals seemingly target the more vulnerable groups as victims as the females (of all age groups) bore the brunt of most attacks. It is also discernible from the study that site selection processes for the choice of bus stop within the public transit system is subjective and can aid their emergence as crime 'hot spots'.**

Keywords- Crime trends; Vulnerability Differentials; Bus Stops; Public Transit System

I. INTRODUCTION

There has been a noticeable upsurge in the incidences of urban crime in most less developed countries particularly in the last two decades [1, 2], from India sub-Continent to sub-Saharan Africa, from Medellin to Mexico City; Crime rate is assuming a worldwide relational index with urbanization [1, 3, 4]. In recent years research findings revealed that high levels of inequality in cities has led to negative social, economic and political consequences that have a destabilizing impact on societies, leading to emergence of high level of social vices and crime in most major cities.

Cities are becoming more unequal in a number of ways. Cities in Africa and Latin America and the Caribbean have some of the highest levels of income inequality in the world, and such inequality is increasing and becoming entrenched [5]. Transport facilities and infrastructures due to their ubiquitous nature are rapidly gaining ground as platform for all manner of crime within the urban space [3, 4, 6, 7, 8, 9]. The 2012 death of a female medical student who was gang-raped in a transit bus in India is one of the most recent of such incidents [10].

Most urban planners are keenly aware of the problem of urban crime especially as it concerns the vulnerable groups, which have been identified by the UN to include, the aged, women, people with physical challenges, children and migrants [5]. For example a recent report estimated that 60 per cent of all urban dwellers in developing countries have been crime victims with rates of at least 70 per cent in parts of Latin America and Africa [2]. Amongst other salient factors, it has been identified that the concern about personal security on transport infrastructure in cities is capable of leading to social exclusion, impeding accessibilities to job, health, education, and social integration and bonding among the residents [4, 11].

The impact of crime on the general welfare of urban dwellers can be profound, often, the fear of crime impacts the most mundane personal decisions on movement, such as whether to walk down a given street or drive through a particular neighborhood, or even use a public transit terminal etc. [12, 13]. Accessing and utilizing public transport infrastructure in most developing societies is germane, especially to low income earners, (women, school children, new migrants and the aged). Ironically, these categories of users equally form the most vulnerable groups that have been, identified as being the most likely victims of criminals using public transport infrastructures as a platform to perform their nefarious activities [3, 13, 14].

It is a truism that in cities across most developing societies the risk to lives and properties are becoming regular features on transport routes and terminals. Routine trips using public transit infrastructure can result in being mugged, robbed, or raped [10, 15]. In Ibadan city in Nigeria, one of the public transport facilities that have become a veritable platform for criminal elements to perpetuate their ignoble acts is the public bus stops [4, 13].

The design of public transit terminals/bus stops in Ibadan city is mainly as a point of boarding and disembarking of passengers both on intra- and inter- city trips. Though ancillary services like auto repair shops and food stores are also provided at these bus stops, it remains that their major function is providing a central, safe and generally convenient point for passengers who prefers boarding commercial buses, which are the major modal type of intra- and inter- city transport available [13].

DOI: 10.18005/ITUP0202002

The locations of these bus stops are also part of the complex arrangement of the public transit system. In 1984 specific locations within the city were delineated as bus stops/terminals [16]. These were Agodi-Gate, Dugbe, Beere, Molete and Challenge bus stops. Their positioning was part of the measures to improve the flow of traffic and was meant to discourage the indiscriminate picking and dropping of commuters both on intra-city and inter-city routes. It is observable that most of these parks and terminals that were initially sited at the city outskirts are now part of the built up areas [16], Observed that "it is difficult to secure well defined areas for the construction of lay-bys to serve as stops for buses" [4]. Discovered that in recent years developers have encroached into lands designated mostly as parks in Ibadan. The resultant effects are seedier environment which are acting as breeding ground for criminal activities both within and around such parks.

Apart from the problem of space, most parks in Ibadan do not enjoy electricity supply in the evening and night, and unfortunately commercial buses runs till late hours in the night (10pm). Studies have shown that crime rates are disproportionately high on the public transit system at evenings when criminals hide in darkness to perpetuate their nefarious acts [3, 9, 14]. An empirical research [7] indicates that environmental attributes and site conditions at bus stops do have an impact on crime levels. This finding is in sync with similar trends obtainable in cities in developed and developing countries [3, 4, 8, 17]. Although there are growing concern on the burgeoning problem of crime on road transport terminals and route networks in Nigeria literature [13, 15, 18, 19], it is noticeable that a general paucity of information and statistics of this malaise still exists.

Therefore, the need to have reliable information about the nature of prevalent crimes and trend analysis of such crimes in public transit terminals in Ibadan can not be over emphasized. It is of equal importance to examine the pattern of victims' choices of these criminal activities, as previous scholarly works suggested that criminal operates their acts based on pre-conceived belief of weaknesses [3, 13, 14, 20].

The emergence of crime as one of the problem of urbanization in Nigeria is closely related to the history of urbanization in the country, evidences indicated that cities existed in Nigeria long before the contact with the Europeans [21].Ancient cities like Ibadan, Abeokuta, Sokoto and Kano had population in excess of one hundred thousand inhabitants and were performing different functions which ranged from administrative, religious, commerce defence and socio-cultural. Nigeria experienced unprecedented pace of urbanization in the post independence era.

The post colonial administration employed the growth pole model of regional development which led to the concentration of public investments on the already urbanized and fast-growing regional and national capitals respectively (Ibadan, Kaduna, Enugu, Benin City and Lagos). The resultant effect of this was the excessive migratory rural–urban population drift. As of today some fifty percent of Nigeria's estimated 170 million people are urban dwellers [22].

There has been a growing concern among scholars on the impact of crime among the vulnerable groups in cities in most developing societies, especially as it affects their accessing public utilities and safety concerns of such users [5, 10, 13, 15]. [1]while analyzing the areal differentiation in spatial distribution of homicide in Sao Paolo city in Brazil opined that 'In Sao Paulo's Morumbi neighborhood, its poverty-stricken residents are 18 times more likely to be murdered than their fellow citizens in the more prosperous and less sharply stratified Jardim Paulista district' [1].

It is fairly well documented that large proportions of urban populations are socially and economically excluded. These classes of urban dwellers are often disadvantaged because access to jobs, housing, health, education, and transportation and communication facilities are negatively skewed against them. These categories of urban residents include increasing populations of women, children and young people, growing up in environment that is capable of negatively impinging on their safety and putting their future at great risk. Migrants and refugees from cultures and ethnic backgrounds very different from those of their new urban neighbours are recognized to be equally at risks of being among these classes of urban dwellers [1, 5, 23].

This paper focuses on the trend analyses of the incidence of crime in and; around major motor parks/bus stops in Ibadan metropolis for a period of six years. The research among other things equally examined the nature of criminal activities prevalent in these parks, analyzed the pattern of crime victim targeting in the selected motor parks and made comparative analyses between the incidences and the nature of criminal activities in and around these parks.

II. LITERATURE REVIEW

A popular approach to the theoretical explanation of crime over space and time is the theory of crime areas and geography of inequality. [24] noted that the greatest predictor of becoming a victim of crime is where the subject lives. According to [24] the distribution of crime has the following three basic characteristics;

(1) A small number of offenders commit a large number of crimes;

(2) A small number of victims suffer a large number of crimes;

(3) A small number of areas suffer disproportionate amount of crime.

DOI: 10.18005/ITUP0202002

The author of [24] concluded that these three characteristics tend to coincide as the most deprived areas of cities typically experienced the highest level of crime. Another popular theory aimed at explaining the spatio-temporal variation of crime in social space is the Built Environment Theory. The author of [25] identified the following four important housing design that he discovered directly influenced the rate of crime occurrence:

- Territorial influence: Designs of the built-up environment with the aim of reinforcing inhabitants in their ability to assume territorial attitudes and prerogatives.
- Surveillance Opportunities: Provisions of mechanism for improving the capacity of residents to casually and continually survey the non-private areas of their living environment.
- Perception: Mechanism built into the design of the built environment which is meant to neutralize the symbolic stigma of stratification of neighbourhoods on the basis of classes, thereby reducing the image of isolation and the apparent vulnerability of inhabitants.
- Juxtaposition: The effect of locating a residential environment or a public utility facility within a particular urban setting or adjacent to a 'safe' or 'unsafe' activity.

Newman's work has been heavily criticized for its environmental determinism approach to the occurrence of crime in the geographical space [14, 26]. Another theoretical view point that scholars are generally in agreement with on its popularity and utility in understanding crime over urban space is the Social Disorganization Theory [27, 28]. The argument of proponents of Social Disorganization Theory is that – crime is not randomly distributed across neighborhoods in cities [29]. It is believed that incidences of crime within a city follows a discernible pattern as, there are tendency to have clustering at some locations and, not others, thereby contributing further to social stratification of neighborhoods in cities. An overriding theoretical explanation of crime occurrence over space and time is the Environmental Criminology Rationale [30].The Environmental Criminology Rationale incorporates, the important element of psychological studies into geographical concept of environmental determinism to, arrive at a more concise theoretical approach to the spatio-temporal analysis of crime events.

Routine Activities Theory [31], The Rational Choice Perspective [20] and Crime Pattern Theory [32], have shown that crime on public transit terminals/bus-stops have two key attributes, a space (Place) and a time factor [3]. These theories equally shows that the public transit system arenas are crime generators or crime attractors [32].For example in an earlier study [31] espoused that that for crime event to occur there must be convergence in space and time of three factors, including:

(a) the availability of a motivated offender,

(b) the absence of a crime preventing officer/guardian and

(c) the availability of suitable target

Asserting this view based on findings from an empirical research [7] indicates that environmental attributes and site conditions at bus stops do have an impact on crime levels. One of the early studies on the prevalence of crime in public transport study of the public transit system was by [17]. The authors found out that there were higher crime rates when buses stopped at terminals located in areas of high crime rates. The study further revealed that, crime occurred mostly when passengers' volumes were highest and this is usually in the evening. Based on these findings the authors asserted that there are both spatial and temporal dimension to crime on public transit system of the study area.

The authors of [6] discovered that the distribution of street crime in four districts of Chicago were incidental to areas designated as rapid transit bus stations. The locations of these stations acted as crime generators in the districts studied. The authors of [7] studied the connection between criminal activities at bus-stops and environmental factors including the location of liquor stores, bars, movie theatres, vacant lots/buildings within 300 feet of bus-stops. These factors were found to have direct influence on the prevalence of crime rates in such locations.

The authors of [8] discovered that by using a series of regression models it is possible to predict the level of criminality of an area. They identified that the location of bus terminals/stops can lead to upsurge in the level of crime experienced in such areas. The authors of [26] found that high crime rates in certain locations are attributable to the economic and social history of the places. In [33]，crime rate prevalence was discovered to be incidental on social geographical processes at any given location. The author of [14] identified that, social structural problems like urban clustering, high rate of unemployment, drug abuse, poor housing, poor policing and surveillance can have direct influence on the level of crime experienced at any location. The author of [3] investigated the level of criminality which occurred over time in bus-stops in Merseyside (UK). He discovered that the type of criminal acts experienced in various locations within the study area, were related in a systematic and predictable way to location known criminal attributes. Based on findings from study on the crime incidences in public transit parks in Ibadan metropolis, the authors of [4] established the existence of various criminal activities ranging from burglary to mugging and robbery, it was equally established that there were spatial differentials in the incidences of these criminal acts across the city's parks.

DOI: 10.18005/ITUP0202002

Extant literature on the nature of, challenges bedeviling the public transit system in contemporary Nigerian cities identified such, to include among others: traffic congestion, movement delay, dangerous and reckless driving, environmental pollution, street trading, inordinate use of parking lots, and location and management of bus stops [34]. In [35], it was observed that forty-four percent of the designated parking lots/bus-stops in Lagos hinders free flow of traffic. In [36], it was found that on-street parking and illegal 'bus stops' accounts for 30 % of holdups and traffic congestion in some location within Lagos metropolis.

The misuse or, under utilization of most designated bus-stops/terminals are partly responsible for the springing up of illegal terminals in most Nigeria cities. Most of these terminals are either abodes to touts or traders who deal in illicit drugs. The picking, and dropping of unwary passengers at some of such illegal bus stops have doubtlessly increased the risk of criminal attacks on the entire public transit system [13], Public transit policy makers and planners in Nigeria have not helped with such matters because it is debatable if any of the three urban transportation planning (UTP) models and location model were used in locating these parks, indeed the author of [37] opined that locations of public transit terminals in Nigeria have both been subjective and informed by human judgment.

The gradual emergence of the burgeoning problem of crime incidences in and around road transport terminals in Nigeria's cities, in relation with other unresolved problems can increase the daunting mobility crisis being experienced by most of these cities.

III. STUDY METHOD

Data were collected from both primary and secondary sources. Data from the primary source involved the use of questionnaire. Judgmental or purposive sampling method was used in selecting the respondents. The researchers employed their own judgment about the subjects to include in the sample frame. Prior knowledge and understanding of the different categories of users of the parks came handy in selecting the respondents that were sampled. The questionnaire was administered to two hundred and fifty respondents (passengers, drivers and traders), fifty respondents were randomly selected from each of the five selected bus stops.

The selected bus stops were those in Ojoo, Sango, Iwo Road, Challenge and Dugbe. The selected parks/bus stops were sited at different sections of the city, so as to achieve a wide spread coverage. It must be stated that the selected bus stops were also major interstate bus stops/terminals that were usually beehives of activities. The questionnaire elicited information on the socioeconomic characteristics of the respondents, including age, sex and occupational status. It equally elicited information on the crime experiences of the respondents and the nature of crime they have witnessed or fallen victim of. Information on what the respondents believed is attributable for the high incidences of crime were also collected from the users of these parks.

Secondary data on crime statistics from 2003 to 2008 in and around the selected bus stops were collected from the Oyo State Headquarters of the Nigerian Police, Eleyele, Ibadan.

IV. RESULTS AND ANALYSIS

The analyses of the findings are presented below.

Comparison of the statistics of the yearly incidence of crime in table 1 showed that there was an ever increasing rate of crime occurrence in the selected bus stops. The number of criminal acts was 336 in year 2003 and increased significantly to 836 in 2008, representing an increase of 40.1%. The incidence of crime occurrence steadily increased from 336 to 444, in year 2004, 529 in year 2005, 556 in year 2006, and 672 and 836 in years 2007 and 2008 respectively. Comparatively there was an increment of about 24.3% from 2003 to 2004,a slightly low increment of 4.8% from 2004 to 2005, an increment of 19.6% when the figures of years 2007 and 2008 were compared. There was an increase by nearly 60% when the figures of years 2003 and 2008 were compared.

TABLE 1 CRIME STATISTICS IN AND AROUND THE IDENTIFIED BUS STOPS, 2003 - 2008

	2003		**2004**		**2005**		**2006**		**2007**		**2008**		**Total**
CRIME TYPE	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Assault/Grievous wounding	51	15	51	11.4	59	11	81	14.5	65	9.6	76	9	383
Indecent assault and Sexual Harassment	26	7.7	51	11.4	56	11	58	10.4	67	9.9	87	10	395
Theft/stealing and pick pocket	32	9.5	40	9	52	9.8	60	10.7	89	13.2	86	10	359
Burglary/Store breaking and Robbery	66	20	103	23.1	54	10	121	21.7	119	17.7	131	16	594
Gambling, False Pretense and Stealing	51	15	67	15	87	16	86	15.4	95	14.1	114	14	500
Breach of Public Peace and Unlawful Possession	110	33	132	29.7	221	42	150	26.9	237	35.2	242	41	1192
Total No. of Cases	336	100	444	100	529	100	556	100	672	100	836	100	3375

DOI: 10.18005/ITUP0202002

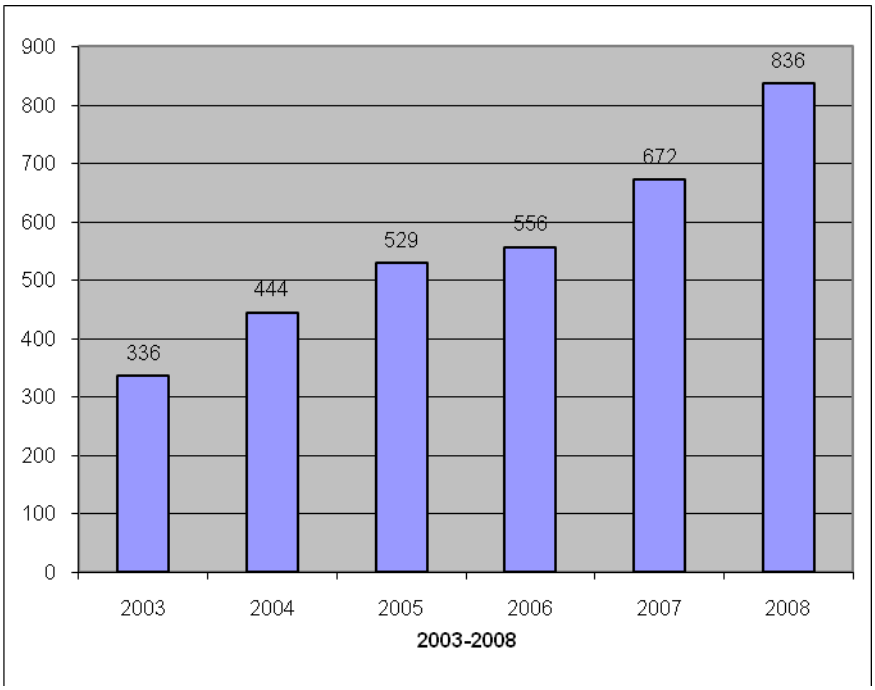

Fig. 1 Total Record of Crime in and Around the Studied Bus Stops, 2003 – 2008

The analysis in Table 2 represents the temporal variation in the incidence of crime occurrence in Challenge Motor Park for the years under review, (2003 – 2008). A total of 832 cases were reported for the period, of this figure 82 (9.85%) cases were reported in the year 2003, which had the lowest record of reported cases. The highest figure was recorded in 2008. 225 (27.04%) cases were reported in the year. When the records of reported cases were considered on yearly basis, it was observable that there were steady increments from year 2003 to 2008. There was an increment of 16.32% when the records of 2003 and 2004 were compared, 16.94% when the records of 2004 and 2005 were compared, an increment of 9.2% when the record of 2005 and 2006 were compared and 20.44% when the records of 2007 and 2008 were compared.

Table 3 depicts the analyses of temporal variation of crime occurrence in and around Dugbe Motor Park for the period under review (2003 – 2008). There were 560 reported cases for the period under review, when the figures were compared on yearly basis, it was shown that the year 2003 had the lowest numbers of reported cases. A total of 53 (9.46%) cases out of the 560 cases reported for the period under review, was recorded in 2003. It is observable that there was a continuous increase in reported cases from years 2003 to 2008.

TABLE 2 CRIME STATISTICS IN AND AROUND CHALLENGE BUS STOP, 2003 - 2008

	2003		2004		2005		2006		2007		2008		Total	
CRIME TYPE	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Assault/Grievous wounding	2	2.43	7	7.14	11	9.32	12	9.23	14	7.82	23	10.2	69	8.29
Sexual Harassment and indecent assault	3	3.65	3	3.06	5	4.23	7	5.38	19	10.61	13	5.77	50	6
Theft stealing and pick pocket	7	8.53	9	9.18	12	10.16	14	10.76	25	13.96	28	12.4	95	11.41
Burglary/store breaking/Robbery	25	30.48	27	27.55	30	25.42	32	24.61	35	19.55	43	19.1	192	23.07
False pretense/cheating/Gambling	12	14.63	15	15.3	18	15.25	22	16.92	32	17.87	39	17.3	138	16.58
Breach of Peace/Unlawful Possession of hard drug	33	40.24	37	35.59	42	35.59	43	33.07	54	30.16	79	35.1	288	34.61
Total Cases	82	99.96	98	99.98	118	99.98	130	99.99	179	99.97	2.25	100	832	99.96
Annual Percentage	9.85		11.77		14.18		15.62		21.5		27.04			

DOI: 10.18005/ITUP0202002

TABLE 3 CRIME STATISTICS IN AND AROUND DUGBE BUS STOP, 2003 - 2008

	2003		2004		2005		2006		2007		2008		Total	
CRIME TYPE	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Assault/Grievous wounding	9	16.98	10	12.82	15	17.24	11	13.75	16	14.81	21	13.63	82	14.64
Sexual Harassment and indecent assault	6	11.32	10	12.82	12	13.79	11	13.75	14	12.96	19	12.33	72	12.85
Theft stealing and pick pocket	12	22.64	13	16.66	15	17.24	14	17.5	17	15.74	21	13.63	92	16.42
Burglary/store breaking/Robbery	8	15.09	9	11.53	11	12.64	13	16.25	29	26.85	24	15.58	94	16.78
False pretense/cheating /Gambling	5	9.43	7	8.97	11	12.64	13	16.25	6	5.55	50	32.46	92	16.42
Breach of Peace/Unlawful Possession of hard drug	13	24.52	29	37.17	23	26.43	18	22.5	26	24.07	19	12.33	128	22.85
Total Cases	53	99.98	78	99.97	87	99.98	80	100	108	99.98	154	99.96	560	99.96
Annual Percentage	9.46		13.9		15.53		14.28		19.28		27.5			

Table 4 represents the temporal variation of reported crime in and around Sango Motor Park for the years under review. When the incidences of crime were considered on yearly basis, the lowest figure was recorded in 2003, for which there were 46 (12.07%) cases of the out of the total figure of 381 reported cases in Sango Motor Park, while the highest number of reported cases was recorded in 2008, for which 72 (18.89%) cases were reported. The incidence of crimes increased steadily from 46 in 2003 (15.22%) to 58 in 2004. It further increased to 69 (18.11%) in 2005, and fell slightly to 67 (17.58%) in 2006.

TABLE 4 CRIME ANALYSIS IN AND AROUND SANGO BUS STOP, 2003 - 2008

	2003		2004		2005		2006		2007		2008		Total	
CRIME TYPE	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Assault/Grievous wounding	3	6.52	5	8.62	8	11.59	10	14.92	12	17.39	12	16.66	50	13.13
Sexual Harassment and indecent assault	9	19.56	12	20.68	13	18.84	13	19.4	12	17.39	14	19.44	73	19.16
Theft stealing and pick pocket	2	4.34	1	1.72	4	5.79	1	1.49	2	2.89	2	2.77	12	3.15
Burglary/store breaking/Robbery	11	22.91	13	22.41	12	17.39	11	16.41	14	20.28	14	19.44	75	19.69
False pretense/cheating/Gambling	2	4.34	3	5.17	5	7.24	4	5.97	5	7.24	6	8.33	25	66
Breach of Peace/Unlawful Possession of hard drug	19	41.3	24	41.37	27	39.13	28	41.79	24	34.78	24	33.33	146	38.32
Total Cases	46	98.97	58	99.97	69	99.98	67	99.98	69	99.97	72	99.97	381	100
Annual Percentage	12.07		15.22		18.11		17.58		18.11		18.89			

DOI: 10.18005/ITUP0202002

TABLE 5 CRIME STATISTICS IN AND AROUND IWO ROAD BUS STOP, 2003 – 2008

	2003		2004		2005		2006		2007		2008		Total	
CRIME TYPE	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Assault/Grievous wounding	7	7.36	10	8.83	16	10.19	20	10.58	25	11.46	41	13.85	119	11.0
Sexual Harassment and indecent assault	5	5.26	9	7.5	15	9.55	16	46	25	11.46	28	9.45	98	9.1
Theft stealing and pick pocket	12	12.63	11	9.16	17	10.82	26	13.75	30	13.76	32	10.81	128	11.9
Burglary/store breaking/Robbery	14	14.73	18	15	20	12.73	21	11.11	24	11	41	13.85	138	12.83
False pretense/cheating/Gamblin g	6	6.31	12	10	23	14.64	19	10.05	20	9.17	30	10.13	110	10.23
Breach of Peace/Unlawful Possession of hard drug	51	53.63	60	50	66	42.03	87	46.03	94	43.11	124	41.89	482	44.83
Total Cases	95	100.02	120	90.99	157	99.96	189	99.98	218	99.96	296	99.98	1075	99.96
Annual Percentage	8.83		11.62		14.6		17.58		20.27		27.52			

Table 5 depicts the temporal variation of crime occurrence in and around Iwo Road Bus stop.

It is observable that the park had the highest figure of crime occurrence when the statistics for all the motor parks were considered. The statistics also revealed that breach of public peace and illegal possession of hard drugs was responsible for the highest incidence rate of all crime type in the parks for the years under review.

A breakdown of the data on a yearly basis showed that there were 95 (8.83%) reported cases in 2003, grievous wounding, assault and mugging accounted for 7 (7.36%) cases while the crime type with the lowest incidence was indecent assault and sexual harassment, with 5 (5.26%) cases reported in the year. Breach of public peace and illegal possession of hard drugs had 51 cases reported (53.68%), making it the crime type with the highest rate of occurrence in the year. In 2004, 120 (11.62%) cases were reported in the bus stop, and indecent assault and sexual harassment was the crime type with the lowest incidence rate. Robbery had the second highest figure of 18 (15%) cases for the year, while the crime type with the highest number of reported cases was breach of public peace and illegal possession of hard drugs.

This pattern was replicated in 2006, and 2008, for which a total of 189 (17.58%) and 296 (27.53%) cases were recorded respectively, indecent assault and sexual harassment had the lowest number of reported cases for each of these years. 16 (8.4%) cases were reported for each of these years while Breach of peace and illegal possession of hard drugs had the highest number of reported cases for each of these years. In 2006, 87 (46.03%) cases were reported; the figure for 2008 was 124 (41.89%).

TABLE 6 CRIME ANALYSIS IN AND AROUND OJOO BUS STOP, 2003-2008

	2003		2004		2005		2006		2007		2008		Total	
CRIME TYPE	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Assault/Grievous wounding	12	20	14	15.55	11	11.24	12	13.33	4	408	10	11.23	63	12
Sexual Harassment and indecent assault	8	13.33	10	11.11	7	7.14	10	11.11	7	7.14	10	11.23	52	9.90
Theft stealing and pick pocket	2	3.33	5	5.55	6	6.12	5	5.55	5	51	9	10.11	32	6.09
Burglary/store breaking/Robbery	12	20	15	16.66	20	20.4	20	22.22	13	13.26	15	16.85	95	18.09
False pretense/cheating/Gambling	19	31.36	13	14.4	20	20.4	22	24.44	28	28.57	33	37.07	135	25.71
Breach of Peace/Unlawful Possession of hard drug	7	11.6	33	36.66	34	34.69	21	23.33	41	41.83	12	13.48	148	28.19
Total Cases	60	99.98	90	99.97	98	99.95	90	99.98	98	99.98	89	99.97	525	99.98
Annual Percentage	11.24		17.4		18.66		17.14		99.98		16.95			

The crime statistics for Ojoo for the period under review showed that there was a total of 525 cases reported. When the statistics for each year were considered, 2003 recorded a total of 60 (11.24%) cases, which was the lowest for the years under review; the highest incidence of crime on a yearly basis in Ojoo park was recorded in 2005 and 2007; each with 98 (18.66%) cases reported. Quite unlike most of the motor parks, the rate of crime occurrence in this motor park showed some level of fluctuations for the years considered. There were 90 (17.14%) cases reported both in 2004 and 2006 while a lower number, 89 (16.95%) cases was reported in 2008.

DOI: 10.18005/ITUP0202002

A. Monthly Variation of Reported Crime Incidence in the 5 Studied Parks

When all the years under study (2003 – 2008) were considered together it was observable that the incidences of crime were more prevalent in the month of December. A total number of 438 cases out of 3373 cases reported for the period under review were reported in December. In absolute term, there was a steady increment in the numbers of reported cases towards the last quarter of the years reviewed. The months of November and October came second and third respectively, 413 (12.24%) cases were recorded for November while 370 (10.96%) cases were recorded for October. The month of January had the lowest number of reported cases 128 (3.79%), while March had the second lowest number of reported cases 143 (4.23%) .

TABLE 7 MONTHLY VARIATION OF REPORTED CRIME INCIDENCE IN THE 5 STUDIED PARKS

MONTHS	2003	2004	2005	2006	2007	2008	TOTAL	%
JAN	14	18	20	28	28	30	128	3.79
FEB	6	24	18	31	38	39	156	4.62
MARCH	10	13	22	30	27	31	143	4.23
APRIL	21	38	36	40	45	47	227	6.72
MAY	25	36	33	42	50	55	241	7.14
JUNE	28	38	40	46	54	70	276	8.18
JULY	30	40	44	50	60	75	299	8.86
AUGUST	33	45	47	52	64	89	330	9.78
SEPT.	40	40	52	55	70	95	352	10.43
OCT.	38	40	60	57	78	97	370	10.96
NOV.	44	47	85	60	77	100	413	12.24
DEC.	47	65	72	65	81	108	438	12.98
TOTAL	336	444	529	556	672	836	3373	99.93

TABLE 8 ANALYSIS OF VARIANCE (ANOVA) RESULTS

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
2003	Between Groups	452.500	4	113.125	4.444	.003
	Within Groups	1400.083	55	25.456		
	Total	1852.583	59			
2004	Between Groups	533.733	4	133.433	2.879	.031
	Within Groups	2549.000	55	46.345		
	Total	3082.733	59			
2005	Between Groups	728.000	4	182.000	3.782	.009
	Within Groups	2647.000	55	48.127		
	Total	3375.000	59			
2006	Between Groups	1336.067	4	334.017	6.391	.000
	Within Groups	2874.667	55	52.267		
	Total	4210.733	59			
2007	Between Groups	731.900	4	182.975	3.596	.011
	Within Groups	2798.833	55	50.888		
	Total	3530.733	59			
2008	Between Groups	1725.567	4	431.392	6.744	.000
	Within Groups	3518.083	55	63.965		
	Total	5243.650	59			

Multivariate statistical technique for the analysis of variance (anova) was used to test the hypothesis that there was a significant temporal variation in the incidence of each crime type across the five parks over time (a year – by – year basis). The independent variables were the data for each crime type (nature) at different bus stops and the years under consideration, while the dependent variable was the temporal variation in incidences of crime for the years considered (2003-2008), based on the secondary data collected. In analyzing to test for a significant variation in the incidence of crime across the sampled motor parks in 2003, an F – statistics value of 4.444 was obtained, at a significance level of 0.003. The significance value obtained

DOI: 10.18005/ITUP0202002

from the ANOVA analysis indicated variation in the incidence of crime across the sampled motor parks in 2003. A comparison of the significance value with the standard significance value for researches in the social sciences (i.e. with values ≤ 0.05) showed that the variation was significant. Since the significance value of the F statistic was small (smaller than 0.05), the independent variables (the data of each crime type at different bus stop and the years considered) gave a good explanation of the variation in the dependent variable (temporal variation in crime incidences).The same test was repeated for all the years under consideration and similar results were obtained. It is therefore safe to posit that there were significant variations in reported crime-types across the sampled parks for the period studied (between 2003 and 2008). It is perceptible that this finding is consistent with claims from similar researches that established the fact that urban crime rates/incidences are on the rise in most developing economies quite unlike the scenario in developed economies [1, 2, 5, 38].

It is also discernible from the ANOVA analysis that there was significant variation in incidences of all crime types in the studied bus stops. This further validates the claim that crime rates are generally on the increase in developing societies. It also highlights the emerging trend of criminal elements, using public transport facilities as platform to engage in their ignoble practises [4, 9].

Further analysis was carried out based, on the two 250 questionnaires that were randomly distributed to respondents in and around the five terminal facilities, and retrieved. Discussions of the results are presented below.

Analysis of Crime Experience of Respondents and Victim's Proneness to Attacks across the Studied Parks

B. Socio-Economic Characteristics of Respondents

126 of the 250 respondents were females, accounting for 50.6% of the entire sampled population, while the remaining 49.4% were males, giving a near even distribution considering the genders of the respondents.

TABLE 9 SEX OF RESPONDENTS

SEX	RESPONSES	PERCENTAGES
Male	124	49.4
Female	126	50.6
Total	250	100

Occupational distribution of the respondents proved to be quite revealing as 31 out of the 250 respondents admitted that they were unemployed at the time the survey was conducted, accounting for 12.4 % of the total population. This reflect the disturbing trend of unemployment that is bedeviling the country presently, Data from (22) revealed that the national unemployment rate for male domiciled in urban areas in 2006 was a disquieting 61.3 % and 38.7% for female. High rate of unemployment has been established in researches as one of the major cause of crime in urban areas (14: 1: 38). 60 (25.6%) of the respondents were students, 50 (20%) of the respondents were drivers, while 32 (12.8%) of the respondents were civil servants.

TABLE 10 OCCUPATION OF RESPONDENTS

RESPONSES	FREQUENCY	PERCENTAGES
Schooling	64	25.6
Driving	50	20.0
Trading	48	19.2
Civil Servant	32	12.8
Artisans	14	5.6
Unemployed	31	12.4
Others	11	4.4

DOI: 10.18005/ITUP0202002

TABLE 11 ANALYSIS OF CRIME EXPERIENCE OF RESPONDENTS AND VICTIM'S PRONENESS TO ATTACKS ACROSS THE STUDIED BUS STOPS/PARKS

Observation	Responses	Frequency	Percentage
Ever witnessed any crime in this park?	Have witnessed	161	64.4
	Not witnessed	89	35.6
	Total	**250**	**100**
Type of Crime Witnessed	Fighting/Affray/Breach of Public peace.	80	49.68
	Smoking of Indian Hemp	19	11.80
	Gambling	9	5.59
	Sexual Harassment	5	3.10
	Stealing/Theft	40	24.84
	Police Battery	2	1.24
	Kidnapping	6	3.72
	Total	**161**	**99.93**
Ever a victim of criminal act?	Yes	95	38
	No	155	62
	Total	**250**	**100**
Type of crime of which you were a victim?	Fighting/Affray/Mugging	43	45.26
	Assault/attack by smokers of Indian Hemp	10	10.52
	Gambling	1	1.05
	Stealing/Theft and Robbery	30	31.27
	Sexual Harassment	5	5.26
	Kidnapping	6	6.31
	Total	**95**	**99.68**
Time of the day attacked?	Morning	13	13.68
	Noon	23	24.21
	Evening	25	26.31
	Night	34	35.78
	Total	95	99.98
Sex of the victim of criminal act`	Male	38	40
	Female	57	60
	Total	**95**	**100**
Duration of using the terminal facility	Between 1 and 5 years	98	39.2
	Between 6 and 10 years	71	28.4
	Between 11 and 15 years	39	15.6
	Between 16 and 20 years	14	5.6
	21 years and above	27	10.8
	Total	**250**	**100**
How many times have you fallen victim of such criminal act	Once	34	35.78
	Twice	13	13.68
	Thrice	13	13.68
	Four times	5	5.26
	Five times	9	9.47
	Six times and above 21	21	18.03
	Total	**95**	**99.98**
What month of the year were you a victim	Jan	6	6.31
	Feb	5	5.26
	March	5	5.26
	April	2	2.10
	May	4	4.21
	June	3	3.15
	July	6	6.31
	Aug	6	6.31
	Sept	11	11.57
	Oct	10	10.52
	Nov	14	14.73
	Dec	23	24.21
	Total	**95**	**99.99**

From the analysis of the table above the summary of the crime experiences of the respondents and the analysis of victims' proneness were depicted across the five parks. 161 (64.4 %) of the respondents admitted that they have witnessed one crime or another been committed, one this implied that a larger proportion of the respondents admitted that they have witnessed occurrence of criminal acts within and around the parks.

80 (49.68 %) of the respondents opined that they have witnessed fighting/affray and breach of public peace, this represented the largest proportion of all crime types witnessed. This figure is in sync with the crime statistics collected from the State Police Command which recorded that fighting/affray and breach of public peace was the crime type with highest incident rate for the period considered; 1192(35.22 %) cases were reported across the parks for the 6 years considered.

DOI: 10.18005/ITUP0202002

A larger proportion of the respondents; 155 (62 %) admitted that they have never been a victim of criminal attacks in and around the parks while 95 (38 %) of the respondents admitted that they had been at the receiving end of one criminal act. When asked of the nature of the criminal acts they have fallen victim of, 43 (45.26 %) of the respondents posited that they have been victim of mugging, affray and fighting while the second highest proportion 30(31.27) claimed that they have fallen victim of theft and robbery. When asked of the time of the day they were attacked 34(35.7 %) of the respondents admitted that they were attacked in the night. This is consistent with the findings of [3] which posited that crime rates increase significantly in the night when criminals hide in the darkness to perpetuate their nefarious activities.

When the respondents that were victims of criminal attacks were asked about the number of times- that they have fallen victim of the same crime type since using the bus stop (victim's proneness). 34 out of the 95 representing 35.7% of the sampled population claimed that they have been attacked only once. Larger proportion of the sampled population 61 (63.3%) claimed that they have suffered repeated attacks of same crime type over time. It is thus discernible that higher proportion of the victimized population responded that they have suffered repeated attacks.

The two generally agreed theoretical explanations of repeat victimisation are risk heterogeneity (flag) and event dependence (boost) [39]. Risk heterogeneity holds that if risks among targets are heterogeneous, then the same targets appear attractive to different offenders and are consequently repeatedly victimized (often the suitable target is referred to as flag).On the other hand, for event dependence, it is presumed that offenders learn upon successfully victimising a target that it is suitable, and that if it remains unchanged they can similarly victimise it again, (thus the ability to successful victimize a target *boosts* the likelihood of a repeat) [1, 20, 24, 39, 40].

The findings revealed that female were the most vulnerable and susceptible as targets of the criminals in and around these parks. 57 (60 %) of the victims were female. This is consistent with crime rational theory in [31] which argued that criminals will choose their targets in a most reasonable and logical manner, and held that the most vulnerable groups, the female, aged and children, strangers, solitary figure, those who displays opulence etc. are more likely to be victim of criminal acts than the male, young and virile people who are in groups [14, 24].

When questioned on the month of the year that the respondents were attacked 57 out of the 95 (60%) claimed that they were attacked in the last quarter of the year (September to December), this is quite instructive as the data collected from the State Police Command also revealed that nearly half (46.6%) of total 3373 reported crime between 2003 and 2008 in the five parks, occurred in the last quarters of the years (between September and December). While further studies to unravel the likely causative factors for this trend are advocated, it may not be farfetched to suggest that the increment in economic activities in the last quarter of the year, the influx of visitors on holiday and the quest to 'enjoy a happy yuletide season' may be propelling factors for most criminals.

TABLE 12 FACTORS RESPONSIBLE FOR CRIME LEVEL

Factors	Frequency	Percentage
Unemployment/Poverty	101	40.4
Consumption of Hard Drugs	23	9.2
Inadequate Security	20	8
Bad elements among the drivers and transporters	30	12
Lack of perimeter fencing	11	4.4
Menace of area boys politicization of Union of Road Transport Workers	5	2
Lack of lighting/electricity in the parks at night	12	4.8
Illiteracy	8	3.2
Overpopulation	8	3.2
No response	30	12
Total	250	100

A total figure of 101 (40.4 %) of respondents believed that unemployment and poverty are the leading causes of high incidence of crime occurrence in the environment around motor parks in the city. 30 (12 %) of the respondents believed that the high numbers of bad elements among the members of road transport workers is another strong factor that is causing high incidences of crime within and around the parks. 12 (4.8%) and 11 (4.4%) believed that the physical state of the parks (lack of perimeter fencing and electricity at night) are also leading causes of crime occurrence within the identified parks.

V. CONCLUSION AND RECOMMENDATION

This study was focused on the analyses of the temporal pattern of crime the incidence in five selected motor parks in Ibadan. It was revealed that there were temporal dimensions in the pattern of the occurrence of crime. The main aim was to identify some distinctive temporal pattern of crime occurrence in the selected motor parks in Ibadan and to verify if there was a significant temporal variation in the incidence of each crime type across the five parks over time, from 2003-2008 (a year – by – year basis. The socio-demographic factors associated with the incidences of these crimes were also studied.

DOI: 10.18005/ITUP0202002

The study showed that there was homogeneity in the nature of the crime type prevalent across the parks. All the crime types reported across were basically the same, though the incidences of their occurrence differed. It was equally discovered that there was a temporal dimension in the occurrences of crime in these bus stops, as the study revealed that the risks of attack were higher in the last quarter of the year (between September and December), and at night than at any other time. This is consistent with findings from previous studies that established a strong link between crime occurrence and the time factor [3, 7, 32].

The study also revealed that the risks of passengers becoming a crime victim were heightened as a female. Moreover it was equally apparent that larger proportion of the victimized population claimed they have been victims of attack of same crime type more than once.

It is imperative to evolve the combination of 'home grown' and industry based best practices from other clime; [for example changing the design and construction of these parks to help in 'designing crime out' [14], government should allow public /private/ participation (PPP) in the construction and management of these facilities, and it is equally important to improve security surveillance in and around these parks

A more recent view on the design, utility and management of public infrastructure in the urban space is, the community friendly approach [41].The approach advocated that 'Planners can address family needs in comprehensive plans, site plan and zoning regulations, housing, transportation, schools child care, and funding for community services' [1-4, 41] by getting the community for whom the infrastructure is being planned actively engaged from the very start. Youth unemployment has been adduced as one of the leading causes of crime in developing economies it is therefore needful to create enabling environment for business growth and job creation to reduce the unemployment rate.

VI.LIMITATIONS

As with any other research there were some limitations encountered during the study.

First this study was based on information collected both from the Nigeria Police Command and through survey. Getting crime statistics based on police records in Nigeria is a daunting task and sometime such statistics may have been 'processed' for 'security purposes'. The data collected during the survey was from five selected parks, thus it may not provide the general picture of the situation in and around all the parks in the city. Nonetheless the findings gotten from this research will prove useful in further research in this field of study.

REFERENCES

[1] M. K. Huggins, "Urban Violence and Police Privatization in Brazil: Blended Invisibility," *Social Justice*, vol. 27, no. 2, p. 80, 2000.

[2] "Enhancing Urban Safety and Security: Global Report on Human Settlements," 2007.

[3] A.D. Newton, "Crime in public static and non-static crime events," *West Criminol Rev*, vol. 5, iss. 3, pp. 25–42, 2004.

[4] A. P. Ajayi and D. D. Ajayi, "Areal differentiation in Crime in Public Transit Terminals in Ibadan," *Journal of Transportation Security*, vol. 6, iss. 1, pp. 1-12, 2013.

[5] "World Drug Report," United Nations Office on Drugs and Crime (UNODOC), 2009.

[6] R. Block and S. Davis "The environ of rapid transit station; a focus for street crime or Just another risky place," *Crime Prev Study*, vol. 6, pp. 237–357, 1996.

[7] A. L.-Sideris, "Hot spot of bus stop crime; the importance of environmental Attributes," *Journal of America Planning Assoc*, vol. 65, pp. 395–411, 1999.

[8] R. Liggert, A. L. Sideris A, H. Iseki, "Bus stop crime; do characteristics of the built environment correlate with bus stop crime," *Transportation Research Record*, vol. 19, iss. 70, PP. 20–27, 2001.

[9] S. Das and D. Pandit, "Importance of user perception in evaluating level of service for bus transit for a developing country like India: a review," *Transport Reviews: A Transnational Transdisciplinary Journal*, vol. 33, iss. 4, pp. 402-420, 2013.

[10] S. Betwa, "In India Gang Raped case, Spotlight turns to Jail," New York Times, Mar. 19, 2013.

[11] "Cities On the Move: A World Bank Urban Transport Strategic Review," World Bank, 2002.

[12] R. Stevens and M. Sills, "Urban Crime, Race, and the Criminal Justice System in the United States", *A Companion to Urban Economics*, R. J. Arnott and D. P. McMillen Ed., Oxford, UK:Blackwell Publishing Ltd, 2007.

[13] A. P. Ajayi, "Spatio-temporal analysis of crime in public terminals: a study of transit terminals in Ibadan," A M Sc. thesis, Geography University, Ibadan, 2010.

[14] R. Pain, "Place, social relations and the fear of crime: a review," *Progress in Human Geography*, vol. 24, iss. 3, 2000.

[15] B. O. Odufuwa and S. O. Fasina, "Quality of service and Crime Incident in Public Transport: A case study of Lagos Metropolis," *Ethiopian Journal of Environmental Studies and Management EJESM*, vol. 5, no. 2, 2012.

[16] M. O. Filani, "Transportation," Filani MO, Akintola FO, Ikporukpo C Ed., Ibadan Region, Ibadan: Rex Publication, 1994.

[17] A. Pearlstein and M. Wachs, "Crime in public transit system; an environmental design perspective," *Transportation Journal*, vol. 277, pp. 277–297, 1982.

DOI: 10.18005/ITUP0202002

[18] E. Okoko, "Gender and transport: Women's proclivity to minimize car use in Akure, Nigeria"*Pakistan Journal of SocialSciences*, vol. 4, iss. 1, pp. 56-63, 2008.

[19] B. Odufuwa, "Gender and safety in public transportation: An explorative study in Lagos metropolis, Nigeria," IHS Thesis Series, Institute for Urban Management and Development Studies, Erasmus University, Rotterdam, The Netherlands, 2010.

[20] D. Cornish and R.V. Clarke, "Introduction in the Reasoning Criminal," New York: Springer-Verlag, pp. 1–16, 1986.

[21] A. Mabogunje, "*Urbanization in Nigeria*," London, 1968.

[22] "Annual abstract of statistics," *Nigeria Bureau of Statistics*, 2006.

[23] G. P. Pokhariyal and R. K. Muthuri " Strategic method to curb crime rates in Nairobi ," *International Journal on World Peace*, vol. 20, no. 1, pp. 55-69, 2003.

[24] A. D.Trickett, T. Ellingworth, and H. K. Pease "Crime Victimization in the Eighties: Changes in area and regional inequality," *British Journal of Criminality*, vol. 35, iss. 3, pp. 343–359, 1995.

[25] O. Newman, "Defensible Space: Crime Prevention through Design," New York: Macmillian, 1972.

[26] D. Hebert "The geography of urban crime," London: Longman, 1982.

[27] S. Clifford, F. Zorbaugh, H. D. McKay, and L.S. Contrell "Delinquency Areas," Chicago, 1929.

[28] G. F.Jensen,"Social Disorganization Theory," Encyclopedia of Criminology, Richard A. Wright Ed., 2003.

[29] C. E. Kubrin, "New direction in social disorganization theory," *Research in crime and delinquency*, vol 40, iss. 4, pp. 374-402, 2003.

[30] R.J. Clarke and J. Eck, "Become a problem-solving crime analyst in 55 small steps," Devon: William publishing, 2003.

[31] L. E. Cohen and M. Felson, "Social change and crime rate trends; a routine activity approach," *American Sociological Rev*, vol. 44, pp. 588–608, 1979.

[32] P. Barintingham,"Criminality of place; crime generators and crime attractors," *European journal on criminal policy and research*,vol. 3, pp. 5–26, 1995.

[33] R. Pain, "Social geographies of women's fear of crime," *Transport Institute British Geographical*, vol. 22, no.2, pp. 231–244, 1996.

[34] A. A. Ogunsanya, "Contribution of freight vehicles to urban traffic delays in a developing economy: The case of Lagos, Nigeria," *Nigerian Geographical Journal*, vol. 26, pp. 125–137, 1983.

[35] Tranpoconsults "Lagos metropolitan area. Transportation study," Federal ministry of works, Lagos, 1976.

[36] A. A. Ogunsanya, "Assessing the effect of link improvement on urban network flow in developing countries," *Nigeria Geographical Journal*, vol 28, no.29, pp.71–83, 1985.

[37] A. Babalola, "Infrastructural needs for effective mass transit operations in Nigeria," Ikya SG Ed., *Urban passenger transportation*, Nigeria, pp. 303–322, 1993.

[38] A. Shabban, "Ghettosation, Crime and Punishment in Mumbai," *Economic and Political Weekly*, vol. 45, no. 33, pp. 68-73, 2008.

[39] G. Farrell, K. Clark, D. Ellingworth, and K. Pearse, "Of Targets and Super targets; A Routine Activity Theory of High Crime rates," *Internet Journal of Criminology*, 2005.

[40] G. Becker, "Crime and Punishment: An Economic Approach", *The Journal of Political Economy*, Vol. 76, Iss. 2, pp. 169-217, 1968.

[41] M. E. Warner and J. Rukus, "Planners' Role in Creating Family Friendly Communities: Action, Participation and Resistance," *Journal of Urban Affairs*, 2013.

AJAYI Dickson'Dare was born in present day Ikole Ekiti, Ekiti State in Nigeria on the 21st of January, 1963. He obtained his Ph. D. from University of Ibadan in 1998 in the field of Geography. Presently he is a senior member of the Department of Geography, University of Ibadan. As an astute academia and researcher, his research interests include urban transport, spatial distribution, transport security, sustainable transport and transport economics.

Dr Ajayi is a member of Association of Nigerian Geographers (ANG) and other 5 national and international professional Associations.

AJAYI Adeyinka Peter was born in Ibadan city on the 3rd day of June, 1973 in Nigeria. He obtained his Master Degree from University of Ibadan in 2010 in the field of Geography (Transport option). His major research fields are physical distribution, supply chain management, sustainable transport, road transport, rail transport, transport security and multi-modalism. He is a member of the Transport and Logistics Management program in the Department of Transport and Tourism studies, Redeemer's University.

Mr Ajayi is a member of Council for Freight Forwarding Regulation of Nigeria (CRFFN) as well as a trainer for International Federation of Freight Forwarders Association (FIATA).

DOI: 10.18005/ITUP0202002