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**CRIME AND SEASONALITY IN NIGERIA: A
SPATIO-TEMPORAL DISCUSSION OF THE
SITUATION IN UYO URBAN**

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Summary

Extant literature on crime in Nigeria has placed emphasis on the institutional summersaults of the Nigeria Police and the aggressive behavior of deviant citizens. There appears to be a dearth of data as to the contribution of weather, climate and seasons to crime activities, prevention and control. This paper attempts to explain the relationship between weather, climate and crime in Uyo, Akwa Ibom State, Nigeria, using the spatio-temporal analysis. One hundred and fifty households were interviewed to understand issues relating to the spatial and temporal perspectives of crime with

specific emphasis on burglary, stealing, and robbery experiences. Pivoted by the social ecology theory, the results show that crime experiences in Uyo urban has seasonal, temporal and locational elements mostly explained in terms of the physical elements of seasons and time. The rainy seasons, night hours and locational environments were very prominent in explaining crime patterns in the city. Other intervening factors relating to seasonal effects came from periods of festivities and democratic political elections which witnessed high consumption and spending patterns as well as arms build-up (as in the case of election periods). While some physical elements of seasons and time have been useful in partially accounting for observed crime patterns in Uyo, the study suggests that the routine activity theory could much more be useful in understanding the general spatial and temporal pattern of robbery incident in Uyo.

Introduction

There seems to be strong empirical evidence and some theoretical arguments supporting the assumptions that crime and seasons are very much related. Most study results on this come from the developed economies dominated by the United States of America and the United Kingdom. What is missing, however, is the absence of studies on this issue in developing countries. The study both lays research agenda

and opens up opportunities for understanding crime within the spatial, environmental and temporal contexts. This work is ongoing and reports presented here is a preliminary results of attitudinal surveys of the Uyo urban residents in between January and December, 2014. It is acknowledged that a study which focuses on a very small segment of a larger Nigerian population would hardly represent the diversities of Nigeria's over 167 million people. More so, by using one year data alone, the result will not adequately represent the various interacting factors that could account for or accentuate crime incident in Nigeria. Despite these limitations, the paper represents a contribution to crime in Uyo in particular and Nigeria in general. It is expected that the outcome of this study will be of immense relevance in stimulating subsequent researches on this important issue.

The paper is organized into parts. Immediately following the introduction is a brief on the weather, climate and crime debate. The third part discusses the background of the study area as a way of setting the proper context for understanding subsequent discussions. The part also discusses the study methodology, highlighting sample size and methods of data collection. The fourth part presents and analyzes the study data and results. The fifth part discusses the main findings of this study. This is followed by the conclusion.

The Weather, Climate and Crime Debate

The relationship between weather, climate and crime has been studied at different perspectives. Based on single weather elements, studies by Bushman, et al (2005), and Cohen (1990 as cited in Ranson, 2012) have implicated the daily and weekly variations in temperatures in the rise of incidence of violent and non-violent criminal activities. Ranson (2012) equally reported a study by Brunson, et al (2009) which demonstrated strong statistical correlation of disorderly conducts with increases in temperature and humidity in an urban area of the United Kingdom using hourly data on police calls. Time series analysis of weather impacts have also been attempted in the United States of America as a whole (see Anderson, et al, 1997). Such study depended on yearly data in assessing the trend of crime at national or state levels. Although high probability of measurement errors vitiate such approach (Ranson, 2012), some parts of the results significantly indicated some levels of relationships between the two parameters.

Aggregate weather elements have also been studied in relationship to climate change. For instance McDowall, et al (2012) studied seasonal cycles in crime and their variability using a long time series as well as a large areal sample to obtain more detailed seasonality estimates than have been available in the past. The results show

that major crimes depict seasonal behaviour with most following similar cycles. By the central argument of the paper, the existence of seasonal patterns is not explainable by monthly temperature differences between the areas, but seasonality and temperature variations do interact with each other. Using homicide and robbery, Landau and Friedman (1993), on the basis of motivation, victim-offender relationships and planning, hypothesized two peak seasonal periods for these crime in Israel: robbery peak at winter season (November through March) and homicide peak at August. While high incidence of robbery was accounted for by the usual increase in the cost of living and the facilitating environmental conditions during the months, high incidence of homicide was explained by increased level of social interaction around the period. On the basis of statistical analysis of climate change and incidence of crime, Ranson (2012) was able to estimate high increase in the total number of offenses in the United States between 2010 and 2009 in the values of additional 35000 murders, 216,000 cases of rape, 1.6 million aggravated assaults, 2.4 million simple assaults, 409,000 robberies, 3.1 million burglaries, 3.8 million cases of larceny, and 1.4 million cases of vehicle theft.

Some useful hypotheses have been proposed by scholars to explain the relationship between weather and crime (Ranson, 2012 cites several authors including Becker, 1968; Jacob, et

al, 2007; Glaeser et al, 1996; Rotton and Cohen, 2003, among several others). In the first instance, Becker's canonical model of crime sees weather as offering a framework of decisions on the probability of successfully completing a crime and the probability of escaping undetected after a criminal operation (Jacob, et al, 2007). Indeed, cloudy, dark and stormy weather conditions can increase the probability of successfully completing a crime operation. In another hypothesis, Glaeser, et al (1996) argued that the frequency of criminal acts is driven largely by social interactions that characterize day-to-day life. In this context, weather conditions that tend to foster social interactions are likely to increase crime rates (see Rotton and Cohen, 2003). Another explanation works on the assumption that external conditions directly affect human judgment in ways that cause heightened aggression and loss of control (Ranson, 2012 cites Baumeister and Heatherton, 1996; Card and Dahl, 2011). Through simple experiments, Anderson (1989) suggests that ambient temperatures affect aggression.

Study Area, Theory and Methods

Uyo is the capital of Akwa Ibom state, one of the 36 states in Nigeria, and created in 1987. It is located between latitudes 5^o 01' and longitudes 7^o 55' in south-south Nigeria. Climatically, Ekanem (2010) posits that Uyo has a humid tropical climate with high temperature (between 26^o C and 33^o C).

Average annual rainfall ranges between 2000mm and 3000mm with duration concentrating between March and October of each year. Consequently, two marked seasons are recognized namely, the dry (November-February) and wet seasons (March-October). The early period of the dry season usually witness the influence of the north east trade winds whose dry and cool condition (harmattan) contribute in moderating the high temperature of the city around November and sometimes could span till January of the following year. Over the years, and largely due to the phenomenon of climate change, the harmattan season is rarely experienced, and if it happens, rarely lasts upto a week.

Being the administrative capital of the state, Uyo has attracted migrants from diverse areas within Akwa Ibom state as well as other states in Nigeria. The 2006 population census put Uyo at 436,606 people with the rate of growth at 3.2. As an emerging center of mostly small scale economic activities, the high population growth for the urban center carries many social, economic, ecological and infrastructural consequences. The quality of housing and other infrastructures are consequently stratified in a manner that reflects income and other socioeconomic characteristics of the residents. High quality houses are mostly occupied by high public officials and wealthy business class with relative guarantees of stable power and water supplies, either as private

initiatives or publicly funded. In contrast, individuals with low income earnings are found in slum areas and squatter settlements with very irregular public power supply and commercial water services. Given the economic realities of most low income earners and jobless youths, there emerged in the city diverse strategies for coping and criminal behaviours including pickpocketing, armed robbery, kidnapping and other financial and economic crimes including advanced fee fraud popularly known as '419' scam.

Generally, the theoretical drift of this work is towards the social structural explanation of crime which emphasizes the pattern of social organization and the interrelationship between institutions characteristic of a society (Schmallegger, 1999). More specifically, the ecological theory of the Chicago School underpins this work. This, though criticized for relegating the individual to the background, is informed by its emphasis on demographic and geographic aspects of groups, and sees the social disorganization which characterizes delinquency areas as a major explanation of criminality, which Haggitt (1977) presents as the attempt to connect the structure and organization of any society to its interactions with its localized environment. Thomas and Znaniecki (1920), as well as Shaw and McKay (1929) have corroborated this explanation.

This study was thus initiated in 2013 in response to an informal conversation with a victim of armed robbery attack in Uyo urban, Nigeria. The rising wave of armed robbery in the city then attracted government ban on the commercial motor cycle services popularly called by various names such 'how far', 'okada', 'aka uke', 'ala alok', etc.

In an attempt to establish the spatial and temporal aspects of armed robbery incidence in Uyo, an attitudinal survey was conducted with trained research assistants, and in three delineated areas which reflected income levels as well as housing and other infrastructural qualities. Such delineation led to three core regional areas namely Oron and Nwaniba roads axis including Ewet and Osongama housing estates (zone A); Ikot Ekpenne road-Wellington Basseyy-Ikpa roads axis and its environs (zone B); Abak-Aka-Babangida-AtikuAbubakar roads axis and its environs (zone C).

Five (5) streets were randomly selected from each of the three zones leading to fifteen (15) streets in all. A further random selection of ten (10) households in each of the five streets led to a total of one hundred and fifty (150) households. The heads of the selected households or any representative member were interviewed in a semi-structured manner. The interview was based on a wide-range of issues ranging from

experiences of armed robbery incident, frequency of occurrence, notorious areas for robbery operation, seasonal factors, probable causes and solutions, among other questions. Informal discussions were also organized with the police and robbery victims.

According to the FBI (2004), robbery is the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or violence or by putting the victim in fear. Sadly, the Police records of robbery incidence in Uyo urban are very poor and largely depend on a formal complaint by victims which, in most cases, are hardly forthcoming. Except for some high income and well-educated resident members, robbery attacks on individuals and households are hardly reported to the police by most urban residents unless it involves loss of lives and important properties. These practically render dependence on official statistics of robbery for the urban area unrealistic. Public attitude to crime reporting in Uyo is further undermined by a seeming lack of faith and trust in the criminal policing capacity of the Nigeria police authorities on the one hand and the economic constraints of most individuals, a lack of confidence on the ability of the police authorities to act, as well as concerns over the confidentiality of information released to the police authorities. These issues are fundamentally related to the wider image problem of the Nigerian police as a corrupt institution,

policing the 139th most corrupt country out of 176 countries (Transparency International, 2012). Given these limitations, the study opted for attitudinal survey as a way of overcoming the limitations of data imposed by the factors highlighted earlier.

Results

Location, season and time contribute diverse levels of impact on city crime patterns. The results, to a large extent, explain this. Night hours, rainy seasons, festive periods and location have various degrees of motivational impact on criminal behaviours (see McDowall et al 2012). Seasonal and temporal patterns account for the effects of weather seasons (rainy or dry), festive seasons (Christmas and Easter) and the hours of the day (day and night). 97.4% of the respondents who experienced robbery incidents in their homes were attacked at night hours while only 2.6% were attacked in the day time. Beyond individual experience of robbery attack, 97.3% of the sampled populations believed robbery incident would more likely occur at night hours than day time as against 0.7% who believed robbery would most likely occur at day time than night hours, while 2% were missing values (See Table 1).

Table 1: Time and Season for Robbery Operation

Questions

Have you ever experienced armed robbery attack in your home?	Yes (26%)	No (74%)	-
If yes, what hour of the day?	Day hour (2.6%)	Night hour (97.4%)	-
What hours do you think is the right hour for robbery attack?	Day hour (0.7%)	Night hour (97.3%)	Missing data (2%)
What season of the year do you think armed robbery incidents occur most?	Rainy season (73.3%)	Dry (20%)	Cannot say (6.7%)
What festive period of the year do you think armed robbery incident occurs most?	Chrsitmas (84.7%)	Easter (8%)	Others (7.3%)

Source: Field work, 2014.

Night hours and crime incidents present correlatable and predictable relationship especially in developing countries still increasingly facing challenges of poor security and livelihood infrastructures. The cover of darkness at night hours, provide the needed incentives and opportunities for robbery operation. Brantingham and Brantingham (undated) have argued and emphasized the necessity of understanding the relative importance of context in the study and analysis of crime pattern. Particular emphasis for contextual knowledge focus on understanding the relative socio-economic conditions as predictors around the physical factors embedded in regional or spatial patterns of seasonal and temporal incidence of crime. Such knowledge is important in developing priorities for appropriate preventive practices.

In Table 1, climate and festive seasons generate diverse forms of incentives for crime activities. The most important seasonal variables considered include rainy, dry, Christmas and Easter seasons. 73.3% of the respondents believed robbery incidents occur most in the rainy season while 20% indicated the dry season. 6.7% of the respondents did not take a definite point of view on this (Table 1). The festive season was equally discussed as targets for robbery attack with the Christmas season recording the highest of 84.7%. This was followed by the Easter season

with 8% respondents while 7.3% respondents indicated 'others.'

Seasonal effects on crime have been explained in relation to variations in temperature, and in some cases, humidity, cloud cover and other environmental conditions. McDowall et al (2012) cites some studies on these to include Baumer and Wright (1996) and Cohn (1990). However, most discussions on seasonality and crime draw theoretical insights from temperature-aggression theories, which stress the fact that humans become increasingly irritable as heat and humidity levels rise (Anderson, 1989). By practical application, the dry season with hot weather has higher likelihood of robbery incidents. The results in Table 1, however, show the frequency of armed robbery incidents is highest in the rainy season. While temperature aggression explanation may likely hold as an important factor for summer robbery incidents in developed countries (Anderson, 1989), developing countries may not perfectly share in such assumption because of peculiar socio-economic and environmental circumstances. Emerging data support the argument that robbery incidents are negative coping responses to challenging socio-economic conditions of poverty and livelihoods and are encouraged by physical factors of night hours and rainy conditions. People gain access illicitly/illegally or criminally to what they do not have either in the

night or rainy periods to enable them survive some challenging economic moments.

The pattern of robbery incidents has also been known to be influenced by locational-environmental conditions. The respondents were able to identify important risk areas. A total of 53.3% of the respondents identified zone 'C' as the most risky, closely followed by zone 'B' (38%) while zone 'A' had only 6% of the respondents. 2.7% did not take any definite standpoint on this (Table 2).

Table 2: Locational areas notorious for robbery incidents

Question	Very regular	Regular	Not regular	No idea
How often would you say your street experiences armed robbery attack?	(29.3%)	(56.7%)	(5.3%)	(8.7%)
Which areas in the urban area do you think could record higher incident of robbery attack?	Zone A (6%)	Zone B (38%)	Zone C (53.3%)	Don't Know (2.7%)
What informs your opinion above?	Differences in public security attention (97%)	Higher private security in some areas than others (97%)	Higher criminals in some areas over others (90%)	Community policing efforts in some areas over other (84%)
				Missing data (3%)

Source: Field work, 2014.

'Outsider' and 'insider' perception of risk areas within Uyo were not significantly different from each other. An 'outsider' perception of the risk levels in the three zones aligned fairly well with the views of the residents of those streets. The highest percentage of 56.7% of the respondents said armed robbery incidents are regular experiences while 29.3% indicated 'very regular.' Only 5.3% did not take any definite standpoint while 8.7% said they had no idea on the question. Many factors were held accountable for the areal differentiation in the incident of robbery among the study zones. These factors basically bordered on disparities in security attention and street policing. Most of the streets parade higher presence of the public security apparatus and personnel. These seem to be where important government infrastructures, housing estates, offices, and business centers are located. Zone A dominates the security interest of the government and private individuals given its economic and strategic importance to the city. Important housing estates such as 'Ewet' and 'Osongama' are located in this zone. The zone also harbours important economic centers including the 'Ewet' timber market, the Uyo main market, important supermarket, the five star hotel and many banking offices. About 97% of the respondents saw zone 'A' as the power house of economic, residential and service centers which create the need for heavy security presence.

Consequently, public security attention is always complemented by private security arrangements especially at the high residential areas.

High crime areas were equally discussed. From Table 2, such areas include zone C (Abak-Aka-Babangida-AtikuAbubarkar roads and environs) and slightly followed by zone B (Ikot Ekpene-Wellington Bassey-Ikpa roads areas and environs). There is relatively less police presence and high concentration of those the respondents believed are 'suspected criminals.' About 90% of the response focused on these issues. One respondent complained about this as follows:

'...we know many of them...we suspect some but we cannot do anything...some of them are highly connected to the state security network...and in such case where can they be reported to...you cannot report them to the police unless you want to put your life in danger....'

Incidence of corruption in the Nigerian security services has been widely reported in the literature (TI 2012, Ogbeyi 2012, ICPC 2008, Adeleke, 2003). Apart from inadequate capacity to fight crime, the police institution has been widely perceived as corrupt and incapable of being trusted with confidential information on 'crime

suspects.' Individuals and communities in high crime areas depend on self-help and community efforts to fight crime. Community action against crime has been on the rise in the form of 'night vigilantes' and 'operation fish out criminal elements' in some well-coordinated communities. About 84% of the respondents cited 'community action against crime' as important instrument in fighting 'armed robbery'. A respondent in her early 30s gave a short account of such community action (translated into English) as follows:

'... what is happening in some properly coordinated areas [streets] is the presence of constituted bodies who parade such areas at night...they also look out for suspected criminal elements...but if you are caught...yours is finished...this helps some areas to be relatively free of robbery be it in the day or at night...'

Community actions against 'suspected criminals' in most cases, result in 'jungle justice.' Narratives of how 'suspected criminals' are treated abound in local media, and range from lynching, pounding and many other means of inflicting hard and deadly pains. The following media report (laced with photos of suspected criminals in fire) supports this discussion:

'...jungle justice: community in Akwa Ibom roast four kinsmen over alleged robbery...four alleged armed robbers were recently roasted to death in IbiangaAsakpa, Oruk Anam local government area, Akwa Ibom state. The alleged robbers were said to have gone to the community to rob residents of the area....' (The Sensor Newspaper 28 February 2012: 1).

Most respondents believed robbers go for money than material items. This is indicated by 86.7% to 13.3% respondents. For the respondents who were victims of robbery incident, money was cited as the primary target during their encounter with robbers. All the respondents equally reported they were brought face to face with men who were armed with guns, while others added matchets. Encounter with 'armed robbers' could be dangerous especially if the victim attempts to fight back. One respondent (a man in his late 40s) observed as translated in English as follows:

'...in such condition...you have to cooperate...negotiate and give them what they want...in short you must cooperate with them.'

In some instances, a robbery incident goes with associated crime such as rape. However, these are hardly reported by the victims especially for

fear of stigmatization. The respondents who were victims of robbery attack all agreed this could happen but were emphatic it did not happen to them.

Spatio-Temporal Analysis: Discussion

While spatial analysis deals with the size, location and pattern; temporal analysis deals with timing. Thus, time, season, location and associated physical factors in forms of darkness and rainy conditions offer remarkable structural framework for understanding urban crime pattern. It should be noted that marked differences in local area's robbery specialization builds on contextual factors. This partly explains the relative structure and the importance of the local economy. In the result, zone A (Oron and Nwaniba roads axis including Ewet and Osongama housing estates) provided wider and higher commercial, social, residential, political and other public service functions which attracts people from all parts of the city and, therefore, presents a natural focus of interest for public and private securities. In contrast, robbery incident progressively increase as one moves away from zone A to zone B, and becomes a major problem in zone C. the trend of observation aligns with Brantingham and Brantingham's (undated) notion of locational importance of settlements as crime generators or crime attractors. Most streets in zones B and C provide low quality residential houses and are

important areas for relatively small scale and informal business activities. Such streets as 'UruaEkpa', 'Ikpa road', 'Akpan Essien', 'Udoette', 'Itu road' etc (zone B) and 'Afaha Offot', 'Effiat Offot', 'Old ring road', 'Ukana Offot', 'Atan Offot', 'Nkemba' etc (zone C) are important 'generator' locations for diverse classes of low income and unemployed persons. Police presence in such areas is weak, providing incentive for robbery operation. However, crime 'generator' areas are notorious for providing opportunities for crime. Such streets and areas as Ikot Ekpene-Ikpa road axis and environs (zone B) and Abak-Aka-Babangida-AtikuAbubarkar roads axis and environs (zone C) provide attraction to criminally minded individuals to reside. Some insights from the local informants give some indicators for identifying such streets such as the density of drug and alcohol businesses and use.

Underlying spatial pattern of robbery activities can equally give insight into the relative impact of socioeconomic circumstances in an area. In the study, robbery is not only generated by some socioeconomic factors, their temporal and spatial patterns are influenced by other physical, social and economic factors prevailing in areas and over time. According to McDowall, et al (2012) the Routine Activities Theory is more important as comprehensive framework for understanding how changes in environment linked to spatial, temporal and socioeconomic factors

could explain crime pattern in an area. Darkness produced during the night hours encourages people to spend more time indoors. Rainy conditions equally encourage more indoor activities while at the same time limiting extensive security activities. These are risky periods often utilized for robbery. Routine activities equally can help understand how robbery could be structured to take advantage of some social seasons, for instance, the Christmas period. The results in the study has shown that such socially patterned seasons (which encourages high financial spending and consumption) in an economy contribute in influencing the outcome of armed robbery. Miron (1996) had made a similar argument in relation to the seasonality impacts (summer vacation and Christmas-related production and consumption) on crime pattern.

Socioeconomic divisions have also helped in accounting for differences in spatial patterns of robbery in the study area. Neighbourhood condition, lack of social control, prevalence of criminal groups and gangs, high unemployment rates, etc. have been recognized by Siegel (2001) as structuring pattern of crime. People of lower socioeconomic classes have values which are in conflict with the upper class values. While this conflict has not come out clear in explaining the pattern of robbery in the study area, most scholars however agreed the poor have a greater motivation to steal to satisfy their means (Arthur,

1991). Where the incident of poverty is high, robbery is more likely. This was corroborated during interview with the respondents. Most respondents were apt to link robbery incident to some vital events, most important is political election. A male respondent in his early 30s explained this relationship when he said (translated in English),

'...armed robbery is mostly a problem after every season of national, state or local government elections...while the politicians arm these youths for the reason of rigging election, they however fail to disarm them....who will then turn those weapons for robbing innocent citizens...'

While location, season, time and other socioeconomic and environmental factors have been seen to correlate with robbery patterns, vital political event in Nigeria, for instance an election period, significantly contribute in adding sophistication, intensification and spread of robbery, especially armed robbery.

Conclusion

This paper has discussed the relationship between season, time, place and crime using the case of armed robbery in Uyo, Nigeria. The result shows positive relationship to the extent that robbery incident tend to prevail in low

socioeconomic areas and enhanced by some physical factors such as darkness, rainy condition etc. The physical and environmental factors of darkness and rainy conditions explain the seasonal tendency of robbery, with the rainy season and night hours posing higher risk factors. Social seasons such as Christmas and Easter periods were also noted to provide incentives to robbery due to the high financial spending and consumption patterns common to those seasons. The Christmas period was commonly cited by the respondents. Place characteristics were noted to account for areal differentiation in robbery pattern in the study area, with low socioeconomic areas being robbery 'generators' and 'attractors' than high socioeconomic areas. Relatively high security concentration in high socioeconomic areas, to a large extent, contributed in checking high robbery incident in such areas. While season, place and time have been implicated in accounting for spatio-temporal pattern of robbery in Uyo, it is important to emphasize that such relationship may not produce significant correlation without understanding the contribution of some intervening factors. One of such factors repeatedly cited was the post-election crisis. There is therefore the need to further understand the dynamics of local crime in Nigeria through further studies. This is where the Routine Activity Theory can be most relevant.

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