

Spatial Distribution Pattern of Trafficking in Persons Sources in Southern Nigeria

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Abstract: The study investigated the spatial distribution of trafficking in persons (TIPs) in Southern Nigeria. Periodic data of human trafficking between 2010 and 2014 were collected from National Agency for Prohibition of Traffic in Person (NAPTIP). Nearest neighbour analysis (NNA) was used to determine the distribution pattern of TIPs while Getis-Ord G statistics was used to determine the pattern of TIP incidence clusters in the Southern Nigeria. Centographic analysis was carried out on the sources of TIP and the number of incidences recorded using weighted mean center; weighted standard deviational ellipse; and standard distance. The highest number of TIP victims was observed in Akwa Ibom State with 47.8% while Cross River State had 15.2%, and Imo State had 6.7%. NNA revealed that the spatial distribution of TIP sources was clustered ($Z=2.75$; <0.05) while Gestis-Ord statistics revealed that there is high cluster pattern of TIP in Southern Nigeria ($Z=2.09$; $p=0.036$). Centographic analysis revealed that the weighted mean centre for the TIPs sources across Southern Nigeria can be found at Umuahia North in Abia State and the directional distribution of the total TIP incidences collated is orientated towards the South eastern regions at an angle of 118.72 degrees. The dispersion analysis of TIP incidences shows that 68% of the total number of incidences was distributed around eight states namely Anambra, Enugu, Imo, Rivers Abia, Ebonyi, Akwa Ibom and Cross River States. Mbo, Udung Uko, Oron, Okobo, Ikono, Obot Akara, Ibiono Ibom, Uyo and Itu LGAs in Akwa Ibom State; and Abi, Odukpani, Yakurr and Obubra LGAs in Cross River State were found as hotspots for TIP in the Southern Nigeria. The study recommended that the border should be effectively controlled and handled by NAPTIP, Nigeria Immigration Service and Nigeria Custom.

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1. Introduction

Trafficking in persons (TIPs) in recent time has become a known phenomenon throughout the world which requires adequate attention because of its effects mostly on youth of both sexes in the developing nations (Essien, 2013). It is a criminal attitude and exercise as it involves enslavement, sex trafficking, utilization of kid troopers and forced labour (Forster, 2013; United States Department of State, 2013). TIPs means the recruitment, conveyance, transfer or receipt of persons, by means of threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse, of powers, of fraud, of a position, of vulnerability or of giving or receiving of payments or benefits to achieve the consent of a person having control over another person for the purpose of exploitation, servitude and child labour (United Nations, 2003; Essien, 2013). Human trafficking is considered the third largest criminal activity in the world after arms and drug trafficking (Tola, 2008; Egwu et al., 2014). In the last decade, the phenomenon of child trafficking has considerably increased throughout the world and most especially in Nigeria; as children are deceived and forced to submit to servitude (Egwu et al., 2014).

Human trafficking are linked to poverty and extreme poverty experienced by some people in Nigeria especially in the Southern part of the country; thus traffickers make use of the advantage and misinform the people to believe that their standard of living is going to improve as well as their children (Ayua, 1999; Egwu et al, 2014). Omelaniuk (2005) reported that trafficked persons are typically poor, have few job prospects, limited access to education and may come from rural areas while Laczko and Danailova-Trainor (2009) noted that the poverty-stricken of human trafficking are often compelled to migrate within or outside of the country for better economic opportunities. Meanwhile, Enaikele and Olutayo (2011) reported the human trafficking in Nigeria and its implication for human immune deficiency virus and acquired immune deficiency syndrome (HIV/AIDS) pandemic.

Human trafficking, like money laundering, advanced fee fraud, cyber scams and illicit trade in arms and narcotics has elicited a great concern as a contemporary social problem worldwide (Poulin, 2004). Trafficked persons are utilized in different vocations including sexual exploitation, begging, under-paid and exploited forced labour in the agricultural, service, manufacturing and construction

industries, domestic service, and organ harvesting (Agbu, 2003). There are many factors that have led to human trafficking and these include widespread and increasing level of poverty, unemployment and under-employment (especially of women), greed, family and communal dislocation, economic transition, globalization, rural impoverishment, accelerated commoditization of sex, economic decline and uncertainties, opportunism, false and fake dream, and dramatically deteriorating living standards, low pay, discriminatory labour practices, violence (particularly against women), lack of social and welfare support, lack of educational opportunities, tourism, false or imaginary marriage, declining border controls, governance, constant and increased demand for cheap labour, combined forces of organized crime and governmental corruption, and the receding capacity of the state to provide basic social services (Abdulkadir, 2010). NAPTIP (2008) reported that source regions of TIPs were Edo, Abia, Akwa Ibom, Ebonyi, Imo, Enugu and Cross River States while the most widely recognized travel states were Niger, Lagos, Borno, Sokoto and Cross River. In addition, Olateru-Olagbegi and Ikpeme (2006) discovered that children from rural communities in Cross-Rivers, Akwa Ibom, Benue, Ebonyi, Kwara, Bayelsa, Imo, Anambra, Oyo State and border villages in Ogun State are trafficked for domestic service to the urban areas such as Lagos, Kano, Port-Harcourt, Ibadan and Kaduna.

However, spatial distribution of human trafficking can be achieved through geospatial technologies in which geographic information systems (GIS) is inclusive. GIS is a unique integration or system of computer hardware, software, peripherals, procedural techniques, organizational structure, people and institutions for capturing, manipulating, storing, analyzing, modulating, modeling and displaying of geographically referenced data for solving complex human-related problems. GIS has the ability to quickly manipulate, analyze, display geographic data and also retrieve the existing data and compare if necessary in order to predict what is likely to happen in the future (Miller, 1997; Eludoyin et al., 2012). Explaining the distribution pattern of human trafficking is through mapping analysis is highly required in the recent time as the incidence is becoming more frequent especially in the developing world. There are several studies on human trafficking in Nigeria but none has reported the spatial distribution pattern of trafficking in persons sources especially in the Southern Nigeria. Against this background, the present study examined the spatial distribution of trafficking in persons sources in Southern Nigeria between 2010 and 2014.

2. Materials and methods

The study area encompasses all states in Southern Nigeria; Abia, Akwa Ibom, Anambra, Bayelsa, Cross River, Delta, Ebonyi, Edo, Ekiti, Enugu, Imo, Lagos, Ogun, Ondo, Osun, Oyo and Rivers (Figure 1). The southern part of Nigeria consists of South-West, South-East and South-South regions. The study area is located in the southern part of the country lying between the latitude $4^{\circ} 32'N$ and $9^{\circ} 33'N$ and longitude $3^{\circ} 25' E$ and $10^{\circ} 25' E$ (Figure 1). The climate is the humid sub-equatorial type (Aweto, 1981) with high annual rainfall ranging between 1600 mm and 3000 mm (Ogolo and Adeyemi, 2009). Land in relation to the population, is relatively scarce especially in the Niger Delta Region of the study area and as population increases, the pressure on land for all purposes including agriculture increases accordingly. Majority of the population are Christians while English or pidgin English serves as the national language. The total population of the study area is 65,162,068 (National Population Commission, 2006) in which Lagos, Oyo and Rivers States are the most populous while the population in Bayelsa is the lowest. Farming, fishing and trading are common human activities in the study area. The pattern of settlement in the southern part of Nigeria is largely determined by the availability of dry land. There are pockets of highlands recorded in the South-west and South-east while low relief (15-30m) above sea level dominates most of the South-south part.

Secondary data were used for this study. Data on human trafficking between 2010 and 2014 in the study area were collected from NAPTIP both from the Southern Zone and Abuja Zone (Table 1). The distribution type (clustered or dispersed) was determined using average nearest neighbour from spatial statistics tools. This was used to determine the pattern of distribution of the TIPs sources within the period considered for this study. The Z score and Nearest Neighbour Index (NNI) were computed to ascertain the pattern of distribution of TIPs sources. The NNI is expressed as the ratio of the observed distance divided by the expected distance. The expected distance is the average distance between neighbours in a hypothetical random distribution. If the index is less than 1, the pattern exhibits clustering; if the index is greater than 1, the trend is toward dispersion or competition. When Z-score is less than 0, the pattern of distribution is clustered but when it is greater than 0, it is dispersed. If it is 0, the pattern is neither clustered nor dispersed. Getis-Ord G statistics was used to determine the pattern of TIP incidence clusters in the Southern Nigeria. This is also used to identify significant clusters across the region. This was used to capture the influence of adjacency/neighbourhood effect on sources and intensity of TIP in the region under the scope of study.

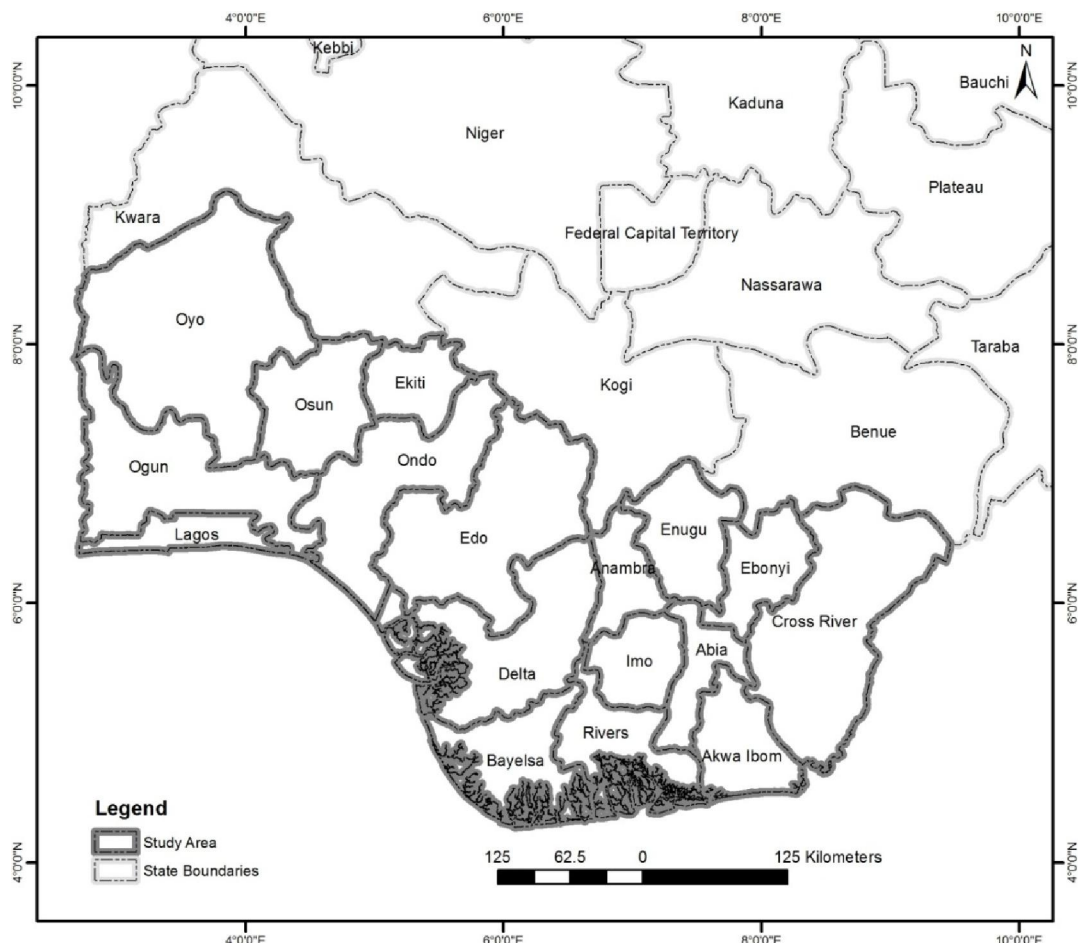


Figure 1: Southern States of Nigeria

Furthermore, centographic analysis was carried out on the sources of TIP and the number of incidences recorded. This was implemented through the weighted mean center which represents the center of gravity of TIPs; weighted standard deviational ellipse which represents the directional distribution of TIPs as a measure of central tendency, dispersion or directional trend; and standard distance which measures the degree of concentration or dispersion of TIP around the geometric mean center. All the analyses were done in ArcGIS 10.1 version while data presentations were done using maps and tables.

3. Results

Number of Victims across the States

The number of victims per state is presented in Table.1. The highest was observed in Akwa Ibom State with 47.8%, Cross River State had 15.2%, while Imo State had 6.7%. The number of victims in Anambra, Bayelsa, Delta, Ebonyi, Edo, Ekiti, Enugu, Lagos, Ogun, Ondo and Oyo States were relatively low. The lowest number of victim was observed in Osun State having 0.7%. Generally, more than 75% of

the LGAs ranged between 1 and 6 cases of victims of TIP in the study area.

Table 1: Number of Victims across the States

States	Number of Victims	Percentage (%)
Abia	25	5.4
Akwa Ibom	220	47.8
Anambra	10	2.2
Bayelsa	5	1.1
Cross River	70	15.2
Delta	9	2.0
Ebonyi	17	3.7
Edo	14	3.0
Ekiti	6	1.3
Enugu	6	1.3
Imo	31	6.7
Lagos	6	1.3
Ogun	7	1.5
Ondo	5	1.1
Osun	3	0.7
Oyo	8	1.7
Rivers	19	4.1
Total	460	100

Source: Researcher's Analysis, 2016

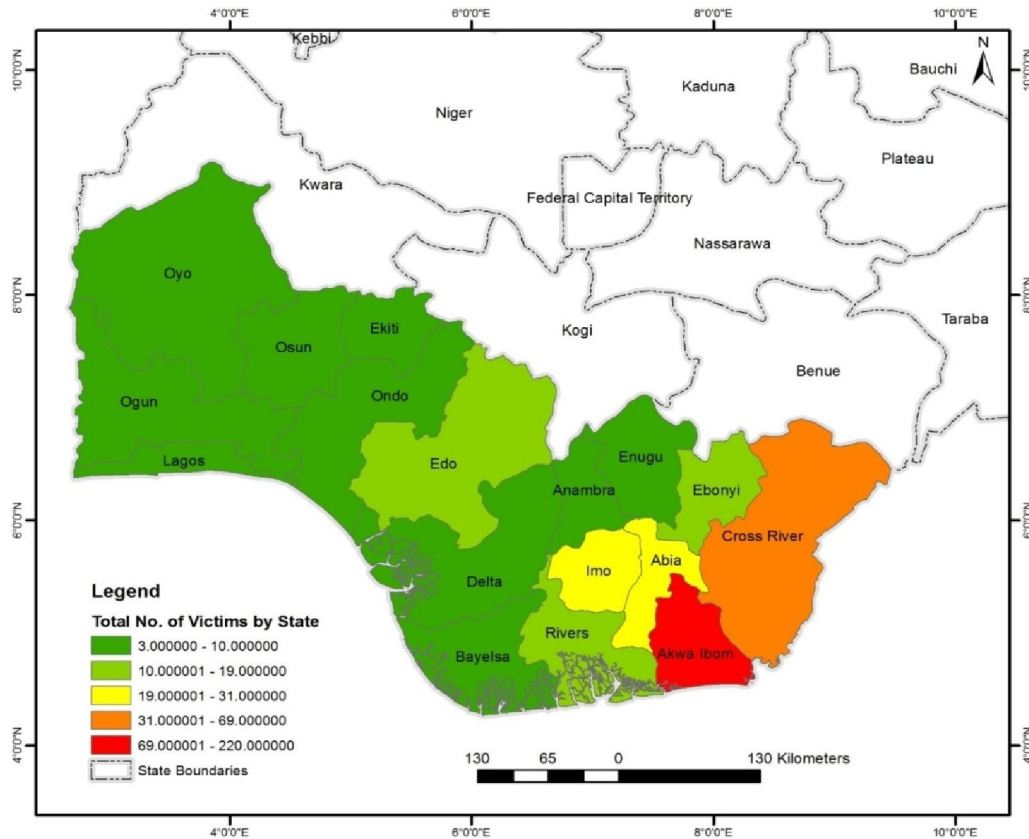
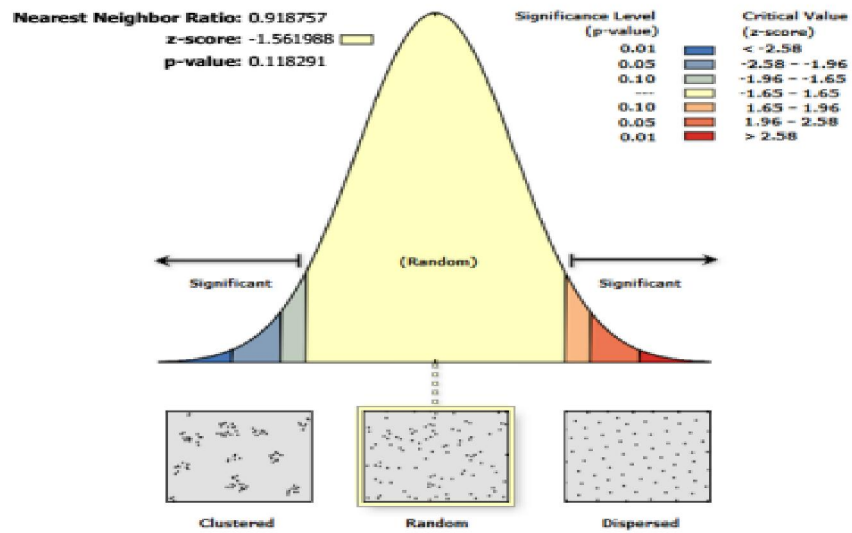


Figure 1: Distribution of Total TIP by States

Spatial Pattern Distribution of TIPs Incidences in Southern Nigeria

Findings showed that the arrangement of the TIP sources has a G score of approximately 0.83 with a Z

score of 2.75 ($P < 0.05$). This gave an indication that the spatial arrangements of the TIP sources are clustered. The average distance between the TIP sources is approximately 23 km (Figure 2).



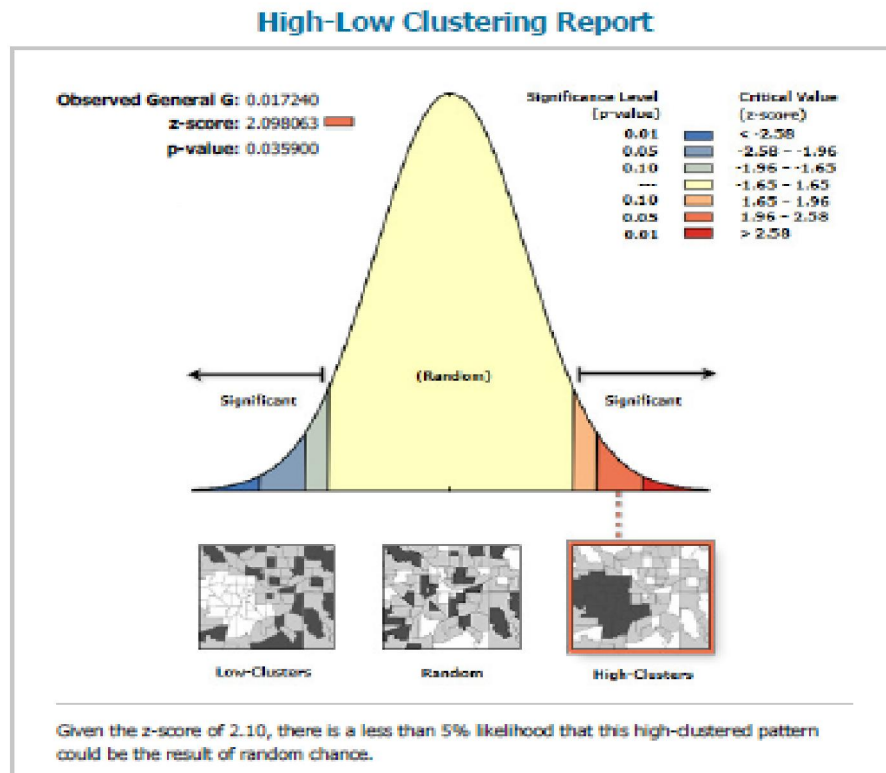
Given the z-score of -1.56198777822, the pattern does not appear to be significantly different than random.

Figure 2: Nearest Neighbour Analysis of TIPs Sources in Southern Nigeria

Distribution pattern of TIP incidence clusters in Southern Nigeria

In order to check whether there is a clustering of high or low values, the Getis-Ord + G Statistics was also computed. This measured the degree of clustering for either high values or low values in number of trafficked persons from each of the source LGA identified. The high-low cluster analysis reveals the spatial pattern of volume of TIP thereby giving an indication of pattern of intensity. This analysis combines the volume as well as the location in deriving the association between incidence location and the volume of incidence across its neighbours. The

result revealed that there is high-cluster pattern with G-value of approximately 0.017. A Z-score of about 2.09 and P value of approximately 0.036 were recorded which gave an indication that the high cluster pattern observed has a probability of less than 5% of being due to random chance (Figure 3). Most of the sources are not significant, while only four belongs to the high-high cluster (HH) i.e. high volume of TIP source surrounded by high volume source (Figure 4). For low-high clusters (LH), here is one source identified from this analysis, essentially this source is low volume source surrounded by high volume source of TIP.



General G Summary

Observed General G:	0.017240
Expected General G:	0.014706
Variance:	0.000001
z-score:	2.098063
p-value:	0.035900

Dataset Information

Input Feature Class:	vcitimbylgaltmprj
Input Field:	LTRNVIC
Conceptualization:	INVERSE_DISTANCE

Figure 3: High-Low Cluster Analysis Output

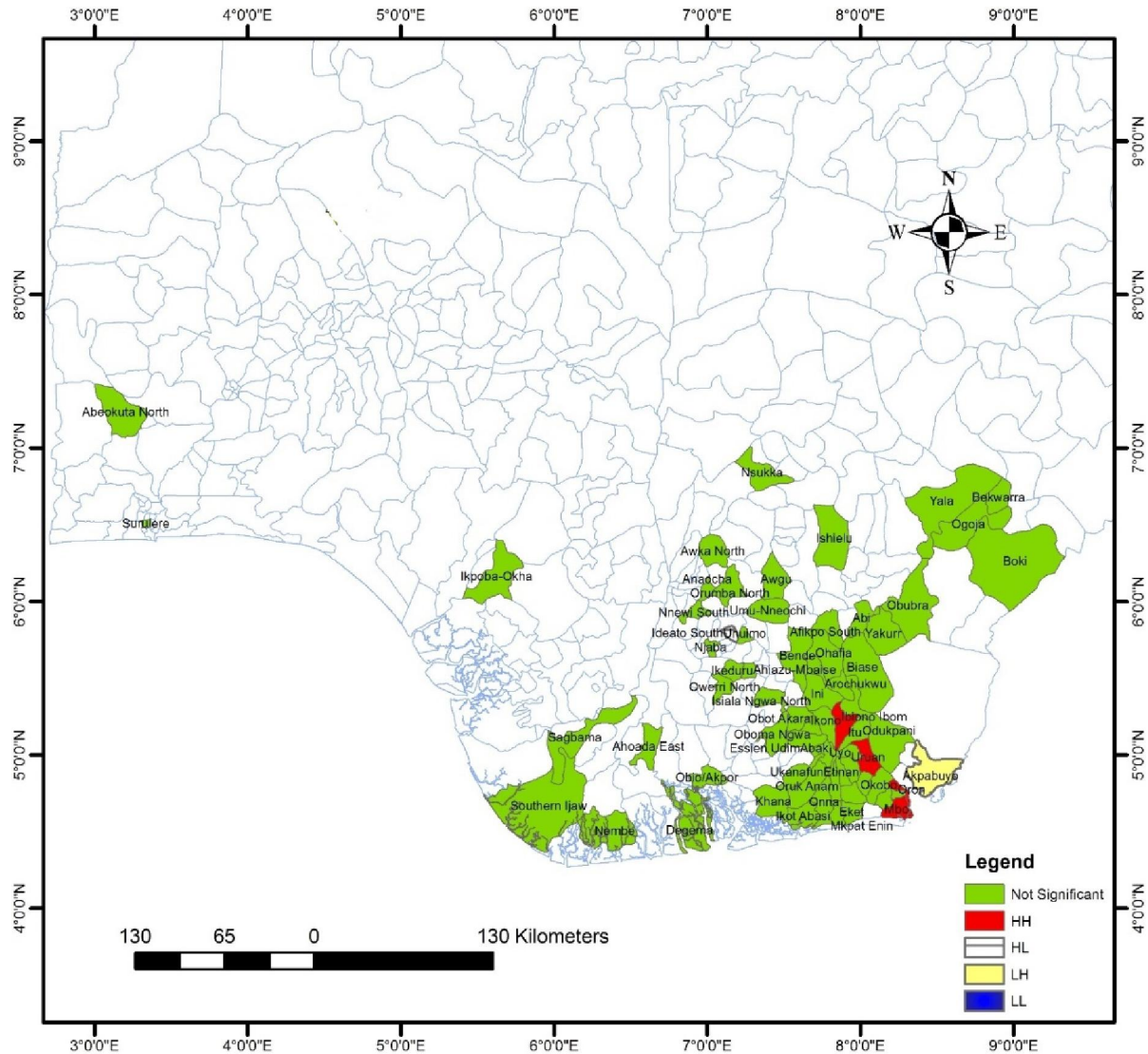


Figure 4: Getis-Ord G cluster analysis

Weighted mean centre and standard deviational ellipse of the TIP incidences in Southern Nigeria

Centrographic analysis was carried out on the number of incidences (victims) across the sources identified using centrographic analysis. The weighted mean centre for the total number of incidences across the region can be found at Umuahia North in Abia State (Figure 5). This is an indication that the centre of gravity for the incidence of TIP across the regions is located at Umuahia North in Abia State (Figure 5). Furthermore, the weighted standard deviation (one standard deviation) ellipse was also computed. This is

a more robust measure of directional trend or central tendency in comparison to mean or median. The result as shown in Figure 5 indicated at one standard deviation, the directional distribution of the total TIP incidences collated is orientated towards the South eastern regions at an angle of 118.72 degrees. These distributional trends show coverage of about 10 States and represent axes which about 68% of the incidences are likely to fall. This piece of information is very important for policy in relation to publicity campaigns, policing and management of problems of trafficking.

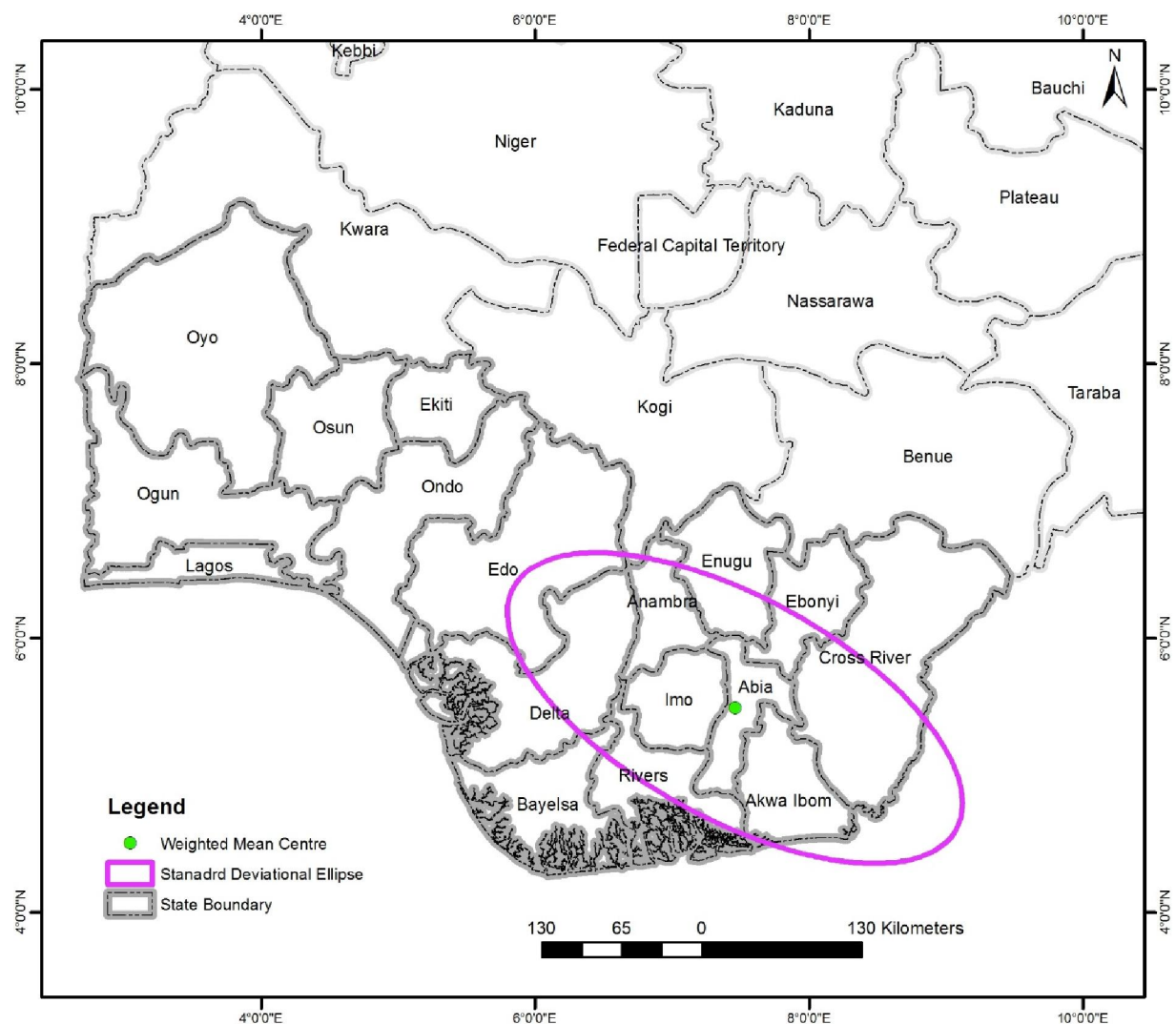


Figure 5: Weighted mean centre and standard deviational ellipse of the TIP incidences

Dispersion Analysis of Incidences of TIP in Southern Nigeria using Standard Distance

The use of standard distance was adopted to capture the level of compactness or dispersion of the incidences across the study area and the result is illustrated in Figure 6. This result shows that the 68% of the total number of incidences was distributed around eight states namely Anambra, Enugu, Imo, Rivers, Abia, Ebonyi, Akwa Ibom and Cross River States. This further corroborates the earlier results that these states are the major sources of TIP across the region. This also highlights the spread of the

incidences with the analysis results showing that more than half of the total incidences are spread or dispersed across these states. Furthermore, examination of the spread at 2 standard deviations shows that Edo, Delta and Bayelsa are included in this dispersion analysis as well as Kogi and Benue States which are outside the region that the present study covers (Figure 6). This implication therefore, is that if we consider more data covering these States (Kogi and Benue States) there is a likelihood that these state are also experiencing considerable amount of TIP.

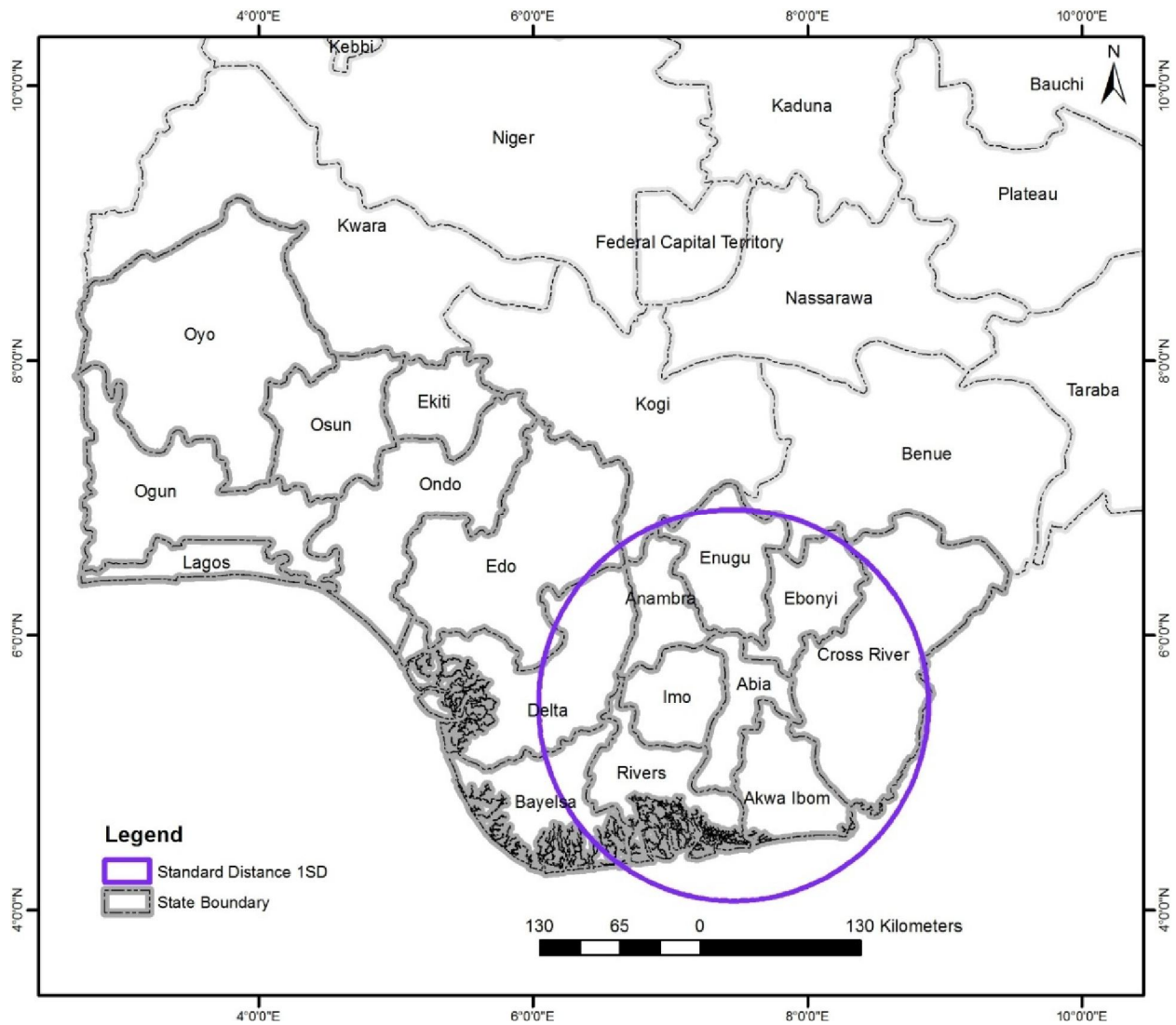


Figure 6: Dispersion of total incidence across study area at LGA level at 1 and 2 standard deviations

Hotspots of Human Trafficking in Southern Nigeria

The analysis of hot and cold spots for TIP at the LGA level is presented in Figure 7 whereby it was observed that Mbo, Udung Uko, Oron and Okobo LGAs in Akwa Ibom State and Abi LGA in Cross River State were found as very serious hot spots for TIP in the study area and they reflected statistical

significance with a 99% confidence level. Ikono, Obot Akara and Ibiono Ibom LGAs in Akwa Ibom State and Odukpani in Cross River State were hotspots having significant level of 95% confidence level. Furthermore, Uyo and Itu LGAs in Akwa Ibom State and Yakurr and Obubra LGAs in Cross River were hotspots with significance of 90% confidence level.

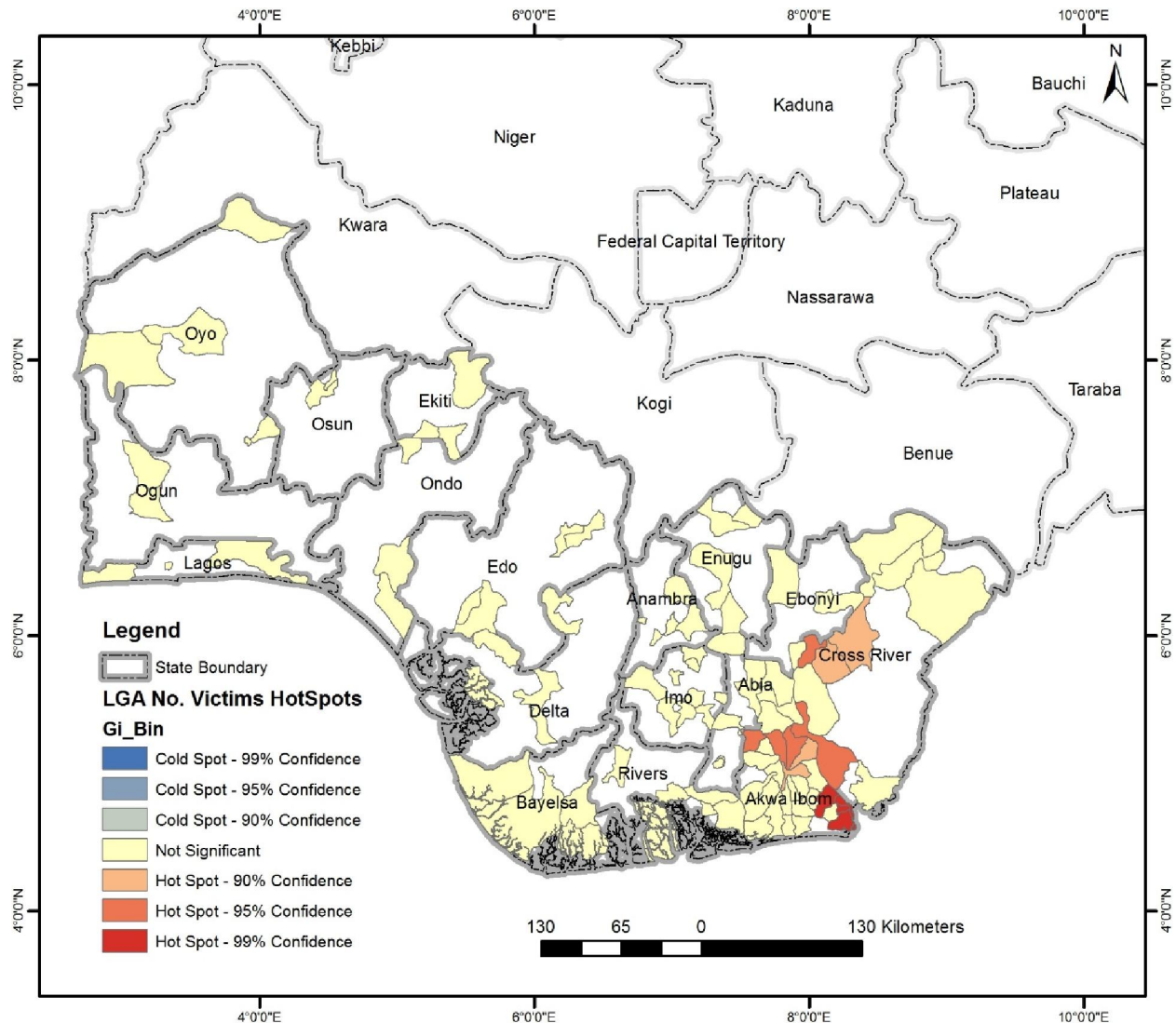


Figure 7: Hotspots analysis for TIP Incidences at the LGA Level

4. Discussion

The examination of the spread provides clearer picture of where the axis and spread are concentrated. For example, the result from the standard directional ellipse shows the directional trend of south-eastern orientation while the weighted mean centre was identified to be in Umuahia North LGA. Further to this, the examination of the standard distance around the geometric mean shows that at two standard deviations Benue and Kogi States that were not captured by the data used for this research are clearly within the region of influence of these TIP activities. In agreement with Tobler's First Law, the source TIP shows that there is clustering in the Southern States (Tobler, 1970). A distance of about 23km average distance was recorded across the sources. This presents an opportunity for enforcement and

awareness initiatives as well as for development policy initiatives for such area since they are clustered. Furthermore, while the nearest neighbour analysis reveals opportunity for regional initiatives, the high-low clusters analysis presents opportunity for local or state level initiative to address the problem of TIP. The high-high clusters were found in Akwa-Ibom State (Ibiono Ibom, Uruan, Oron and Mbo) while one low-high cluster was found in Cross River State (Akpabuyo). These locations represent focus area for initiatives, especially the high-high clusters which signify hotspots for TIP that can affect other surrounding sources. The total number of persons trafficked was about 460 persons who were gotten from Southern States of Nigeria with higher proportion from Rivers, Imo, Abia, Cross River and Akwa Ibom State. Akwa Ibom and Cross Rivers were

also reported in UNESCO (2006) as major sources of human trafficking; though Delta, Edo, Imo, Ebonyi, Delta, Ogun, Oyo and Lagos were also mentioned. Findings showed that proportion of population living with poverty was relatively high in Cross Rivers State (23.2%), Akwa Ibom State (10.9%), Bayelsa (12.3%) and Oyo State (10.9%). Also proportion of population living with extreme poverty was high in Cross River (28.1%), Akwa Ibom (11.6%) and Bayelsa (12.2%). Incidentally, the number of victims was higher in Cross River and Akwa Ibom States. This may be attributed to the high proportion of people living with poverty and extreme poverty in Akwa Ibom and Cross River States. High number of victims in the rural sources could be attributed to low standard of living in the rural settings which has been helping the traffickers to deceive the guardians or parents of the victim on employment opportunities elsewhere. UNESCO (2006) concluded that poverty is the most visible cause of the vulnerability of women and children to trafficking in Nigeria. Egwu et al. (2014) also reported that poverty level of households is an important factor that enhances child trafficking in Nigeria.

Conclusion and Recommendations

The study has shown the distribution pattern of TIPs sources to be random and Cross River and Akwa Ibom States experienced higher incidences of TIP between 2010 and 2014 with Mbo, Udung Uko, Oron, Okobo, Ikono, Obot Akara, Ibiono Ibom, Uyo and Itu LGAs in Akwa Ibom State; and Abi, Odukpani, Yakurr and Obubra LGAs in Cross River State found as hotspots for TIP in the Southern Nigeria. The study therefore recommended that the border should be effectively controlled and handled by NAPTIP, Nigeria Immigration Service and Nigeria Custom; the human rights standards which most countries have endorsed via various international human rights instruments which will enhance the protection of the rights of the victims of trafficking in person should be established and implemented; migration laws and policies should be flexible in line with the aspirations of international instruments which seek to promote freedom of movement; and poverty alleviation programmes should be put in place.

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