

STATISTICAL APPRAISAL OF CRIME RATE IN NIGERIA

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ABSTRACT

This work looked at crime rate in Nigeria. Data was collected from secondary source was analyzed with regression analysis, analysis of variance and chi-square (χ^2) test. The study found out the crime rate is on the increase and there is no significant difference in crime rate among the state in Nigeria. The developed model for crime in Nigeria is $Y = 38741.2 + 2447.7X$.

Keyword: Crime, Model, Insecurity.

INTRODUCTION

Our country Nigeria is becoming unsafe due to the high rate of crime reported on a daily basis. This crime has continued to manifest in various forms such as; Boko Haram killings, armed robbery, kidnapping, abduction, rape, hostage taking and assassinations. The most concern is the manner these crimes are perpetrated. The culprits do not discriminate as to place, age, sex, status and circumstances in committing these evils and these has lead to fear among the citizens of this country.

This problem of insecurity of life and property in the country if not checked will spiel down to the economic and social development of the nation and damage our reputation abroad. It is the primary responsibility of the government to protect life and property. Therefore the government at all levels should as a matter of urgency address this problem now.

The consequences of crimes on the economy, the individual and social life are enormous. The economic growth of the nation will continue to decrease because the flight of foreigners results in reduction of investments, individuals become traumatized and these problems will lead to a reduction in the gross domestic product (GDP) of the nation.

Objectives of the Study

This paper is aimed at achieving the following

- (1) To ascertain the crime position
- (2) To determine the rate of increase in crime and build a model for future determination of crime rate.
- (3) To determine whether crime rate depends on age group, and sex.
- (4) To determine if there is any significant difference in crime rate in the states in Nigeria.

Hypothesis

H₀: There is no significant increase in crime rate.

H₁: There is significant increase in crime rate.

H₀: There is no significant difference in crime rate among the states.

H₁: There is significant difference in crime rate among the states.

H₀: Crime rate is independent of the age group, sex and type of imprisonment.

H₁: Crime rate is dependent of the age group, sex and type of imprisonment.

REVIEW OF RELATED LITERATURE

Adegbe and Fakile (2012), evaluate forensic accounting as antidote to economic and financial crime in Nigeria. The paper is empirical with the testing of four hypotheses and the result shows that forensic accounting is a financial strategy to curb and resolve economic and financial crimes in Nigeria economy.

Aurangzeb (2012) investigated the determinants of crime in the context of Pakistan. The result showed that household consumption, GDP, population, literacy, wage rate have strong positive and significant on crime while migrant in and out of Pakistan and electricity crises have weak positive and significant on crime.

Tenibiaje (2010) examined the differences in the personality traits of prison inmates and non- inmates and development of crime. The result showed that the inmates scored significantly high than the non-inmates in extroversion, neuroticism and psychotics dimensions.

Donglason (2012) studies the demographic and socio-economic determinant of crimes in Nigeria. Results indicated that lagged crime rate per capita income and population density are significant and positively correlated to all forms of crimes.

METHODOLOGY

The data employed in the analysis of this work was secondary data which was collected from National Bureau of Statistics (NBS). The data was analyze with regression, Analysis of Variance (ANOVA) and chi-square (χ^2) test.

Regression Analysis

The least square method is a procedure for finding the estimated regression equation of

$$Y = b_0 + b_1 \cdot x$$

The normal equation for the method of least square is given by

$$n b_0 + b_1 \sum x = \sum y$$

$$b_1 \sum x + b_1 \sum x^2 = \sum xy$$

Solving this equation with matrix we have

$$b_1 = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2} \quad \text{and}$$

$$b_0 = \bar{Y} - b_1 \bar{x}$$

The Analysis of Variance (ANOVA) Result is given by

Source of Variation	Sum of Square	Degree of Freedom	Mean Square	Variance Ratio
Regression	SSR	1	$MSR = \frac{SSR}{1}$	$F = \frac{MSR}{MSE}$
Error	SSE	$n - 2$	$MSE = \frac{SSE}{n - 2}$	
Total	SST	$n - 1$		

Where;

SST = sum of squares for total

SSR = sum of square for Regression

SSE = sum of squares for Error.

Analysis of Variance

This is a technique that considers the problem of deciding whether observed differences among more than two sample mean can be attributed to chance or whether there are real differences among the means of the populations sampled.

Chi –Square (χ^2) Test of Independence

This test is used in accessing whether one factor depends on the other or not.

The chi-square test statistic is given by

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \left(\frac{O_{ij} - E_{ij}}{E_{ij}} \right)^2$$

Where O_{ij} is the actual observed frequency of ij^{th} cell,

E_{ij} is the calculated expected frequency of the ij^{th} cell.

The expected frequency of any cell in $r \times c$ contingency take is given by

$$R_{ij} = \frac{R_i \times C_{ij}}{n}$$

DATA PRESENTATION

Data were collected from report of National Bureau of Statistics (NBS) as shown below.

Table 1. Inmate Population and Recidivism

Year	Male Inmate Recidivism	Female Inmate Recidivism	All Sex Male Inmate & Recidivism
2007	153255	6163	159418
2008	123464	7320	130784
2009	149187	7164	156351
2010	165603	6765	172368
2011	124463	7069	131532

Source. National Bureau of Statistics (NBS)

Table 2. Prison Admission by Age Group

Status	2007	2008	2009	2010	2011
Under 16 Years	2,639	175	1,704	1,642	818
16-20 years	16,236	25,337	23,743	21,911	10,103
21-25 years	57,736	28,069	27,468	26,647	14,835
26-50 years	80,134	73,071	98,263	118,140	102,330
51 and above	2,673	4,132	5,173	3,541	3,446
Total	159,418	130,784	156,351	171,881	131,532

Source. National Bureau of Statistics (NBS)

Table 3. Prison Admission by Type of Imprisonment

Terms of Imprisonment	2007	2008	2009	2010	2011
Remand/ Awaiting Trial	86,525	82,125	80,664	88,696	66,920
Short-Term	38,817	20,992	40,105	36,703	22,564
Long-Term	29,000	25,826	32,169	44,887	35,123
Condemned	16	92	31	56	72
Detainees	276	314	1,754	471	2,181
Others	4,784	1,435	1,628	1,064	4,672
Total	159,418	130,784	156,351	171,881	131,532

Source. National Bureau of Statistics (NBS)

DATA ANALYSIS

To Test if there is Significant Increase in Crime Rate in Nigeria

Hypothesis

H_0 : There is no significant increase in crime rate.

H_1 : There is significant increase in crime rate.

Test Statistic

From the data analyzed with SPSS the $F_{cal} = 34.742$.

Critical Value

From the F-table, the tabulated value at 5% level of significance is 10.1.

Conclusion. Since the $F_{cal} = 34.742 > 10.1 = F_{tab}$, we reject the null hypothesis and conclude that there is significant increase in crime rate in Nigeria.

To Test Whether There is Significant Difference in Crime Committed Among the Various States in Nigeria

Hypothesis

H_0 : There is no significant difference in crime among the various states.

H_1 : There is significance difference in crime rate among the various states.

Test Statistic

From the ANOVA conducted with SPSS the $F_{cal} = 1.599$.

Critical Value: From the f-table the tabulated is 2.93 at 5% level of significance.

Conclusion: Since $F_{cal} = 1.599 < 2.93 = f_{tab}$ we accept the null hypothesis (H_0) and conclude that there is no significant difference in crimes committed in various states in Nigeria.

Model for Crime Rate in Nigeria

The estimated linear model is

$$Y = b_0 + b_1X$$

$$Y = 38741.2 + 2447.7X$$

The slope of the estimated regression $b_1 = 2447.7$ is positive which indicates that as years passes the crime rate increases.

To Test Whether Crime Rate Depend of Sex, Age Group and Type of Imprisonment

From the data analyses with statistical package the results are stated below.

Table 4: Statistical Results

	Sex	Age Group	Type of Imprisonment
Chi-square(χ^2) calculated	851.819	49607.711	20918.059
P – value	0.000	0.0000	0.0000
Chi –square(χ^2) tabulated	9.49	26.3	31.4

Statement of Hypothesis

H_0 : Crime rate is independent of sex, age group and type of imprisonment.

H_1 : Crime rate is dependent on sex, age group and type of imprisonment.

Conclusion. From the analysis, we conclude that crime in Nigeria depends on sex, age group and type of imprisonment.

DISCUSSION OF RESULTS

From the study conducted with regression analysis, we observed that crime rate increases by 2447.7 persons in each state in Nigeria as the year passes. If this situation is not put under control it will spell doom to the economic and social development of the nation. From the result also there is no significant difference in crime rate in various states of the federation. This means that; there is no state in Nigeria that is exempted from crime.

Nigeria crime rate depends on sex, age group and type of imprisonment. On sex, crime is been committed most by males as the rate is 2388 persons and female is 59.7 persons. The age group that is more involved in crime is between 26–50 years followed by 21–25 years. The type of imprisonment is also considered in the analysis and it was observed that a lot of persons in prison are remanded and awaiting trial. This situation is not good as Justice delayed is justice denied.

RESULTS

The overall data analyzed in the paper reveal the following

- (1) From the regression analysis the trend $b_1 = 2447.7$ indicated a positive increase in crime rate.
- (2) The f-test showed that there is significant increase in crime rate in Nigeria.
- (3) There is no significant different in crimes committed in various states of the federation.
- (4) Crime rate in Nigeria depends on sex, age group and type of imprisonment.

CONCLUSION

From the analysis, it was deduced that crime in Nigeria has a positive growth over the years and if not checked more persons will be involved. The consequences of such increase on the economy and to the citizens of the nation are obvious. The researcher therefore calls for a people-oriented government with compassion and justice as bases for peace and security.

RECOMMENDATION

The researcher recommended the followings:

- (1) Government in various states of the federation should put up structures to positively keep the citizens busy especially our youths.
- (2) The government should review its anti-crime strategies and sanitize the Nigeria Police Force and other security agencies.
- (3) The government should partner with the private sector and encourage them to build industries that will help to gainfully employ its youths.
- (4) Parents and school administrators should take moral instruction seriously for their children so as to minimize criminal tendencies.

REFERENCE

- Adeghie, F.F. and Fakile A.S. (2012), Economic and financial Crime in Nigeria: Forensic Accounting as Antidote. *Journal of Art and Social Science* Vol. 6 No.1, 2012.
- Aurangrel, (2012), Determinants of Crime in Pakistan, *Universal Journal of Management and Social Science* Vol. 2, No. 9, September 2012.
- Donglason, G.O. (2012), Demographic and Social Economic Determinants of Crime in Nigeria. *Journal of Applied Business and Economics*.
- Tenibiaje, D.J. (2010), Personality and Development of Crime in Nigeria Current Research *Journal of Social Science* 2(4) 214.219, 2010.

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