ISSN: 2141-1670

(9)

SOKOTO
Journal of Management Studies

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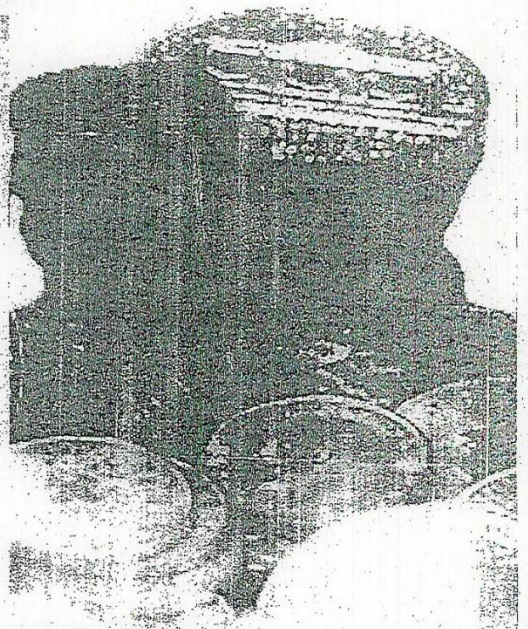
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A Bi-annual Publication of the Faculty of Management Sciences, Usmanu Danfodiyo University, Sokoto-Nigeria

PUBLISHED BY
THE FACULTY OF MANAGEMENT SCIENCES
Usmanu Danfodiyo University, Sokoto - Nigeria

Sokoto Journal of Management Studies, Vol. 8 (1): April, 2015

SHORT-RUN DYNAMICS BETWEEN UNEMPLOYMENT AND CRIME: EVIDENCE FROM NIGERIA USING VAR

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Abstract

This study is designed to investigate the relationship between unemployment, internal security and various categories of crime such as total crime, minor crime, minor offence and serious crime in Nigeria. The study covers the period of 1970-2010. The stationary properties of the time series data are examined by using Philip Peron test. Pair-wise Granger Causality tests are applied to find out short-run dynamic relationship among the variables using the vector autoregressive model (VAR).The findings of the diagnostic tests provide evidence of the existence of short-run dynamic relationship among unemployment and total crime cum subcategories of crime in Nigeria. The causality results show that unemployment rate and minor crime rate do granger cause internal security and there is unidirectional causality between them. The paper suggested amongst others that policy makers should address adequately the problem of unemployment by creating and expanding job facilities, equipping and fortifying crime preventing agencies and the direction of the resources of the country to productive sectors of the economy.

Keywords: Unemployment, Total crime, Minor crime, Minor offences and serious crime

Introduction

The relationship between unemployment and crime seems obvious to most people. The problem of unemployment, criminal and violent behavior has posed a great challenge to both developed and developing countries. In spite of the fact that crime has resulted not only to loss of property, lives, misery and also severe mental anguish, they also discourage entrepreneurial activities that cause growth. Both crime and unemployment have remained issues that continue to receive

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attention in developing countries, especially those in Africa where there is high-level of unemployment with stagnated growth. High levels of unemployment can dramatically increase crime. However, high rate of crime can undermine the security of property rights and confidence in the rule of law. In the work of Becker (1968), 'Economic Theory of Crime', the study revealed that unemployed people are deprived of legal income and thus they tend to derive some income from illegal activities. Crime includes not only some forms of corruption but also a wide range of other activities such as murder, manslaughter, felony, armed robbery, extortion, burglary, larceny, rape, arson, perjury, drug possession, gambling, tax evasion, breach of peace and so on. In recent times, another wave of crime has plagued the north-eastern part of Nigeria through the activities of the so called 'gunmen' and more prominently, the 'Boko Haram' insurgency that has claimed several lives and properties. It can be infer that, the increasing spate of sectarian insurrection, crime and terrorism, which have been experienced in the past few years in Nigeria, may not be unconnected with the alarming rate of unemployment in the country.

By and large, the grave consequences of crime are no longer news. Intuitively, unemployment and crime should have a negative impact on economic growth. This is because some models of crime suggest that the unemployed and individuals with low wages face a strong urge to commit Crime (Lee, 2002; Gumus, 2004 and Coomer, 2003). On a similar note, Agell, Lindh, and Ohlsson (1997) study found strong positive relationship between unemployment and crime.

Today, Nigeria is plagued by a unique combination of massive unemployment and large scale of criminal activities coupled with fluctuating economic growth. The question is what does it take to make significant stride on the elimination of large-scale crime and massive unemployment in the country? In view of the unfolding reality, coupled with the protracted debate on the issue of crime and unemployment, this paper, which draws heavily from theoretical foundations, examines the causal relationship between unemployment and various categories of criminal activities to ascertain the implications of the linkages for the design of credible policy measures for the elimination of the menace in Nigeria. The rest of the paper is structured as follows: Following this introduction is Section 2, which dwells on the eclectic review of some previous empirical studies. Section 3 describes the methodology, description of the data, the empirical model and hypothesis of the study. The empirical results of the study are presented in Section

4. Section 5 draws the conclusion with commentary on the policy implications of these findings, recommendations and possible improvements that could be made to the analysis.

Theoretical and Conceptual Issues

The theoretical foundations on the relationship between crime and unemployment vary and are inconsistent. Some studies argue that there exists a positive relationship between crime and unemployment while some studies found negative relationship, still, some revealed mixed results, or insignificant relationship. Disparity in the possible explanations for cross country differences may be adduced to the fact that definition of crime is whatever the state deems a crime to be. As a result, what is considered a crime in one country is not necessarily considered so in other cross-country data, time series, and panel, aggregate and regional empirical studies. For instance, Thornberry and Christenson (1984) revealed that unemployment has significant instantaneous effects on crime, while crime has significant but lagged effects on unemployment. Similarly, Land, Cantor and Russell (1995) found a lagged positive relationship between unemployment and crime in post-war United States. On the Nigerian scenario, Omotor (2009) applying the error correction model, Granger causality technique and dynamic error correction method to analyze the long run causality between security or crime and discomfort noted that unemployment is the most important determinant of crime in Nigeria. In the same vein, Egunjobi (2007) another Nigerian study, included the lagged error correction term and stressed that a positive long run equilibrium relationship exists between unemployment and crime series. Egunjobi (2007) result added that unemployment unidirectional Granger causes crime in Nigeria. Gottfredson and Hirschi (1990) however, argued that the relationship between unemployment and crime is very insignificant, while Pyle and Deadman (1994) thought that unemployment may be less important to crime than other indicators of economic activity.

As for the relationship between unemployment and crime, many of the results are mixed. For example, Papps and Winkelmann (1999) revealed some evidence of significant effects of unemployment on crime both for total crime and for some subcategories of crime in the analysis that covered sixteen regions over the period of 1984 to 1996 in New Zealand. Furthermore, Fajnzylber, Lederman and Loayza (2002) using simple correlations, OLS regressions and dynamic Generalized Method of Moments (GMM) for panel data showed that both income inequality and crime rate are positively related.

In a related study, Lee (2002) examines the relationship between labour market conditions and various crime series in three Asia-Pacific countries; Australia, Japan and South Korea. In his study, Johansen maximum likelihood cointegration and Granger causality tests were applied to time series data to see the existence of long run equilibrium or a causal link between unemployment and crime variables. The results of the study provide a strong support for a long-run equilibrium relationship between unemployment and various crime series.

In the same line of argument, Coomer (2003) undertook a study to examine the influence of macroeconomic factors on crime. The study applied OLS regression to find out the results. In the analysis, the study included unemployment, poverty, prison population, and high school and college education level and income disparities as independent variables and run the regression to get the relationship. He then dropped the insignificant variables and rerun the regression and found that unemployment, inflation and poverty influence crime positively.

On his own part, Gumus (2004) uses large US city data to empirically investigate the determinants of crime in urban areas using OLS regression technique. The results indicate that income inequality, per capita income, and presence of black population are all important determinants of crime in urban areas. The study added that unemployment rate and police expenditures have also important effects in the determination of crime.

In a slightly different manner, Teles (2004) investigates the effects of macroeconomic policies on crime. The study points out that those monetary and fiscal policies have an impact on crime. Results of the study show that fiscal policies affect crime through government spending and monetary policy affects crime through inflation. In a related study, Gilani, Rehman and Gill (2009) in the study on Pakistan using cointegration causality analysis found that there is unidirectional causality that runs from unemployment, poverty and inflation to crime. Their study also observed that both unemployment and inflation cause poverty in Pakistan.

In addition, Loto (2011) opined that the result of national security on economic growth in Nigeria is positive but not statistically significant. This implies that expenditure on national security does not contribute meaningfully to economic growth in Nigeria. Biswas and Ram (1986) drew the same conclusion. Also,

Chiricos (1987) finds that unemployment has a statistically significant positive effect on property crime in 40 per cent of the studies, while the effect on violence is only statistically and significantly positive in 22 per cent of the study.

In a related study, Weatherburn, Lind, and Ku (2001) found no relationship between unemployment and crime in a study of the effect of an Australian recession on 'break, enter and steal and motor vehicle theft'. In addition, there are significant numbers of studies linking unemployment to crime such as Allen (1996), Field (1999), Chamlin and Cochram (2000), among others. However, the most sustained reformulation of the theory of unemployment and crime in the contemporary literature is in the work of Land and his co-authors (Land, McCall and, Cohen 1990; Cohen and Land, 1987; Land, Cantor and Russell, 1992). This work construes of unemployment as having positive effects on crime through increasing criminal motivations at the same time as it has negative effects by reducing criminal opportunities (victim-target availability). Against this background, this paper would attempt to establish a link unemployment rate to crime or violent behaviours in Nigeria.

Methodology and sources of Data

Annual data for the aggregated crime and disaggregated subcategories of crime and unemployment rate for the corresponding period (1970- 2010) is obtained from annual statistical publications of the National Bureau of Statistics (NBS). NBS classified crime as total crimes, serious crimes, minor crimes and minor offences. The variables captured in the model are as follows: Dependent Variable - Unemployment rate, used as a proxy for unemployment as in the work of Papps and Winkelmann (1999), McDowell and Webb (1995) and Small and Lewis (1996). The selected measure of unemployment was the number of people registered with the Federal Ministry of Labour and Productivity. Unemployment rate was obtained by division with a population estimate. Independent Variables are Total crimes, minor crimes, minor offences, serious crimes as well as internal security proxy for expenditure on Police, following the work of Papps and Winkelmann (1999). However, there is a substantial amount of heterogeneity in overall crime rate aggregates. While it would be desirable to consider more homogeneous categories, such data are not available for this study. Explanatory variables such as expenditure on internal security, proxy for expenditure on Police was obtained from Statistical Bulletin of the Central Bank of Nigeria of various issues. Also, the study has adopted Vector autoregressive (VAR) model to ascertain the short run dynamic relationship between unemployment and crime

rate in Nigeria within the period of study. The analysis was conducted using E-view computer package (version 7.0).

The Model and Hypothesis of the Study

The study has constructed this model in line with the objective of the paper which is to identify and examine the short run dynamic relationship between unemployment and crime rate in Nigeria.

UNEMP = F (TCRM, MNCRM, INTSEC, MNOFF, SRCRM) ..... (1)

Taking the natural logarithmic of both sides of equation 1

$UNEMP_t = \beta_0+\beta_1 TCRM_t+\beta_2 MNCRM_t+$
$\beta_3 INTSEC_t+\beta_4 MNOFF_t+\beta_5 SRCRM_t+\Sigma$.....(2)

Where:

UNEMP= the dependent variable Unemployment rate:

β_o = Constant parameter
β_1 = Coefficient of TCRM
β_2 = Coefficient of MNCRM
$\beta 3$ = Coefficient of INTSEC
β_4 = Coefficient of MNOFF
β_5 = Coefficient of SRCRM

TCRM= Total Crime Rate
INTSEC= Internal Security Proxy by the Expenditure on police.
MNCRM= Minor Crime
MNOFF= Minor Offence
SRCRM= Serious Crime

If series variables are stationary and bidirectional relationship is expected, the vector autoregressive (VAR) model is as follows:

$UNEMP_t = B_o+\beta_1 TCRM_{t-1}+\beta_2 MNCRM_{t-1}+\beta_3 INTSEC_{t-1}+\beta_4 MNOFF_{t-1}+\beta_5 SRCRM_{t-1}+\mu_{t-1}$... (2)

a priori expectations of the model $\beta o>O$, $\beta 1<O$, $\beta 2<O$, $\beta 3>O$, $\beta 4<O$, $\beta 5>O$.

Hypothesis of the Study

H_0: There is no significant causal relationship between Unemployment and Crime in Nigeria

The Empirical Results

Time Series Properties of Variables

Table 1: Unit Root Test

	PHILIP PERON STATISTIC				
	Level	Prob	1ST Diff.	Prob.	Integration
UEMP	-2.86677	0.059	-6.88413	0.0000	I(1)
INTSEC	1.520623	0.9991	-6.34168	0.0000	I(1)
MNCRM	-2.3448	0.164	-7.3444	0.0000	I(1)
MNOFF	-2.01144	0.2809	-4.27441	0.0018	I(1)
SRCRM	-3.49269	0.0138	-9.8949	0.0000	I(0)
TCRM	-3.22139	0.0266	-10.6039	0.0000	I(0)

Source: Computation using E-Views 7.0 software by the researcher

The UEMP (unemployment) model specified in section three consists of six variables, namely unemployment rate (UEMP), internal security (INTSEC), minor crime (MNCRM), minor offences (MNOFF), serious crime (SRCRM) and total crime (TCRM). To test for stationarity of the variables, the Philip Peron unit root test was conducted on each series. Accordingly, the null hypothesis in each case is that there is a unit root in each series that is, each variable is non-stationary. The result is presented in Table 1.The result shows that the variables are not integrated of the same order. Four of the variables are integrated of order one while two are stationary at their levels. This implies that the condition for cointegration is not met by the series. To support this assertion, the Johansen cointegration test was conducted. The result of the Trace statistics confirmed that there is no cointegrating relationship among the integrated variables. This result is presented in Table 2.

Johansen Cointegration Test

Table 2: Unrestricted Cointegration Rank Test (Trace)

No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Crit. Value	Prob.**
None	0.679672	88.46142	103.8473	0.3321
At most 1	0.407362	47.47865	76.97277	0.9135
At most 2	0.287472	28.64446	54.07904	0.9411
At most 3	0.270738	16.44274	35.19275	0.9081
At most 4	0.105111	5.076749	20.26184	0.9798
At most 5	0.029521	1.07874	9.164546	0.9411

Source: Computation using E-Views 7.0 software by the researcher
Trace test indicates no cointegration at the 0.05 level
** denotes rejection of the hypothesis at the 0.05 level*
***MacKinnon-Haug-Michelis (1999) p-values*

Since there is no long run equilibrium relationship among the variables we resort to the short-run dynamic relationship using the Vector Autoregression. Also, it is necessary that the direction of causality among the variables be first established. A pair-wise causality test was conducted following the Granger method. The result of this is presented in Table 3

Pair wise Granger Causality Test

Table 3: Pair wise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.	Decision
INTSEC does not Granger Cause UEMP	36	1.60656	0.2168	Accept
UEMP does not Granger Cause INTSEC		4.77543	0.0156	Reject
MNCRM does not Granger Cause UEMP	36	0.01541	0.9847	Accept
UEMP does not Granger Cause MNCRM		1.93357	0.1617	Accept
MNOFF does not Granger Cause UEMP	36	0.16119	0.8518	Accept
UEMP does not Granger Cause MNOFF		0.47484	0.6264	Accept
SRCM does not Granger Cause UEMP	36	0.31444	0.7325	Accept
UEMP does not Granger Cause SRCM		0.04619	0.9549	Accept
TCRM does not Granger Cause UEMP	36	0.4753	0.6262	Accept

UEMP does not Granger Cause TCRM		0.01068	0.9894	Accept
MNCRM does not Granger Cause INTSEC	36	4.51352	0.019	Reject
INTSEC does not Granger Cause MNCRM		0.92685	0.4065	Accept
MNOFF does not Granger Cause INTSEC	36	0.28156	0.7565	Accept
INTSEC does not Granger Cause MNOFF		0.65638	0.5258	Accept
SRCM does not Granger Cause INTSEC	36	0.08877	0.9153	Accept
INTSEC does not Granger Cause SRCM		0.44256	0.6464	Accept
TCRM does not Granger Cause INTSEC	36	0.36245	0.6989	Accept
INTSEC does not Granger Cause TCRM		0.3912	0.6795	Accept
MNOFF does not Granger Cause MNCRM	36	0.04648	0.9547	Accept
MNCRM does not Granger Cause MNOFF		0.0949	0.9097	Accept
SRCM does not Granger Cause MNCRM	36	1.05135	0.3616	Accept
MNCRM does not Granger Cause SRCM		0.30991	0.7358	Accept

Source: Computation using E-Views 7.0 software by the researcher

The result of the pair wise Granger causality test is shown in Table 3. The test is sensitive to the lag length, the choice of lag was 2, this made using the iterative method, that is gradually increasing the lag length until there is no further improvement in the decision making (Gujarati and Sanjeetha, 2005). The idea behind causality test is that, although regression analysis deals with the dependence of one variable on the other variable, it does not necessarily imply causation. In other words, the existence of a relationship of either the dynamic or equilibrium, between variables does not prove causality or the direction of influence. Thus, Table 3 presents the direction of influence between the variables in a Pair wise manner. The decision whether to reject or accept the null hypothesis is made based on the probability of the F – statistics. Wherever the null hypothesis is rejected, it implies the acceptance of the alternative hypothesis.

Short-run Shock Transmission Analysis

Having established that unemployment rate and minor crime rate do Granger cause internal security and that there is uni-directional causality between them

respectively, there is need to estimate the magnitude of impact in the relationships. The next analysis is the short-run shock transmission between the variables. This analysis is done using the variance decomposition and impulse response which are measures of short-run dynamics of the VAR. The shock transmission is discussed for the variables that show causality with the dependent variable. That is, for the unidirectional causality, the magnitudes of the impact of the three variables; UNEMP, MNCRM and INTSEC on one another are discussed.

Impulse Response Functions of UNEMP, INTSEC and MNCRM

Impulse response function is a method of analyzing the short run dynamics of relationships among a set of endogenous variables. Table 5 presents the results. It traces the effect of one standard deviation shock to one of the innovations on current and future values of the endogenous variables. For example, a shock to one variable say MNCRM, directly affects the variable, and is also transmitted to all of the endogenous variables through the dynamic structure of the VAR. It is another way of saying how a particular variable does respond to shocks in other variables. Granger causality may not tell us the complete story about the interactions between the variables of a system. In applied work, it is often of interest to know the response of one variable to an impulse in another variable in a system that involves a number of further variables.

Of course if there is a reaction of one variable to an impulse in another variable we may call the latter causal for the former, this type of impulse response is called dynamic multiplier. Since the variables in this study have different scales; the study considered innovation of one standard deviation rather than unit shocks. The impulse responses are zero if one of the variables does not Granger cause the other variables taken as a group.

Table 5: Impulse Response functions of UEMP, INTSEC and MNCRM

Response of UEMP:

Period	UEMP	INTSEC	MNCRM	MNOFF	SRCM	TCRM
1	3.237702	0	0	0	0	0
2	2.024135	0.899553	-0.03708	0.443592	0.321688	-0.44815
3	1.088328	0.559653	0.195773	0.255754	-0.16042	-0.71239
4	0.428719	0.366866	-0.08785	0.149965	-0.14499	-0.38397
5	-0.04984	0.267473	-0.14415	-0.06943	-0.31162	-0.22125

6	-0.10536	0.193164	-0.09027	-0.22715	-0.23296	-0.10559
7	-0.07527	0.255514	-0.10776	-0.34861	-0.18139	-0.06377
8	-0.00939	0.306131	-0.07539	-0.40934	-0.1238	-0.05763
9	0.068663	0.345028	-0.06312	-0.4237	-0.07502	-0.06998
10	0.116805	0.371517	-0.07112	-0.40504	-0.04362	-0.08121

Response of INTSEC:

Period	UEMP	INTSEC	MNCRM	MNOFF	SRCM	TCRM
1	-1159.66	4112.937	0	0	0	0
2	1808.781	3243.931	707.8025	-1058.57	-966.335	-387.46
3	2245.199	4580.097	-1641.36	-1158.68	-714.44	-770.042
4	1693.912	5219.097	-2674.6	-1767.72	-1314.89	-1281.71
5	2044.497	5433.377	-3194.02	-2447.57	-1025.66	-1257.7
6	2389.658	5927.316	-3618.92	-3223.73	-843.354	-1235.94
7	2843.424	6255.267	-3578.37	-3859.04	-550.564	-1277.34
8	3293.077	6504.691	-3494.75	-4292.58	-256.642	-1362.69
9	3573.418	6633.412	-3386.11	-4506.8	-26.4721	-1434.3
10	3732.433	6597.972	-3244.02	-4538.32	149.8841	-1480.17

Response of MNCRM:

Period	UEMP	INTSEC	MNCRM	MNOFF	SRCM	TCRM
1	-622.085	-4111.71	16797.92	0	0	0
2	2371.531	-4754.01	13048.67	681.0509	-274.502	-717.515
3	-3952.53	-2877.21	7363.313	2256.16	-2751.46	-718.742
4	-6228.86	-4318.04	5985.926	2586.606	-3845.14	-587.345
5	-6219.94	-3940.5	3299.872	2185.287	-3478.89	306.7505
6	-5787.88	-2855.61	1959.673	1153.073	-3352.84	685.8516
7	-4296.83	-1812.92	1468.282	82.98355	-2690.85	654.9505
8	-2907.14	-499.161	834.3583	-829.657	-2115.81	426.4041
9	-1812.95	577.9417	437.3629	-1499	-1674.07	130.718
10	-898.75	1386.964	88.47311	-1936.66	-1291.22	-138.417

Source: Computation using E-Views 7.0 software by the researcher

In Table 5, it is revealed that initially UNEMP, INTSEC and MNCRM show no response to the shocks in other variables except their own lags. In the case of mutual shocks UNEMP responded positively (an increase) to shocks in INTSEC. Internal security responded positively to unemployment, that is a shock in unemployment leads to extra expenditure to maintain internal security. Also,

minor crime rate responds negatively to shocks in unemployment and internal security. That is, an increase in unemployment rate worsens the rate of crime in Nigeria.

Variance Decomposition of Shocks to UNEMP, INTSEC and MNCRM

The variance decomposition in Table 6 analyses the decomposition of the shocks received by each variable to its constituent sources. It is another way of describing causes and sources of variations or shocks to the variables. The 40 years period under study is summarized into a quartile, a four year period. Variance decomposition provides a different method of depicting the system dynamics. Impulse response function traces the effects of a shock to each of the variables on one another. By contrast, variance decomposition decomposes variation in one variable into the component shocks to each of the other variables.

From Table 6, it is clear that the magnitude of shocks transmitted to UNEMP, INTSEC and MNCRM from all the variables fluctuates over the periods. The greatest of the shocks came from feedbacks from previous problems from each variable respectively. Apart from this, the paper has revealed that internal security is the major source of shocks to unemployment. It contributed about 8% of the problem of unemployment. Also, minor offences and total crimes are products of unemployment rate; Shock to internal security comes from high rate of unemployment and crime rate. However, minor crime rate is increased when there are shocks to unemployment and internal security.

Table 6: Variance Decomposition Analysis

Variance Decomposition of UEMP

Period	S.E.	UEMP	INTSEC	MNCRM	MNOFF	SRCM	TCRM
1	3.237702	100	0	0	0	0	0
2	3.986414	91.74612	5.092007	0.008652	1.238234	0.651185	1.2638
3	4.24572	87.45241	6.226559	0.220246	1.454467	0.716841	3.929475
4	4.30618	86.00512	6.778761	0.25572	1.535193	0.810214	4.614996
5	4.334613	84.89374	7.070889	0.362962	1.540772	1.316449	4.815189
6	4.354589	84.17518	7.202933	0.402615	1.79877	1.590594	4.82991
7	4.382181	83.14802	7.452491	0.458026	2.40905	1.741955	4.790455
8	4.414659	81.92959	7.824104	0.480472	3.233504	1.79506	4.737274

9	4.450506	80.63887	8.299591	0.492878	4.08799	1.794671	4.685995
10	4.487347	79.38798	8.849326	0.509941	4.83586	1.774772	4.642116

Variance Decomposition of INTSEC:

Period	S.E.	UEMP	INTSEC	MNCRM	MNOFF	SRCM	TCRM
1	4273.298	7.364416	92.63558	0	0	0	0
2	5895.873	13.28059	78.93641	1.441212	3.223585	2.686327	0.431874
3	8119.082	14.65034	73.44812	4.846866	3.736513	2.190895	1.127269
4	10472.72	11.42142	68.97983	9.435386	5.094863	2.893162	2.175339
5	12735.99	10.29973	64.84193	12.66929	7.138172	2.604801	2.44608
6	15125.37	9.798716	61.33061	14.70729	9.603654	2.157725	2.401997
7	17482.05	9.980388	58.71261	15.19904	12.06168	1.714372	2.331907
8	19782.3	10.56541	56.66425	14.99079	14.12823	1.355693	2.295637
9	21953.27	11.22863	55.14141	14.55155	15.68653	1.100966	2.290911
10	23932.06	11.88088	54.00061	14.08208	16.79581	0.930351	2.310261

Variance Decomposition of MNCRM:

Period	S.E.	UEMP	INTSEC	MNCRM	MNOFF	SRCM	TCRM
1	17305.01	0.129228	5.645497	94.22528	0	0	0
2	22338.53	1.204615	7.917028	90.66714	0.09295	0.0151	0.10317
3	24296.22	3.664809	8.094964	85.82938	0.940883	1.295242	0.174726
4	26559.41	8.567064	9.417403	76.90469	1.735834	3.179886	0.195121
5	28062.06	12.58699	10.40766	70.27194	2.16134	4.385346	0.186734
6	29086.34	15.67578	10.65142	65.86374	2.168954	5.410684	0.229414
7	29624.26	17.21545	10.64262	63.73918	2.091685	6.041027	0.270037
8	29872.07	17.87812	10.4947	62.76407	2.134263	6.442891	0.285952
9	30020.31	18.06669	10.42837	62.16695	2.362567	6.690384	0.28503
10	30156.18	17.99308	10.54615	61.60887	2.753756	6.813567	0.284575

Source: Computation using E-Views 7.0 software by the researcher

Conclusions, Policy Implications and Recommendations

The main thrust of the study is to identify and examine the causal relationship between unemployment and crime in Nigeria. The results of the study revealed that unemployment promotes crimes in Nigeria. This evidence tends to confirm earlier conclusions reached by Small and Lewis (1996) for New Zealand and

McDowell and Webb (1995). Also, the following conclusions have been drawn from the results of the analyzed data that the total crime remains significantly affected by the unemployment rate, once complicated factors are controlled. In particular, unemployment and minor crime were found to have weakened the strength of internal security in Nigeria making the government to spend more on internal security.

On the direction of causality, at 0.05 level of significance, there is a unidirectional causality running from unemployment rate (UNEMPL) to internal security (INTSEC). Also, there is a unidirectional causality running from minor crime rate (MNCRM) to internal security (INTSEC). This result of causality affirmed the proposition that unemployment causes crime. Papps and Winkelmann (1999) reached similar conclusion. The implication of this result is that unemployment and minor crime rate have weakened the strength of internal security in Nigeria making the government to spend more on internal security.

Furthermore, this study indicates several possibilities for further research. In particular, the introduction of additional regression that may explain crime, for example income equality and sex variable may alleviate any remaining omitted variable.

From the foregoing discussion, the following recommendations are suggested to prevent crimes and reduce unemployment rate in Nigeria:

a. policy makers should address adequately one of the major economic determinants of crime such as unemployment by instituting palliative measures for the unemployed and creating and expanding job facilities.
b. planning strategy should focus on social and economic justice that will minimize excessive spending on crime prevention and control.
c. Crime rate could be reduced if resources of the country are directed to the productive sectors of the economy.
d. The Nigeria Police Force, Nigeria Security and Civil Defence Corps, Economic and Financial Crime Commission, Independent Corrupt Practices Commission and other crime fighting agencies in the country should be well funded and fortified with modern hardware and communication equipment to curb crime rate in the country.

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