

Impact of Violent Conflict on Household Income in Rivers State, Nigeria



Emmanuel Nathan¹, Warlice Joel Uche²

¹Niger Delta University, Department Of Economics, Wilberforce Island, Bayelsa State, Nigeria,

²Niger Delta University, Directorate Of Consultancy, Entrepreneurship, Research And Development (Docerad), Wilberforce Island, Bayelsa State, Nigeria

ABSTRACT: This study empirically examined violent conflict and household income in Rivers state, Nigeria with secondary data sourced from various publications of World Bank Nigeria - General Household Survey, Panel 2019-2020, Wave 3 (2020). This study employed descriptive statistics, test and Granger Causality test. The empirical result showed that: the level of household expenditures on food in River State is higher than expenditures on non-food items. The result also showed that there is a bidirectional relationship between household expenditure on food and household expenditure on non-food; and a positive correlation between intensity of armed conflict and household economic in Rivers state. This study concludes that armed conflict is detrimental to household income and welfare in Rivers state. This study recommends that Nigeria president through the security agencies should intervene in the region, and community vigilante groups should be encouraged and collaborate with the government security agencies to establish sustainable peace in the region.

KEYWORDS: Violent Conflict, Household Income, Household Expenditure, Granger Causality Test

1. INTRODUCTION

Since Nigeria's declaration of independence in 1960, conflicts, violence, war, and upheaval have shaped the history of the nation. According to recent data from the National Bureau of Statistics and World Development Indicators, 63% of Nigeria's population lives below the country's official poverty line. The national Multidimensional Poverty Index (MPI) is 0.257, indicating that poor citizens of Nigeria experience just a little over one-quarter of all possible deprivations. 65% of the poor live in the North, while 35% live in the South. Additionally, it has a 52.7-year average life expectancy at birth, which is lower than the region's average of 56 years (The World Bank Group, 2016). Violence against civilians and a number of other variables such as the rise in violence during this time that decreased the country's petroleum export, are partly to blame for the short average life expectancy (Lawal 2017, p. 91). The corrupt, violent, and unaccountable nature of politics in the area is at the foundation of the epidemic of violence that has afflicted most of the Niger Delta in recent years. The availability and consumption of food in homes may decline during violent conflict. For instance, a state of conflict may actually result in lower food imports, more hazardous food production and consumption, higher food costs, lower food inventories, and lower discretionary income (Bruck, Errico & Pietrelli, 2018).

The three most visible and protracted violent conflicts that have crippled the nation's economy are those caused by Boko Haram, the Niger Delta youths, and herdsmen attacks (Irene, 2016). However, intra- and intercommunal violence—including what is generally referred to as ethnic conflict when the communal conflict crosses ethnic boundaries—as well as conflict between oil firms and communities are the most frequent forms of violent conflict in the Niger Delta. Communal disputes are a threat to communities, and result from social interactions. Communal disputes arise when one party threatens or takes action against another party's territory rights, interests, privileges or cultural values and beliefs.

It is no doubt from the foregoing, that Rivers state, being one of the states in the Niger Delta region in Nigeria, cannot be devoid of the evidence of violence. Thus, Rivers state has been associated with violence that seems to be linked to oil crisis, elections, and cult related activities. Despite the effort of the Federal and state government to curb insecurity and violence in the state through amnesty and empowerment programmes, one wonders why violent conflict remains a reoccurring menace.

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While it is true that an increasing share of the world's most destitute people live in conflict affected countries, it does not necessarily hold that most societies with increased rate of poverty were as a result of violence (OECD, 2016). The question that remains unanswered is what is the impact of violent conflict to household income in Rivers state and how has the level of household income and expenditures been affected by violent conflict in Rivers state of Nigeria?

2. LITERATURE REVIEW

Conflicts remains an issue of concern in many developing countries, it has evolved to situate a major array of discourse in economic development. From an economic theoretical perspective, the view that conflict does not impact on economic development is not in a general agreement among scholars in literature (Serneels & Verpoorten, 2012). Ray and Esteban (2017) identified three common perspectives on conflict and economic development, these are: firstly, that conflict declines with per capita income; the revelation in literature on economics of conflict is that there is a causal relationship between civil war and per capita income, which is premised in many cross country studies. Their argument was predominant on the fact that in societies where conflict and low level of growth exists, economic development is intrinsically uneven, and that growth is continuous and requires a process of catch up. The views that conflict impacts on economic development is supported by recent findings on cross country data, with some finding evidence that growth requires relatively rapid catch-up (Serneels & Verpoorten, 2012; Ray & Esteban, 2017).

Ray & Esteban (2017) holds that growth undergoes two kinds of changes; growth that creates the larger pots to fight over and increases the propensity of conflicts and growth that increases the opportunity cost to fighting, which directly leads to decrease in conflicts. Secondly, that conflict is created by economic difference rather than similarities, the twentieth century was a face in history where economic differences was showcased, the era witnessed a society divided into class of those described as elite who exploited on the other class known as the proletariat. Traditional literatures on conflicts and revolution were major literatures of Karl Marx, which basically addressed the issue of class conflict. Ray & Esteban (2017) argued that rather than division among groups, conflict in this context centres on resources that are explicitly and directly contested for by rivalries due to limited availability.

The Nigerian government losses revenue whenever there is a conflict. Tax charges and rates on different goods or items by local government cannot be collected during violent conflict. This therefore leads to a huge loss of revenue that would have being used for development purposes (Onyeiwu, 2004).

Loss of human lives has implication for the nation's economy as the killings have effect on the agile work force. The civil war of 1967-1970 for instance, had produced the largest casualty in which an estimated two million lives were lost by the hostilities. The Niger Delta violent conflicts have claimed the lives of hundreds of oil workers, both expatriates and indigenes (Onyeiwu, 2004). In 2013, Boko Haram conflict in the North-east claimed more than 1,000 lives, in 2014 the figure escalated dramatically to 10,849 deaths (Dunmoye, 2013). The Jos crisis has also claimed thousands of lives, with over 500 lives massacred in one night in 2013 at DogonNahawa. So many human lives are still been wasted till date (Dunmoye, 2013).

Violent conflicts in Nigeria have retarded foreign investment inflow and growth of the economy; as no investor will be encourage in investing on and unstable economy. The presence of relative peace, security is a cardinal motivational factor for foreigners (Irobi, 2005). Most commercial activities are negatively affected during crisis. For instance, at the peak of violent conflict in Jos, commercial centre's such as terminus market, Katako and Bukuru markets and so many other local markets recorded low patronage even after the conflict. In some areas, there was segregation on the bases of religion. The Gyel market for example became a substitute market for the Christians in Bukuru town, while the Bukuru market situated in a Muslim dominated area was mostly patronized by the Hausas who are predominantly Muslims (Dashit, Gwom&Dabo, 2015).

Post-traumatic stress disorder is the most common result of ongoing conflict in general (PTSD). Psychologically speaking, this condition is marked by recurrent flashbacks or nightmares, severe irritability or jumpiness, and emotional numbness or avoiding triggers. Others might experience sadness, anxiety disorders, or issues with substance misuse. According to Beaton and Murphy's (2006) analysis of responses to conflict situations, up to two thirds of people who were directly impacted—whether as victims or as relatives—were psychologically harmed.

2.1 Theoretical Review

Economic literature is rife with theories on how conflict affects household income and spending. In order to provide the research with a theoretical foundation, an attempt is made to quickly examine relevant theories in this section. The social disorganisation hypothesis and the relative deprivation theory are the two hypotheses that we considered.

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2.1.1 Theorem of Social Disorganization

Social disorganisation theory has its roots in the early 1900s. In 1929, University of Chicago scholars Clifford Shaw and Henry McKay started a series of studies utilising government records that revealed there were significant regional differences in the rates of delinquency, criminality, and commitment to penal institutions in the city of Chicago (Kubrin and James, 2016).

Social disorganisation results from a society's institutional framework failing to uphold its social control and uphold its common values. This theory, according to Gbenemene (2017), connects crime rates to local ecological features. Or, to put it another way, a person's residence has a significant impact on the likelihood that they will engage in unlawful activity.

The theory of social disorganization can be used in the explanation of the prevalence of violent in most communities in Rivers State. Many communities in Rivers State have been experiencing high levels of cult related violence. Cult rivalry and battle over turf had made living in most communities a nightmare. There is increase victimization of both cult members and innocent members of the public. The prevalence of violent crimes has forced many community members to seek shelter outside their communities. According to Gbenemene (2017) the inability of communities to exert social control on youth behaviour has led to increase in violent crimes and juvenile delinquencies.

The implication of this theory in the context of this study is that a society becomes disordered as a result of loosed structures and loses of value resulting from society's inability to ensure social control, Decrease in value will bring about insecurity, youthful recklessness, which will eventually affect basic necessity for life, such as communal living, market, income, and the general wellbeing of the society.

2.1.2 Relative Deprivation Theory

Despite the avalanche of literatures on the causes and determinants of conflicts, the earlier work of Robert Gurr titled "Why Men Rebel" introduced in the 1970's remains one of the famous approaches to the discussion of conflict. The theory of relative deprivation remains one of the most comprehensive and well enhanced to explain conflict and violence. According to Smith (2004) the relative deprivation theory by Gurr provides the explanation that conflict is determined by contrast between groups triggered from the struggle for power and economic actualization. Thus, this theory emphasises on ethnic factors associated with economic and political differences (Smith, 2004). Relative deprivation exists when people feel that their expectations in life have not been satisfied. When people's desires and hopes far exceed what they can actually achieve, they may become more dissatisfied with their current situations.

In establishing the linkage between environmental degradation and conflicts, there are evidence in literature which holds that there are causal interrelations between environmental degradation and conflict which explores the varying (sometimes catastrophically low) abilities of states and societies to cope with changing environmental conditions without resorting to violence (Homer-Dixon, 1995). However, there is controversy to the discussion of identified linkage of conflict to environmental degradation (Ronnie, and Lipschutz, 1997). Smith (2004) argues that most conflict is invariably caused by environmental degradation which is a major factor used to explain conflicts is economic conditions, which suggests low level of economic development. For instance, conflicts in Haiti and Philippines.

According to Avery and Rapkin (1986), a country's economic fragility to changes in global commodity and capital markets, a low average Gross National Product per capita, or a disproportionately large agricultural sector may all be signs of low economic development (Smith, 2004). It is often believed that poverty is a major factor in domestic conflicts. One of the strongest empirical correlations in the literature is the link between low per capita incomes and higher propensities for internal conflict (Blattman and Miguel, 2008). According to this viewpoint, countries with extreme poverty and low capital GDP are frequently prone to war. This is evident in many developing nations that are in the bottom quartile of the global economic distribution, as is the case in some African nations.

The reasoning and supporting data presented by Collier and Hoeffler (1999), which Smith (2004) cites, indicate that, even in underdeveloped nations, leaders frequently vie for control of the available economic surplus. The battle for the tiny available surplus becomes fierce, with a probability of growing violence, when it is small due to the weak economic nature of the communities and/or in the case of a catastrophic recession. Among the numerous examples emphasised by this strategy are the horrific bloodshed that occurred in Liberia from 1989 to 1997, the conflict in Sierra Leone since 1991, the decades-long conflict in Angola, and the recurrent killing and brutality in Burundi and Rwanda.

2.2 Empirical Review

A study was conducted in 2014 by Abidoye and Cali to determine how income shocks affected conflict in Nigeria. According to the study, price effects on conflict are more severe during election years, particularly those related to consumption and oil shock. The study's findings also indicate that in conflict-prone oil producing regions like Rivers state, the impact of shocks on

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protests is lessened and that a variety of grievance-related factors considerably exacerbate the conflict-inducing effect of an increase in oil prices.

Iyoboyi, Latifah, and others (2014) looked into whether there is a long-term correlation between war and macroeconomic factors such as inflation, poverty, real GDP, and unemployment. The fact that there is a clear correlation between conflicts and Nigeria's economic growth is a significant result. This is not surprising considering the nation's trend toward monoculture in terms of crude oil production, which accounts for the majority of the nation's income and has had little to no lasting influence on the several conflicts that the nation has endured. The fact that macroeconomic instability, poverty, and unemployment are statistically significant variables that are closely associated to the frequency of conflicts in the nation is another remarkable finding from their research.

Pieter and Marijke (2013) used micro-econometric analysis and other techniques to conduct a study on the impact of mass murders and the loss of human capital on economic performance in Rwanda. They discovered that households and regions who suffered more intense war fell behind in terms of consumption compared to those that experienced less intense conflict by combining comprehensive household data with distinctive data on violence in Rwanda.

The correlation between low levels of national income and the prevalence of violent conflict, according to Hegre & Sambanis (2006), is perhaps one of the most well-established conclusions in economic literature. They discover that between 1990 and 2000, civil war occurred in more than half of the nations with a GDP per capita of US\$2,000 or less, compared to fewer than one-fifth of nations with a GDP per capita beyond this threshold. Additionally, conflict tends to last longer and be more intense in poorer countries and last shorter and be less intense in richer countries. As a result, on average, each country with a GDP per capita below \$2000 in 1991 spent a third of the ten years that followed in conflict, whereas countries with a GDP above this mark spent on average less than one year of the decade in conflict.

According to the studied literature, there are no cases that are unique to the state of Rivers in terms of approach and scope that pertain to the chosen study area. This study is especially distinctive since it focuses exclusively on how conflict impacts household income in the study area rather than how it affects the broader economy.

3. METHODOLOGY

This study adopted the descriptive statistics, test of equality of mean by categories and Granger Causality Test to enable us determine the relationship between the variables namely: household expenditures on food household expenditures on non food items fatality of conflict intensity of conflict and the number of conflict in Rivers state. This method avoids the potential bias associated with unit root and cointegration tests (Rambaldi & Doran, 1996).

Population is concerned with the unit of analysis from the study area; inferably it refers to the people or items to be investigated. The population the researcher identified for the study comprises of adults and households in Rivers State, Nigeria with 23 Local Government Areas

According to census data released in 2006, the state has a population of 5,198,716, making it the sixth-most heavily populated state in Nigeria. Port Harcourt, its capital and largest city, is the state's economic hub and a centre of oil industry in Nigeria. According to data from NPC and the National Bureau of Statistics, the population of Rivers State is projected to be 7,303,900 by 2016 (www.population.gov.ng 2018).

The states of Imo, Abia, and Anambra border Rivers State to the north, Akwalbom to the east, Bayelsa to the west, and the Atlantic Ocean to the south. The Ogoni, Abua, Ekpeye, Ikwerre, Ibani, Opobo, Eleme, Okrika, and Kalabari, Etche, Ogba, Engenni, and Egbema are just a few of the indigenous ethnic groups who call it home. This study, in particular, relies mostly on time series secondary data from the World Bank Nigeria General Household Survey, Panel 2019-2020, Wave 3 publications (2020).

3.1. Model Specification

Given that nature of this study where the dependent variables are also independent variables, this study adopted the Granger Causality Test to enable us determine the relationship between the variables namely: household expenditures on food (FEXP), household expenditures on non food items (NFEXP), fatality of conflict (FTLTY), intensity of conflict (INTEX), and the number of conflict (NCNFLT), in Rivers state.

The model is presented in the following system:

$$FEXP_t = \delta_0 + \sum_{j=1}^{k+dmax} \delta_{1j} NFEXP_{t-j} + \sum_{j=1}^{k+dmax} \delta_{2j} INTEX_{t-j} + \sum_{j=1}^{k+dmax} \delta_{3j} FTLTY_{t-j} + \sum_{j=1}^{k+dmax} \delta_{4j} NCNFLT_{t-j} + \varepsilon_{1t} \quad (1)$$

$$NFEXP_t = \sigma_0 + \sum_{i=1}^{k+dmax} \sigma_{1i} FEXP_{t-i} + \sum_{j=1}^{k+dmax} \sigma_{2j} INTEX_{t-j} + \sum_{j=1}^{k+dmax} \sigma_{3j} FTLTY_{t-j} + \sum_{j=1}^{k+dmax} \sigma_{4j} NCNFLT_{t-j} + \varepsilon_{2t} \quad (2)$$

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$$INTEX_t = \phi_0 + \sum_{i=1}^{k+dmax} \phi_{1j} FEXP_{t-j} + \sum_{i=1}^{k+dmax} \phi_{2j} NFEXP_{t-j} + \sum_{i=1}^{k+dmax} \phi_{3j} FTLTY_{t-j} + \sum_{i=1}^{k+dmax} \phi_{4j} NCNFLT_{t-j} + \varepsilon_{4t} \quad (3)$$

$$FTLTY_t = \varphi_0 + \sum_{i=1}^{k+dmax} \varphi_{1j} FEXP_{t-j} + \sum_{i=1}^{k+dmax} \varphi_{2j} NFEXP_{t-j} + \sum_{i=1}^{k+dmax} \varphi_{3j} INTEX_{t-j} + \sum_{i=1}^{k+dmax} \varphi_{4j} NCNFLT_{t-j} + \varepsilon_{5t} \quad (4)$$

Where FEXP, is household expenditures on food, NFEXP is household expenditures on non food items, FTLTY is fatality of conflict, INTEX is intensity of conflict INTEX and NCNFLT represents the number of conflict in Rivers state.

k is the lag length, (k + dmax) is the order; δ 's, σ 's, λ 's, ϕ 's, and φ 's are parameters to be estimated; and ε_{1t} , ε_{2t} , ε_{3t} , ε_{4t} and ε_{5t} are error terms that are assumed to be white noise.

4. DISCUSSION AND RESULTS

The descriptive statistics analysis (see **Appendix**: table 1, fig.1) in evaluating the level of household income and expenditure in Rivers state, showed that household expenditures on food over the study period has Minimum, Maximum, Mean and Standard deviation value of (37,160), (10,821,810) (1,375,763.00) and (2,901,612.00) respectively. While the minimum and maximum value of household expenditures on non food is (4070.000) & (1,879,020.00) respectively, with a mean value of (238,457.50) and standard deviation of (504,438.6). The average household expenditure on food in Rivers state is 1,275,763.00 and the maximum amount of non food expenditures by household is 238,457.50, this implies that household expenditures on food in River State is higher than expenditures on non food items which is in line with apriori expectation of consumption expenditure exceeding non consumption expenditure when household income is low, as the populace may not be able to venture in strategic economic activities capable of increasing output. This in Rivers state is partly traceable to crisis which cripples economic activities and scare investors in the selected LGAs.

In table 2 (see **appendix**) the test for equality of mean of expenditures on food and non food by households in Rivers state shows that the Anova F-test with df (2, 13) and calculated value

106.3344 and a prob. of 0.000 which is significant at 5% significant level indicate the rejection of the null hypothesis of equality of mean, thus indicating a significant difference in household expenditures on food and non food items in Rivers state over the period studied.

The skewness finding indicated that household spending on food and non-food items is skewed to the right (positively skewed). As a result, we draw the conclusion that the distribution is roughly normal. Kurtosis gauges how peaked or flat the data are in comparison to a normal distribution. Household expenditures on food and non-food have peaked (leptokurtic), according to the coefficient of the kurtosis, with values higher than 3.00 in comparison to the norm. The skewness and kurtosis of the series are compared to those from a normal distribution using the jarquebera(JB) test. The JB values of household expenditures on food (35.51005) and household expenditures on non food (35.18798), and their significant probability values which are less than 0.05 indicates the absence of outliers in the data and confirms the normality of the series and suitability of generalization.

The trend movement of household expenditures on food and non food from the 16 LGAs over the study period indicates the average food expenditures in 8 LGAs specifically Abua/Odua, Ahoada East, Ahoada West, Asari-Toru, Bonny, Eleme, Gokana and Emuoha is the same over period, while Port Harcourt has the highest household expenditures on food and non food followed by Ogba/Egbema/Ndoni, Oyigbo, Okrika, Ikwere, Obio/AkporAkukuToru and Tai LGAs respectively.

The descriptive statistics analysis (see **Appendix**: table 3.) the extent of annual armed conflict in Rivers state over the period armed conflicts in Rivers state specifically fatality of the conflict has Minimum, Maximum, Mean and Standard deviation value of (0.00), (47.00) (7.23) and (11.59) respectively. This indicates that out of the 184 conflicts recorded in Rivers state in the period, 47.00 is the highest fatality conflict experienced with an average of 7.23 conflict fatality occurring.

While the minimum and maximum value conflicts that occurred across the LGAs is (1.00) & (98.00) respectively, with a mean value of (10.82) and standard deviation of (22.82). This result indicates that the highest conflict is 98 and every LGA had experienced at least a conflict with 10.82 as average conflict across LGA.

The skewness result showed fatality and number of conflict are rightward skewed (positively skewed). Therefore, we conclude the distribution to be approximately normal. The JB values of (48.93) and (123.97), and their significant probability values which are less than 0.05 indicates the absence of outliers in the data and confirms the normality of the series and suitability of generalization.

The test for equality of mean (see **Appendix**: table 4.) on annual armed conflict in Rivers state, shows that the Anova F-test with df (2, 48) and calculated value 134.9178 and a prob. of 0.008 which is significant at 5% significant level, as well as Welch F-test* with df (2, 21.545) and calculated value of 3.869 and a prob. of 0.0367 which is significant at 5% significant level indicate the

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rejection of the null hypothesis of equality of mean, thus indicating a significant difference in conflict with fatality and that without fatality given the total number of conflict in Rivers state over the period studied.

The descriptive statistics analysis (see **Appendix**: table 5.) the relationship between the intensity of armed conflict and household economic in Rivers state over the study period. The intensity of armed conflict in Rivers state has Minimum, Maximum, Mean and Standard deviation value of (0.00), (3.14) (0.99) and (1.05) respectively. The skewness result showed fatality and number of conflict are rightward skewed (positively skewed). Therefore, we conclude the distribution to be approximately normal. The JB values and their significant probability values indicate the minimum presence of outliers which is ignorable of in the data and confirms the normality of the series and suitability of generalization.

The test for equality of mean (see **Appendix**: table 6) of the intensity of armed conflict in Rivers state shows that the Anova F-test with df (2, 42) and calculated value 3.433794 and a prob. of 0.0416 which is significant at 5% significant level, as well as Welch F-test* with df (2, 18.6667) and calculated value 3.9366 and a prob. of 0.0375 which is significant at 5% significant level indicate the rejection of the null hypothesis of equality of mean, thus indicating a significant difference in intensity of armed conflict and economic development of households given the total number of conflict in Rivers state over the period studied.

This study also proceeds to establish the causal relationship between the intensity of armed conflict and household economic in Rivers state using Pairwise Granger Causality Test. This is because the existence of long-run relationship does not indicate causality between the dependent and the independent variables, as such to examine such relationship; the Pairwise Granger Causality Test is applied. The granger causality test result seen in **table 7**, showed that intensity of armed conflict causes household economy in Rivers state and household economy in Rivers state in terms of their expenditures on food and non food expenditure also granger causes intensity of armed conflict. Thus, there is bi-directional causality relationship between intensity of armed conflict and household economic in Rivers state, Nigeria; the result also showed that household expenditures on food granger causes household expenditures on non food and household expenditures on non food granger causes household expenditures on food; therefore the relationship between household expenditures on food and household expenditures on non food is bi-directional, as shown by F-Statistic which is greater than 4.00 and the Probability values which is less than 0.05 at 5% significant level. This implies that household expenditures on food influence household expenditures on non food vis-à-vis.

From the result we therefore reject the null hypothesis which states that there is no significant relationship between the intensity of armed conflict and household income in Rivers state, as there is a statistically significant relationship between the intensity of armed conflict and household income in Rivers state. Also the correlation result in **table 8** shows that the intensity of armed conflict and household income in Rivers state are highly and positively correlated.

5. CONCLUSION AND RECOMMENDATIONS

Violent conflict and household income as examined in this study have a significant relationship amongst themselves. This is visible in Rivers state, Nigeria as the effect of consistent violent conflict tells on the household income of the people with the breakdown of economic activities arising from the closure of banks, hotels, small and medium scale enterprises, migration amongst others. This could partly be attributed to politicians in their quest to occupy political offices providing arms to the youths. It could also be attributed to poverty and also massive youth unemployment in Rivers state, Nigeria. This study therefore concludes that household expenditures on food in River State is higher than expenditures on non food items and the intensity of armed conflict and household economic in Rivers state of Nigeria are highly and positively correlated as conflict intensity is inversely related to economic development of households, thus detrimental to the development stride of households in Rivers state. This study recommends that the Nigeria president through the security agencies should intervene in the region, community vigilante groups should be encouraged and collaborate with the government security agencies and government should encourage small and medium scale enterprises with loan and micro credit so as to stimulate economic activities in the region.

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APPENDIX

Table 1. Descriptive Statistics

VARIABLE	FEXP	NFEXP
Mean	1375763.	238457.5
Median	96992.50	22170.00
Maximum	10821810	1879020.
Minimum	37160.00	4070.000
Std. Dev.	2901612.	504438.6
Skewness	2.508653	2.501050
Kurtosis	8.300163	8.268867
Jarque-Bera	35.51005	35.18798
Probability	0.000000	0.000000

Source: Eviews Output

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Table 2. Test for Equality of Mean: Categorized by values of FEXP and NFEXP

Anova F-test			
Analysis of Variance			
Method	df	Value	Probability
Between	2	1.19E+14	5.95E+13
Within	13	7.28E+12	5.60E+11
Source of Variation	df	Sum of Sq.	Mean Sq.
Total	15	1.26E+14	8.42E+12

Source: Eviews Output

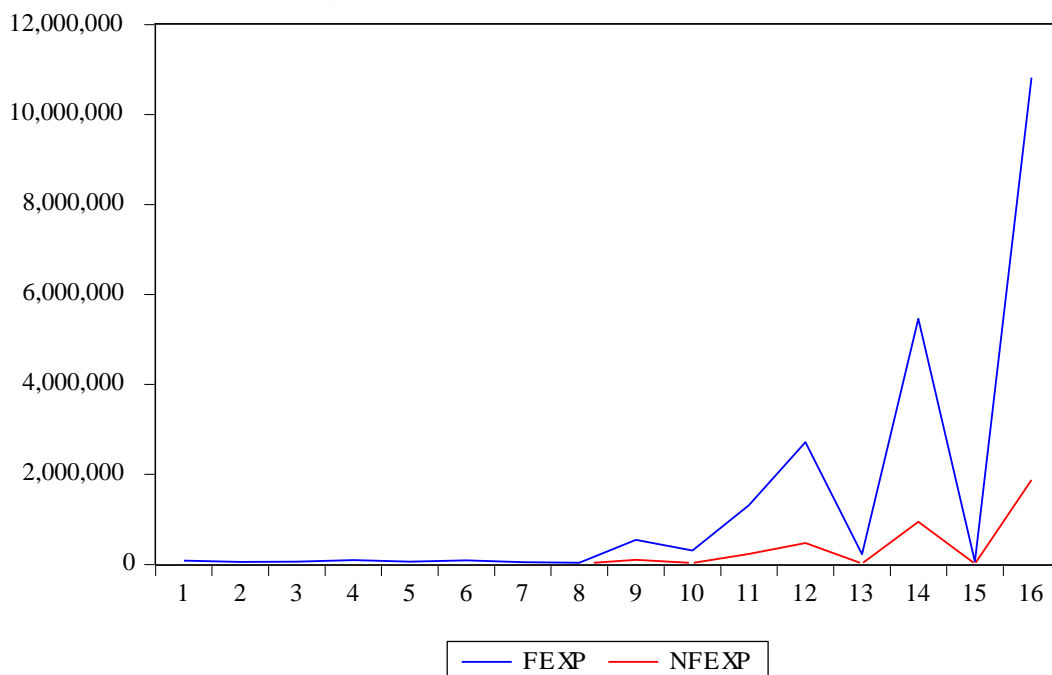


Fig. 1 Descriptive Graph

Source: Eviews Output

Table 3: Descriptive Statistics

VARIABLE	FTLTY	INTEX	NCNFLT
Mean	7.235294	1.004706	10.82353
Median	2.000000	0.480000	5.000000
Maximum	47.00000	3.140000	98.00000
Minimum	0.000000	0.000000	1.000000
Std. Dev.	11.59488	1.034028	22.82333
Skewness	2.645968	1.038925	3.563273
Kurtosis	9.409256	2.683620	14.14611
Jarque-Bera	48.93391	3.129101	123.9749
Probability	0.000000	0.209182	0.000000
Sum	123.0000	17.08000	184.0000
Sum Sq. Dev.	2151.059	17.10742	8334.471

Source: Eviews Output

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Table 4: Test for Equality of Mean: Categorized by values of FTLTY and NCNFLT

Method	df	Value	Probability
Anova F-test	(2, 48)	134.9178	0.00 80
Welch F-test*	(2, 21.545)	3.869600	0.0367

*Test allows for unequal cell variances

Source of Variation	df	Sum of Sq.	Mean Sq.
Between	2	839.2614	419.6307
Within	48	10502.64	218.8049
Total	50	11341.90	226.8380

Source: Eviews Output

Table 5. Descriptive Statistics

VARIABLES	INTEX	FEXP	NFEXP
Mean	0.992000	690164.7	95232.00
Median	0.480000	93950.00	21940.00
Maximum	3.140000	4929625.	683500.0
Minimum	0.000000	37160.00	4070.000
Std. Dev.	1.051082	1341928.	180254.5
Skewness	1.143161	2.424241	2.564342
Kurtosis	2.865326	7.869727	8.769127
Jarque-Bera	3.278379	29.51376	37.24138
Probability	0.194137	0.000000	0.000000
Sum	14.88000	10352470	1428480.
Sum Sq. Dev.	15.46684	2.52E+13	4.55E+11

Source: Eviews Output

Table 6: Test for Equality of Mean: Categorized by values of INTEX, FEXP and NEXP

Test for Equality of Means Between Series

Value	Probability
3.433794	0.0416
3.936616	0.0375

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	Sum of Sq.	Mean Sq.
	4.20E+12	2.10E+12
	2.57E+13	6.11E+11
		6.79E+11
	2.99E+13	

Method df

Anova F-test (2, 42)

Welch F-test* (2, 18.6667)

*Test allows for unequal cell variances Analysis of Variance

Source of Variation df

Between 2

Within 42

Total 44

Source: Eviews Output

Table 7: Pairwise Granger Causality Tests

Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
D(FEXP) does not Granger Cause D(INTEX)	12	44.4947	0.0001
D(INTEX) does not Granger Cause D(FEXP)		10.8841	0.0027
D(NFEXP) does not Granger Cause D(INTEX)	12	5.21236	0.0097
D(INTEX) does not Granger Cause D(NFEXP)		9.76150	0.0004
D(NFEXP) does not Granger Cause D(FEXP)	12	18.0682	0.0017
D(FEXP) does not Granger Cause D(NFEXP)		35.7480	0.0002

Source: Eviews Output

Table 8. Correlation Test Result

VARIABLES	INTEX	FEXP	NFEXP
INTEX	1.0000000000000000	0.8880014288175553	0.8705580620672684
FEXP	0.8880014288175553	1.0000000000000000	0.985197245143753
NFEXP	0.8705580620672684	0.985197245143753	1.0000000000000000

Source: Eviews Output



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