



## EFFECT OF ECONOMIC CRIME ON ECONOMIC GROWTH IN KENYA

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### ABSTRACT

#### KEYWORDS:

*Economic crime; economic growth, Kenya, landlocked countries*

*The purpose of this study was to analyze the effect of crime on economic growth with the specific objective of determining the effect of economic crime on economic growth in Kenya. The study employed correlational research design involving correlation analysis, Ordinary Least Squares (OLS) analysis and Granger causality tests based on annual time series data spanning 8 years from 2006 – 2013. The results indicated that economic crime had a significant negative effect on economic growth in Kenya such that a percentage increase in economic crime decreased economic growth by 0.87%.*

#### **Executive Summary**

*The question of crime remains paramount for the development of Kenya both nationally and internationally given that Kenya serves as an economic and business hub for both national and international investors. Given that 52% of Kenyans might have experienced some form of economic crimes ranking Kenya above the Africa's average of 50% and the global average of 37% raises concerns for policy makers in an attempt to understand its effects on the economy. However, available studies have focused on the relationship between overall crime or corruption and economic growth and failing to provide the specific relationship between economic crime and economic growth. The purpose of this study was to analyze the effect of crime on economic growth with the specific objective of determining the effect of economic crime on economic growth in Kenya. The study employed correlational research design involving correlation analysis, Ordinary Least Squares (OLS) analysis and Granger causality tests based on annual time series data spanning 8 years from 2006 – 2013. The results indicated that economic crime had a significant negative effect on economic growth in Kenya such that a percentage increase in economic crime decreased economic growth by 0.87% which may be attributed to the fact that economic crimes discourages investment, savings and culture of hard work among Kenyans due to increased fraud, bribery and corruption. There was also unidirectional causality running from economic crime to economic growth. The study recommended that in order to promote growth in Kenya economic crimes need be reduced which may be achieved by the government adopting policies that criminalizes economic crimes and target prominent personalities including politicians, cabinet secretaries, judges, civil servants among others. This will deter any Kenyan from engaging in economic crimes.*

### 1.0 INTRODUCTION

Crime is an act or an instance that is against the law and punishable upon conviction and has a significant negative impact on society welfare, which can lead to serious impediments for the creation and maintenance of a developed and well-functioning economy (Ojog, 2014). It is well

recognized in public policy debates that crime is detrimental to economic growth as it undermines the rule of law, and reduces perceived security of property rights and deters new investments thereby causing a fall in economic growth (Kumar, 2013). Economic effects of crime are more pronounced in

developing countries since the people in these countries are ill equipped to bear (Kumar, 2013).

The question of crime is paramount for the development of Kenya both nationally and internationally given that Kenya serves as an economic and business hub for both national and international investors, a tourist destination and its geographical positioning has made it a key player in international trade serving many landlocked countries (Keriga & Bujra, 2009). The adoption of a new Constitution in Kenya in 2010 was a significant milestone in Kenya's quest to strengthen the rule of law, democracy, human rights and accountable governance (KHRC & KPTJ, 2013). However, successive governments continue to report mega scandals involving crimes and specifically economic crimes derailing the spirit of the new constitution.

Economic crime is a global phenomenon that cuts across all regions, industries and organizations and defined as the intentional use of deceit to deprive another of money, property or a legal right (PWC, 2014). The big five most predominant forms of economic crimes are asset misappropriation, accounting fraud, bribery and corruption, procurement fraud and cybercrime (PWC, 2014). In 2014, 52% of Kenyan respondents in the global economic crime survey reported having experienced some form of economic crime an indication that Kenya ranked above the Africa average of 50% and substantially higher than the global average of 37% (PWC, 2014).

The problem of crime has become a source of concern for international organizations, policy makers, and the populations due the effects on the economy (Verdugo-Yepes, Pedroni, & Hu, 2015). This has prompted several studies to examine the effect of crime on economic growth of countries but as opined by Goulas and Zervoyianni (2012) contradictory results are evident as some studies suggest a strong adverse influence of crime on growth while other studies report evidence indicating no effect at all. Further, studies by Odi (2014); Mathew and Barnabas (2013); Kumar (2013); Goulas and Zervoyianni (2012); Obayelu (2007) among others focused on analyzing the general effect of overall crime or corruption on economic growth rather than economic crime on growth. This justifies a study on the effect of economic crime on economic growth in Kenya to provide knowledge on the uncertain and inconclusive relationship between economic crime and economic growth. Besides economic crime this study introduced other forms of crime which included robbery and dangerous drugs as intervening variables.

## 1.2 Objectives

The purpose of this study was to analyze the effect of crime on economic growth in Kenya.

### 1.2.1 Specific Objectives

- i. To determine the effect of economic crime on economic growth in Kenya.
- ii. To draw policy recommendations based on (i) above

## 1.3 Research Hypothesis

$H_0$  : Economic crime has no effect on economic growth in Kenya

## 1.4 Significance

In spite of the enactment of the 2010 new constitution in Kenya, lack of political good will to hold accountable economic crimes suspects continue to; cost the country billions

of shillings, discourage hardworking citizens who feel that there are short cuts to a massing wealth thereby derailing the double digit growth prospects as enshrined under the Vision 2030 blueprint. This study provides knowledge to the policy makers on the effect of economic crime on economic growth that may prompt the urgent and swift action in combating the vice for Kenya to achieve the double digit growth objectives. Further, the study adds knowledge to empirical literature occasioned by the inconclusive empirical studies that focused on the relationship between overall crime or corruption and economic growth and failing to provide the specific relationship between economic crime and economic growth.

## 1.5 Scope of the study

The study period covered from 2006 to 2013. This short period was as a result of limited data available for the variable on economic crimes.

## 2.0 LITERATURE REVIEW

### 2.1 Empirical Literature

Goulas and Zervoyianni (2012) exploring how the crime-uncertainty interaction impacts on economic growth using a panel of 25 countries over the period 1991-2007, found evidence suggesting that a 10% increase in the crime rate can reduce annual per-capita GDP-growth by between 0.49 and 0.62 percent. By applying panel data analysis this study results are considered as general and not specific to any given country which may be operating under different economic dynamics. Further, the study generalized crime and failed to establish how specific crimes such as robbery, dangerous drugs and economic crimes would impact on growth.

Kumar (2013) empirically examined the causality between crime rates and economic growth in India. A reduced form equation was estimated using instrumental variable approach to correct for joint endogeneity between crime and economic growth. The results indicated higher crimes reduces level of per capita income and its growth rate. The weakness of the study may be attributed to the fact that it generalized crime creating a knowledge gap on how specific crimes such as economic crime among others impact on growth of a country.

Obayelu (2007) in examining the possible causes and effects of corruption in Nigeria using data drawn from news stories, reports of tribunals and commissions of enquiry, interviews of Nigerians with relevant information, anecdotes, and personal knowledge of Nigeria. The results of the study showed that corruption stifles economic growth; reduce economic efficiency and development despite the enormous resources in the country and corruption creates negative national image and loss of much needed revenue. Similarly, Odi (2014) investigated the impact of corruption on the growth of Nigerian economy using granger causality and regression techniques. The study used gross domestic product (GDP) as a proxy of economic growth and corruption index as a proxy of corruption. The study revealed that the level of corruption in Nigeria over the years had significant negative impact on economic growth in Nigeria. These studies shortcomings may be attributed to the fact that they considered a section of economic crimes which may not give an overall indication of how economic crime affects growth of a country.

Adenike (2013) investigated the impact of corruption on economic growth in Nigeria on an annual time series data from 1980-2009 using regression analysis, Granger causality and impulse response function. The results revealed that corruption per worker exerts a negative influence on output

per worker directly and also indirectly on foreign private investment, expenditure on education and capital expenditure per worker. The study also established unidirectional causality from output per worker to corruption per worker. This study by focusing on output per worker and corruption that forms part of economic crimes fails to give a clear picture of the impact of overall economic crime on economic growth.

Ugur and Dasgupta (2011) aiming to provide comparable, reliable and verifiable estimates of the effect of corruption on economic growth by controlling for study heterogeneity in terms of growth measures, data sources and country groupings. They established that corruption has a negative effect on growth in low income countries (LICs) such that a percentage increase in corruption reduced the total impact of corruption on per capita GDP growth by -0.59 percent. This study's weakness emanates from the fact that it focused on a section of economic crime (corruption) which fails to give the actual impact of overall economic crime's effect on growth.

Mathew and Barnabas (2013) in studying the relationship between corruption and the Nigerian economic growth they employed ordinary least squares (OLS) and Granger causality techniques. The results revealed that corruption impairs and impacts economic growth. A unidirectional causality was established from corruption to growth. The use of corruption which forms part of economic crimes makes the study inadequate in comprehensively explaining the impact overall economic crime on growth.

## 2.2 Summary and Literature Gap

From the review, it is evident that various studies on crime and growth have been conducted world over an indication of the concern among scholars on the impact of crime on economic growth. Although the studies seem to be unanimous on the effect of crime on growth, the analysis either focused on overall crime or corruption that forms part of economic crime. This makes the effect of economic crime as a specific form of overall crime uncertain and unknown thus the need to establish its effect on economic growth.

## 3.0 RESEARCH METHODOLOGY

### 3.1 Research Design

A correlation research design that is appropriate for conducting relationship analysis was adopted for this study.

### 3.2 Model Specification and Measurement of Variables

The study estimated the following non linear model

$$Y_t = f(E_t, R_t, D_t, \sim_t) \quad (1)$$

$$\ln Y_t = r + S_1 \ln E_t + S_2 \ln R_t + S_3 \ln D_t + \sim_t \quad (2)$$

$\ln Y_t$  = Natural logarithm of Gross Domestic Product (GDP) measured at market prices,  $E_t$  = Natural logarithm of reported economic crime cases,  $R_t$  = Natural logarithm of reported robbery cases,  $D_t$  = Natural logarithm of reported dangerous drug cases,  $\sim_t$  = error term.

The study introduced robbery and dangerous drugs crimes as intervening variables representing other crimes that take place in Kenya that may impact on GDP growth in Kenya.

### 3.3 Data Analysis

The study employed descriptive analysis, inferential data analysis techniques that involved correlation analysis, regression analysis based on Ordinary Least Squares (OLS) and Granger causality to provide a compressive analysis of the relationship between crime and economic growth. The techniques were adopted based on fact that data on economic crime was limited.

### 3.4 Data Collection

The study used secondary data for the period 2006 - 2013 on GDP and crime rate reported obtained from Kenya National Bureau of Statistics (KNBS) published reports.

## 4.0 RESULTS AND DISCUSSION

### 4.1 Correlation Analysis

The results in Table 4.1 indicate that there is a strong significant negative association between economic growth and economic crime in Kenya with a correlation coefficient of  $r = -0.90$  and a p - value of 0.002 at 5% level of significance. This implies that an increase in economic crime leads to a decrease in economic growth in Kenya which may be attributed to low investment and increased fraud emanating from bribery and corruption. The findings are consistent with the findings of Odi (2014), Mathew and Barnabas (2013), Kumar (2013), Goulas and Zervoyianni (2012) and Obayelu (2007). It was also noted that crime involving robbery and dealing in dangerous drugs has a negative association with economic growth in Kenya but insignificant given p-values greater than 0.05.

**Table 1. Correlation analysis test results**

	LN <sub>Y</sub>	LN <sub>E</sub>	LN <sub>R</sub>	LN <sub>D</sub>
LN <sub>Y</sub>	1.000000 -----			
LN <sub>E</sub>	-0.901526* (0.0022)	1.000000 -----		
LN <sub>R</sub>	-0.489448 (0.2183)	-0.485053 0.2231	1.000000 -----	
LN <sub>D</sub>	-0.773080 (0.0645)	-0.611390 (0.1073)	0.339331 (0.4109)	1.000000 -----

Note. Values in parenthesis ( ) indicate probability values and other values represent correlation coefficients. \* indicate significant at 5% level of significance

**4.3 Regression Analysis**

Table 2 test results based on OLS indicate that economic crime has a significant negative effect on economic growth in Kenya given a coefficient of -0.87 and a p-value of 0.04 at 5% level of significance. This implies that a percentage increase in economic crime decreases economic growth in Kenya by 0.87% which may be attributed to the fact that economic crime discourages investment, savings and culture of hard work among Kenyans due to increased accounting fraud,

procurement fraud, bribery and corruption. The findings conform to those of Odi (2014), Mathew and Barnabas (2013), Kumar (2013), Goulas and Zervoyianni (2012) and Obayelu (2007) who established that crime either overall or corruption has a negative effect on growth. It was also noted that crime involving robbery and dealing in dangerous drugs has a negative but insignificant effect on economic growth in Kenya given p-values greater than 0.05.

**Table 2. OLS test results**

	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C(1)	29.53962*	6.503029	4.542439	0.0105
C(2)	-0.870911*	0.292212	-2.980413	0.0407
C(3)	-0.078379	0.302124	-0.259428	0.8081
C(4)	-0.841075	0.495753	-1.696561	0.1650
R-squared	0.693175			
F-statistic	11.14817	Durbin-Watson stat		1.941404
Prob(F-statistic)	0.020619			

*Note. Values under Coefficient, std. Error, t-statistic and Prob. are beta coefficients, standard errors, t-statistics and p-values respectively. \* indicate significant at 5% level of significance, C (1), C (2), C (3), C (4) indicate coefficients for constant, lnE, lnR and lnD respectively*

**4.4 Diagnostic Tests**

Appropriate regression analysis tests results must have residuals that are free of autocorrelation, heteroscedasticity, normally distributed and the independent variables need not to be highly correlated.

**4.4.1 Serial Correlation**

Table 3 indicates that based on Breusch- Godfrey LM test the observed R-squared has a p-value of 0.0732 which is greater than 0.05. This implies that the null hypothesis of no serial correlation is not rejected hence no problem of serial correlation.

**Table 3. Serial correlation test results**

<b>Breusch-Godfrey Serial Correlation LM Test:</b>			
Obs*R-squared	3.209253	Prob. Chi-Square(1)	0.0732

*Note. A p-value < 0.05 indicates reject null hypothesis of no serial correlation*

**4.4.2 Multicollinearity**

Table 4 test results indicate that the VIF values corresponding to coefficients C (2), C (3) and C (4) for economic crime, robbery and dangerous drugs are all less than

10. This implies that none of the independent variables is highly correlated to the other. Thus the problem of multicollinearity is overruled.

**Table 4. Variance inflation factors**

<b>Variable</b>	<b>Centered VIF</b>
C(1)	NA
C(2)	1.854878
C(3)	1.312677
C(4)	1.603054

*Note. C (1), C (2), C (3), C (4) indicate coefficients for constant, lnE, lnR and lnD respectively and centered VIF are variance inflation factors. VIF value < 10 implies no multicollinearity*

**4.4.3 Heteroscedasticity**

Table 5 indicates that based on Breusch-Pagan- Godfrey test the observed R-squared has a p-value of 0.4931 which is

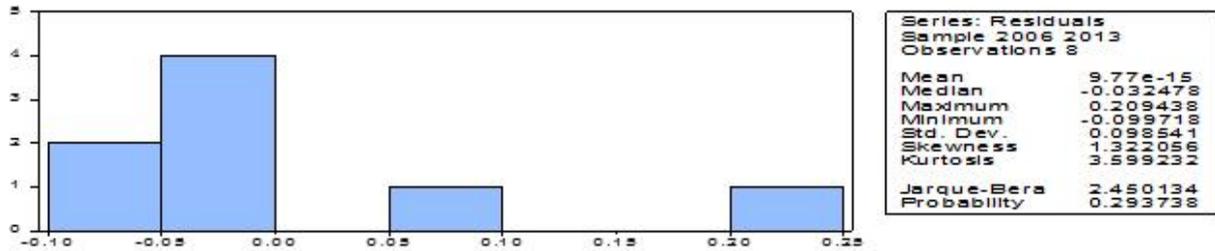
greater than 0.05. This implies that the null hypothesis of no heteroscedasticity is not rejected hence the residuals are homoscedastic.

**Table 5. Heteroscedasticity test results**

Heteroscedasticity Test: Breusch-Pagan-Godfrey			
Obs*R-squared	2.402805	Prob. Chi-Square(3)	0.4931
<i>Note. A p-value &lt; 0.05 indicates reject null hypothesis of no heteroscedasticity</i>			

**4.4.4 Normality**

Based on the Jarque-Bera test a p-value of 0.29 that is greater than 0.05 as in Figure 1 implies that the null hypothesis of residuals being normally distributed is not rejected for the study.



**Figure 1. Normality test results**

**4.4.5 Goodness of Fit**

The goodness of fit for the model was based on the value of the coefficient of determination (R2) where a value of 0.69 implied that 69% of variation in economic growth in Kenya was significantly explained by changes in crime rate (economic crime, robbery crime and dangerous drugs crime).

running from economic crime to economic growth in Kenya at 5% level of significance. This supports the regression results that economic crime affects economic growth in Kenya which may be attributed to the fact that economic crime may discourage investment due to increased corruption, bribery and fraud thus decreasing growth. The finding is consistent with Mathew and Barnabas (2013) who establish a unidirectional causality from corruption to growth in Nigeria.

**4.5 Granger Causality**

Table 6 test results based on Granger causality test indicate that there is a significant unidirectional causality

**Table 6. Pair wise Granger causality tests**

Null Hypothesis:	Obs	Prob.
LNE does not Granger Cause LNY	7	0.0326*
LNY does not Granger Cause LNE		0.4569
LNR does not Granger Cause LNY	7	0.7305
LNY does not Granger Cause LNR		0.2807
LND does not Granger Cause LNY	7	0.7057
LNY does not Granger Cause LND		0.1781

*Note. Values under Prob. indicate p-values, Obs are number of observations \* indicate reject null hypothesis of no causality at 5 % level of significance given p-value is < 0.05 otherwise accept null hypothesis*

**CONCLUSIONS AND RECOMMENDATIONS**

The purpose of this study was to analyze the effect of economic crime on economic growth in Kenya. This was occasioned by the inconclusive empirical literature that focused on the relationship between overall crime or corruption and economic growth and failing to provide the specific relationship between economic crime and economic growth. The findings of the study indicated that economic crime had a significant negative effect on economic growth in Kenya with unidirectional causality running from economic crime to economic growth. This was attributed to the fact that economic crimes discourages investment, savings and culture of hard work among Kenyans due to increased accounting fraud, procurement fraud, bribery and corruption which in turn reduces economic growth.

be achieved through political good will where the government needs to adopt policies as enshrined under chapter six on integrity of the new constitution that criminalizing economic crimes and deal with prominent personalities including politicians, cabinet secretaries, judges, civil servants among others which will deter any Kenyan from engaging in economic crimes.

**ACKNOWLEDGEMENTS**

I am grateful to Kenya national Bureau of Statics for the various annual reports provide that had data on the study variables.

**COMPETING INTERESTS**

The authors of the manuscript hereby declare that they have no competing interests.

This study, therefore recommends that in order to promote growth in Kenya economic crimes need be reduced. This may

**AUTHORS' CONTRIBUTIONS**

The author conducted the study jointly

**CONSENT**

The authors declare that no written informed consent was required to conduct the study.

**ETHICAL APPROVAL**

The authors hereby declare no ethical approval was necessary from appropriate ethics committee for the study to be conducted.

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