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EFFECT OF KIDNAPPING ON ECONOMIC ACTIVITIES IN OKENE LOCAL GOVERNMENT, KOGI STATE

ABSTRACT

This study examined the effect of kidnapping on economic activities in Okene Local Government Area of Kogi State, Nigeria, against the backdrop of rising insecurity and its growing threat to livelihoods and local development. The study specifically sought to assess the extent to which kidnapping affects agricultural productivity, examine its impact on commercial and trading activities, and evaluate its effect on transportation services. A total of 384 questionnaires were administered, out of which 347 valid responses (90.4%) were used for analysis. The study adopted a quantitative approach using a Binary Logistic Regression (Logit) model to estimate the probability of economic disruption, with variables including frequency of kidnapping, proximity to hotspots, intensity of insecurity, family size, and household income. The findings reveal that kidnapping has a statistically significant effect on all three sectors. In agriculture, frequency of kidnapping ($\text{Exp}(B) = 1.507, p < 0.05$), proximity to hotspots ($\text{Exp}(B) = 6.044, p < 0.05$), and intensity of insecurity ($\text{Exp}(B) = 8.671, p < 0.05$) significantly increased the likelihood of disruption. In commerce, the effects were even stronger, with frequency ($\text{Exp}(B) = 6.184, p < 0.05$), proximity ($\text{Exp}(B) = 11.485, p < 0.05$), and intensity ($\text{Exp}(B) = 208.721, p < 0.01$) showing substantial impacts. Similarly, transportation was significantly affected, with frequency ($\text{Exp}(B) = 4.754, p < 0.05$), proximity ($\text{Exp}(B) = 37.675, p < 0.01$), and intensity ($\text{Exp}(B) = 31.627, p < 0.01$) greatly increasing the likelihood of disruption. The study concludes that kidnapping is a major constraint to economic activities in Okene LGA, primarily driven by both actual incidents and the intensity of perceived insecurity. It recommends targeted security interventions in identified hotspots, the creation of secure economic corridors to restore confidence in farming, trading, and transportation, and proactive measures to reduce the frequency of kidnapping through improved intelligence and coordinated security efforts.

Keywords: Kidnapping; Economic Activities; Insecurity; Binary Logistic Regression; Okene Local Government Area.

1.0 Introduction

Insecurity, particularly violent crime, has become a critical concern globally, with kidnapping emerging as one of the fastest-growing forms of organized crime across Latin America, Asia, and Africa (Kwanga et al., 2022).

Beyond its immediate human cost, kidnapping undermines economic performance by disrupting labour mobility, discouraging investment, and increasing the cost of doing business, especially in developing economies where informal economic activities are dominant (Ramírez, 2024). In Africa, the incidence of kidnapping increased significantly over the past two decades, particularly in countries experiencing weak institutional capacity, high youth unemployment, and persistent poverty. Armed groups and criminal syndicates exploited porous borders, limited surveillance capacity, and fragile security structures to carry out abductions for ransom, substantially disrupting agricultural production, informal trade, transportation networks, and cross-border commerce (Ifatimehin & Aliyu, 2025).

Nigeria represents one of the most affected countries in Africa. What initially appeared as sporadic criminal activity concentrated in the Niger Delta evolved into a highly organized and lucrative enterprise spanning all geopolitical zones, increasingly driven by economic motives. Youth unemployment, poverty, weak law enforcement, arms proliferation, and political instability sustained the expansion of the crime (Agu & Ugada, 2024; Ifatimehin & Aliyu, 2025). Between July 2023 and June 2024 alone, Nigeria recorded approximately 1,130 kidnapping incidents involving over 7,568 victims, with ransom demands estimated at ₦10.99 billion and approximately ₦1.05 billion reportedly paid (The Journal Nigeria, 2024). Beyond ransom payments, kidnapping generates substantial indirect economic costs through reduced productivity, investment withdrawal, market instability, and increased transaction costs across multiple sectors (Ogbuke & Usman, 2025).

At the sub-national level, Kogi State has emerged as an increasingly affected area, particularly in its central and rural communities. The state's strategic geographic position — bordering several states and serving as a major transportation corridor linking southern and northern Nigeria — makes it both a transit route and operational base for criminal groups. Rising incidents of abduction along major highways and within agrarian communities have disrupted the movement of people, goods, and services, in some cases leading to the suspension of infrastructure projects along critical routes such as the Lokoja–Benin and Okene–Auchi roads (Ifatimehin & Aliyu, 2025; Ojonugwa, 2022).

Within this context, Okene Local Government Area (LGA) stands out as a key commercial and transportation hub in Kogi State, connecting the south-western and north-central regions of Nigeria. Economic activities are largely driven by agriculture, trading, and transportation services. However, rising kidnapping incidents have visibly altered economic behaviour. Farmers increasingly avoid distant farmlands during peak farming seasons; traders reduce business hours or refrain from long-distance procurement; and transport operators adjust routes or increase fares to avoid perceived kidnapping hotspots (Amadi-Robert et al., 2024; Agu & Ugada, 2024). These disruptions reflect broader national patterns, where Nigeria's agricultural sector recorded a growth slowdown of about 1.4 percent in the second quarter of 2024, partly attributed to insecurity-related constraints (BusinessDay, 2024).

Despite these observable consequences, empirical studies specifically examining the economic effects of kidnapping in Okene LGA remain scarce. Existing research largely focuses on broader regional or

state-level analyses, or on more prominent kidnapping hotspots such as Kaduna, Zamfara, and the Niger Delta (Kwanga et al., 2022; Sani & Mohammed, 2025). This gap limits the precision of local policy responses and security interventions. This study therefore examines the effect of kidnapping on economic activities, specifically agriculture, commerce, and transportation, in Okene LGA, Kogi State. The study tests three hypotheses: that kidnapping has no significant effect on agricultural productivity; no significant impact on commercial and trading activities; and no significant effect on transportation services in Okene LGA. Findings are intended to inform policy formulation, security planning, and economic recovery strategies in the area.

2.0 Literature Review

Empirical Literature Review

A growing body of empirical literature documents the socio-economic consequences of kidnapping across Nigeria and beyond. Ogbuke and Usman (2025) examined kidnapping's impact on economic security in Enugu State, finding that it significantly stifled economic activity by creating fear and uncertainty, deterring entrepreneurship, discouraging domestic and foreign investment, and triggering brain drain. Similarly, Olu et al. (2025) mapped spatio-temporal patterns of kidnapping in Kaduna State, confirming a statistically significant negative impact on socio-economic activity, with consequences including reduced productivity, disrupted education, and declining tourism. High incidence areas such as Birnin Gwari and Chikun were particularly affected, with ransom demands, unemployment, and poverty identified as primary drivers.

Ifatimehin and Aliyu (2025) assessed kidnapping as a major insecurity challenge to economic development in Kogi State, relying on content analysis of media reports and government records. Their findings indicated a steady rise in kidnapping incidents targeting both elites and ordinary citizens, with significant disruptions to business operations and investor confidence. The authors advocated for broad-based economic development initiatives, including poverty alleviation, job creation, and revival of dormant industries. Sani and Mohammed (2025) similarly documented how kidnapping evolved into a profitable criminal enterprise in Zamfara State, crippling agricultural production, displacing populations, and exacerbating food insecurity and poverty, while discouraging investment and development projects.

OjimaAchimi, Saddiq, and Yusuf (2024) provided sector-specific evidence, finding that over 80% of maize farmers in Igabi LGA, Kaduna State, experienced reduced productivity due to kidnapping, with key constraints including restricted farmland access, labour shortages, and input scarcity. Amadi-Robert et al. (2024) corroborated these findings through ARDL modelling of insecurity and agricultural performance in Nigeria from 1990 to 2021, establishing a long-run relationship between insecurity and agricultural GDP, while highlighting the complex and sometimes mixed effects of specific crime types on sectoral output. These findings collectively underscore the particular vulnerability of the agricultural sector to kidnapping-induced insecurity.

Alimi and Ishaku (2023) investigated kidnapping's effect on household economic security across four Nigerian states using differential opportunity theory, finding a significant negative effect on household employment, income, and property security. Okafor and Ede (2023) extended this analysis to the macroeconomic level, demonstrating through Generalised Method of Moments (GMM) estimation across 67 developing countries that kidnapping significantly increases capital flight, particularly in fragile states. Ismail and Abdallah (2023) confirmed at the local level that kidnapping significantly disrupts socio-economic activities in Birnin Gwari, Kaduna State, while Kwanga et al. (2022) found in Katsina-Ala LGA, Benue State, that kidnapping resulted in decreased income, forced relocation, ransom payments, and decline in business, agriculture, and social gatherings.

At the sub-regional level, Faruk and Abdullahi (2022) documented how armed banditry and kidnapping significantly worsened poverty, unemployment, and food insecurity across six LGAs in Katsina State. Jason, Graham, and Chidinma (2022) found a strong correlation between kidnapping and stunted socio-economic development in Rivers State, including youth disengagement, infrastructure deterioration, and declining human capital. Ojonugwa (2022) and Adegbe (2022) both examined kidnapping in Kogi State, identifying substance abuse, arms proliferation, poverty, unemployment, and corruption as key enablers, while documenting disruptions to farming, loss of income, and weakened business operations and investor confidence.

Beyond Nigeria, Ramírez (2024) developed a theoretical model demonstrating that kidnapping increases operational costs for firms and that government corruption shapes policy responses in ways that further disadvantage businesses in high-risk environments. Bernal-Bellón (2022) used panel data from Colombia to show that kidnapping of both men and women negatively affects regional and national economic growth, while Chapa Cantú et al. (2023) estimated that crime imposes costs equivalent to 4–5% of GDP in Mexico. These international studies reinforce the conclusion that kidnapping carries substantial and measurable economic consequences across diverse contexts.

Gap in the Literature

Existing literature has made significant contributions to understanding the socio-economic implications of kidnapping across various Nigerian states and regions. However, a critical gap remains at the local, sector-specific level. While studies such as Ifatimehin and Aliyu (2025) addressed Kogi State broadly, they relied on secondary sources and generalised state-wide observations without examining the micro-level economic dynamics of specific local government areas. High-profile states such as Kaduna, Zamfara, and Enugu have dominated empirical attention, leaving smaller but significantly affected areas like Okene LGA largely unstudied.

Furthermore, most existing studies do not simultaneously examine the combined effects of kidnapping on agriculture, commerce, and transportation within a single local economy — the core livelihood sectors in areas like Okene. This study addresses that gap by providing a focused, primary data-driven, sector-specific investigation of how kidnapping disrupts economic activities in Okene LGA, Kogi

State. The findings are intended to offer more precise and actionable insights for policymakers, security agencies, and community stakeholders than broader regional analyses have so far provided.

Theoretical Framework

This study is anchored on the Routine Activity Theory (RAT) developed by Cohen and Felson (1979). The theory postulates that the occurrence of crime, such as kidnapping, is not necessarily driven by social pathology but rather by the convergence of three essential elements: a motivated offender, a suitable target, and the absence of capable guardianship. In other words, crime is most likely to occur when individuals with criminal intent encounter vulnerable victims in unprotected settings. This perspective aligns strongly with the context of Okene Local Government Area, where socio-economic vulnerabilities, predictable daily routines, and weak security infrastructure present fertile grounds for kidnapping to thrive.

Routine Activity Theory offers a practical lens through which the spatio-temporal dynamics of kidnapping in rural and semi-urban settings can be understood. As noted by Olu et al. (2025), areas with low police presence and high economic precarity become hotspots for abduction-related crimes. Similarly, Ifatimehin and Aliyu (2025) observed that kidnapping incidents in Kogi State are concentrated in locations with poor security oversight, reinforcing RAT's relevance in explaining not only the prevalence but also the geographical distribution of kidnapping. Furthermore, Sani and Mohammed (2025) highlight that the absence of active community vigilance systems has exacerbated the kidnapping crisis in Zamfara, which mirrors the security realities in parts of Kogi State, including Okene.

While Routine Activity Theory provides the primary framework for understanding the mechanics of kidnapping, this study also draws supporting insights from Strain Theory and Economic Deterrence Theory. Strain Theory, advanced by Merton (1938), suggests that individuals turn to crime when they are unable to achieve societal goals through legitimate means. The increasing unemployment and poverty among youth in Okene, as identified by Ifeanyichukwu et al. (2025), contribute to the pool of motivated offenders, a critical component in the RAT model.

Additionally, the Economic Deterrence Theory posits that individuals will weigh the potential gains from a crime against the risks and punishments associated with it (Becker, 1968). However, in regions like Okene where law enforcement is weak and conviction rates are low, the perceived risk of punishment is minimal. This emboldens criminal elements to engage in kidnapping for ransom, knowing the likelihood of apprehension is slim, a point also emphasized by Ramírez (2024) and Alimi and Ishaku (2023) in their respective studies on the profitability of kidnapping in insecure environments.

3.0 Methodology

Research Design and Study Area

This study adopted a descriptive survey research design, which enabled the collection and analysis of cross-sectional data from respondents to understand the current state of kidnapping and its effects on economic activities in Okene LGA. As supported by Nwankwo (2016), this design is useful for obtaining people's opinions, perceptions, and experiences regarding social issues without manipulating variables.

The study was conducted in Okene Local Government Area, located in the Kogi Central Senatorial District of Kogi State, Nigeria. Okene LGA serves as a major commercial and transportation hub, linking the south-western and north-central regions of the country. It is predominantly inhabited by the Ebira ethnic group, whose economic activities centre on agriculture, trading, transportation, and small-scale enterprises. Despite its economic significance, Okene LGA has experienced growing kidnapping incidents along major highways and outlying communities, generating fear among residents and disrupting daily economic activities. This combination of economic importance and rising insecurity made the area a suitable setting for the study.

Population, Sample Size, and Sampling Technique

The target population comprised residents, traders, farmers, transport operators, and business owners in Okene LGA who had directly or indirectly experienced the effects of kidnapping. Based on National Population Commission (NPC, 2024) projections, the estimated population of Okene LGA stood at approximately 546,000 persons.

The sample size was determined using the Krejcie and Morgan (1970) formula:

$$n = \frac{\chi^2 \cdot N \cdot P(1 - P)}{d^2(N - 1) + \chi^2 \cdot P(1 - P)}$$

Where:

n = required sample size

χ^2 = chi-square value at 95% confidence level = 3.841

N = population size = 546,000

P = population proportion = 0.5

d = margin of error = 0.05

Substituting:

$$n = \frac{3.841 \times 546,000 \times 0.25}{0.0025 \times 545,999 + 0.96025} = \frac{524,257.5}{1,365.96} \approx 384$$

A total of 384 respondents was therefore adopted. A multistage sampling technique was employed: Okene LGA was first stratified into constituent wards; respondents were then proportionately selected from each ward; and finally, simple random sampling was used to select households, traders, farmers, transport operators, and business owners within each ward.

Data Collection and Instrument

Primary data were collected through structured questionnaires administered in both physical and online formats. The instrument comprised two sections: Section A captured socio-demographic characteristics, while Section B measured respondents' perceptions of kidnapping and its effects on agriculture, commerce, and transportation. Responses were initially recorded on a 4-point Likert scale, from Strongly Agree (4) to Strongly Disagree (1), and subsequently recoded into binary outcomes (Yes = 1 and No = 0) to facilitate econometric analysis. Secondary data were sourced from academic journals, government publications, security reports, and credible media sources to provide contextual support. Face and content validity were ensured through expert review, while a pilot test on 30 respondents in a neighbouring LGA yielded a Cronbach's Alpha of 0.82, confirming instrument reliability.

Model Specification

The study employed the Binary Logistic Regression (Logit) model, appropriate given that the dependent variables, agricultural productivity, commercial activities, and transportation services, were binary outcomes indicating disruption (1) or no disruption (0) due to kidnapping.

Functional Model:

$$Y_i = f(\text{FreqKidnapping}, \text{Proximity}, \text{Intensity}, \text{FamilySize}, \text{Income}) \quad 1$$

Econometric (Logit) Model:

$$\text{Logit}(P_i) = \ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \mu_i \quad 2$$

Where:

P_i = probability that economic activity is disrupted for respondent i

X_{1i} = Frequency of kidnapping (Binary: High = 1, Low = 0)

X_{2i} = Proximity to kidnapping hotspot (Binary: Near = 1, Far = 0)

X_{3i} = Intensity of insecurity (Binary: High = 1, Low = 0)

X_{4i} = Family size (Continuous)

X_{5i} = Household income (Continuous, ₦)

β_0 = intercept; β_1 – β_5 = coefficients to be estimated

μ_i = error term

The model was estimated separately for each of the three dependent variables: agricultural productivity (Y_1), commercial/trading activity (Y_2), and transportation services (Y_3). Analysis was performed using SPSS at a 5% significance level. Post-estimation diagnostics were conducted to ensure model robustness. Hypotheses were tested by examining the statistical significance of estimated coefficients: a p-value below 0.05 led to rejection of the null hypothesis. At the same time, odds ratios and marginal effects were computed to interpret the magnitude and direction of impacts.

Table 1: Definitions and Measurement of Variables

Variable	Definition	Measurement
Frequency of kidnapping (X1)	Number of reported or perceived kidnappings in the area	Binary: High = 1, Low = 0
Proximity to hotspot (X2)	Distance of residence, farm, or workplace from known kidnapping hotspot	Binary: Near = 1, Far = 0
Intensity of insecurity (X3)	Respondent's perception of the level of kidnapping threat in the area	Binary: High = 1, Low = 0
Family size (X4)	Number of members in the household	Continuous
Household income (X5)	Monthly income of the household	Continuous (₦)
Agricultural productivity (Y1)	Whether agricultural output was disrupted by kidnapping	Binary: Disrupted = 1, Not disrupted = 0
Commercial/trading activity (Y2)	Whether commercial/trading activities were disrupted	Binary: Disrupted = 1, Not disrupted = 0
Transportation services (Y3)	Whether transportation services were disrupted	Binary: Disrupted = 1, Not disrupted = 0

***Note:** Responses were initially measured using a 4-point Likert scale ranging from Strongly Agree (4), Agree (3), Disagree (2), to Strongly Disagree (1), and were subsequently recoded into binary variables (Yes = 1 and No = 0) to facilitate econometric analysis using Logit and Probit models.*

Source: Researcher's compilation, 2026

4.0 Results and Discussion

Table 2: Response Rate

Description	Frequency	Percentage (%)
Properly Completed Questionnaires	347	90.4
Not Properly Completed / Invalid	37	9.6
Total Questionnaires Retrieved	384	100.0

Source: Researcher's Field Survey, 2026

The response rate presented in Table 2 indicates that out of the 384 questionnaires retrieved from respondents, a large majority, 347 questionnaires, representing 90.4%, were properly completed and found suitable for analysis. Only 37 questionnaires, accounting for 9.6%, were either not properly completed or considered invalid. This high rate of usable responses suggests strong participation and cooperation from respondents, thereby enhancing the reliability and credibility of the data used in the study.

Demographic Information of the Respondents

This section presents the demographic characteristics of the respondents, providing insight into their background and socio-economic profiles.

Table 3: Summary Demographic Distribution of the Respondents

Variable	Category	Frequency	Percentage (%)
Age	18–25 years	53	15.3
	26–35 years	75	21.6
	36–45 years	91	26.2
	46–55 years	83	23.9
	56 years and above	45	13.0
	Total	347	100.0
Gender	Male	166	47.8
	Female	181	52.2
	Total	347	100.0
Occupation	Farming	58	16.7
	Trading/Business	143	41.2
	Transportation	107	30.8
	Civil/Public Service	21	6.1
	Students	4	1.2
	Others (Artisans, Professionals, etc.)	14	4.0
	Total	347	100.0
Household Size	1–3 persons	90	25.9
	4–6 persons	128	36.9
	7–9 persons	103	29.7
	10 persons and above	26	7.5
	Total	347	100.0
Monthly Income (₦)	Less than 50,000	52	15.0
	50,000–100,000	131	37.8
	101,000–200,000	106	30.5
	Above 200,000	58	16.7
	Total	347	100.0
Education Level	No formal education	32	9.2
	Primary education	140	40.3
	Secondary education	101	29.1
	Tertiary education	74	21.3
	Total	347	100.0

Source: Researcher's computations using SPSS, 2026

The age distribution shows that the majority of respondents fall within economically active brackets, with the largest groups aged 36–45 years (26.2%), 46–55 years (23.9%), and 26–35 years (21.6%), indicating that responses reflect the experiences of mature, economically engaged individuals. Gender distribution was fairly balanced, with females accounting for 52.2% and males 47.8%, ensuring that perspectives across genders were adequately captured. Occupationally, respondents were predominantly traders and business owners (41.2%), followed by transport operators (30.8%) and farmers (16.7%), reflecting the commercial and agrarian character of Okene LGA and aligning well with the study's sectoral focus. Most respondents lived in households of 4–6 members (36.9%), suggesting significant family responsibilities that amplify vulnerability to income disruptions caused by insecurity. Income levels were largely modest, with 37.8% earning ₦50,000–₦100,000 monthly and 30.5% earning ₦101,000–₦200,000, placing most respondents within low- to middle-income brackets and heightening their exposure to economic shocks from kidnapping. Educationally, most respondents had primary (40.3%) or secondary (29.1%) education, indicating sufficient literacy to provide reliable and meaningful survey responses.

Descriptive Statistics

This section presents the descriptive analysis of the key variables in the study, highlighting respondents' perceptions of kidnapping and its effects on economic activities in Okene Local Government Area.

Table 4: Descriptive Analysis of Respondents' Perceptions of Kidnapping and its Economic Effects in Okene LGA.

Variables	$\bar{x}$	σ	Remark
Frequency of Kidnapping in Okene LGA	0.696	0.446	High
Proximity to Kidnapping Hotspots in Okene LGA	0.692	0.462	High
Intensity of Insecurity in Okene LGA	0.682	0.464	High
Impact of Kidnapping on Agriculture in Okene LGA	0.728	0.44	High Impact
Impact of Kidnapping on Commerce/Trading in Okene LGA	0.716	0.448	High Impact
Impact of Kidnapping on Transportation in Okene LGA	0.72	0.442	High Impact

Source: Researcher's computations using SPSS, 2026

Table 4 summarizes respondents' perceptions of kidnapping and its economic effects in Okene LGA. Mean scores indicate high kidnapping frequency ($\bar{x} = 0.696$), proximity to hotspots ($\bar{x} = 0.692$), and insecurity intensity ($\bar{x} = 0.682$), with pronounced impacts on agriculture ($\bar{x} = 0.728$), commerce ($\bar{x} = 0.716$), and transportation ($\bar{x} = 0.720$).

Specifically, 84.7% reported frequent kidnapping over five years ($\bar{x} = 0.85$), 73.8% noted a recent increase, and 51.6% knew a victim. Regarding proximity, 72.0% operated near hotspots ($\bar{x} = 0.72$), with 63.7% avoiding certain routes. On insecurity intensity, 73.2% perceived high threats ($\bar{x} = 0.73$), 70.6% felt unsafe conducting business or farming, and 72.9% stated insecurity discouraged investment.

For agriculture, 78.7% reduced or abandoned farming ($\bar{x} = 0.79$), 76.7% reported crop decline, and 74.9% noted disrupted produce transport. In commerce, 79.0% confirmed business impacts ($\bar{x} = 0.79$),

73.8% shortened hours, and 71.8% experienced profit losses. For transportation, 78.4% reported affected services ($\bar{x} = 0.78$), 73.2% noted route avoidance, and 79.8% confirmed delivery disruptions.

Collectively, kidnapping has severely undermined agriculture, commerce, and transportation in Okene LGA, with mean values (0.62–0.85) reflecting widespread economic disruption.

Correlation Matrix

The correlation analysis presented in Table 5 shows the relationships between kidnapping-related variables, household characteristics, and economic activities in Okene Local Government Area.

Table 5: Spearman's rho Correlation Matrix Results

	Y1	Y2	Y3	X1	X2	X3	X4	X5
Y1 Correlation Coefficient	1.000							
Y2 Correlation Coefficient	.114*	1.000						
Y3 Correlation Coefficient	.260**	.129*	1.000					
X1 Correlation Coefficient	.094	.174**	.163**	1.000				
X2 Correlation Coefficient	.164**	.195**	.268**	.211**	1.000			
X3 Correlation Coefficient	.176**	.308**	.260**	.336**	.294**	1.000		
X4 Correlation Coefficient	.161**	.019	.166**	.174**	.169**	.219**	1.000	*
X5 Correlation Coefficient	-.121*	-.055	-.075	-.056	-.144**	-.104	-.284**	1.000
X5 N	347	347	347	347	347	347	347	347

Note: Frequency of kidnapping (X1); Proximity to hotspot (X2); Intensity of insecurity (X3); Family size (X4); Household income (X5); Agricultural productivity (Y1); Commercial/trading activity (Y2); Transportation services (Y3)

*. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's computations using SPSS, 2026

The correlation results show that kidnapping-related variables are generally positively associated with disruptions in economic activities in Okene LGA, though the strength of these relationships varies across sectors. For agricultural productivity (Y1), significant positive relationships exist with proximity to hotspots ($r = 0.164$, $p < 0.01$), intensity of insecurity ($r = 0.176$, $p < 0.01$), family size ($r = 0.161$, $p < 0.01$), and transportation disruption ($r = 0.260$, $p < 0.01$). Household income, however, shows a weak negative relationship ($r = -0.121$, $p < 0.05$), suggesting that higher-income households are slightly less vulnerable.

Commercial/trading activities (Y2) are also significantly and positively related to insecurity variables, especially intensity of insecurity ($r = 0.308$, $p < 0.01$), proximity to hotspots ($r = 0.195$, $p < 0.01$), and frequency of kidnapping ($r = 0.174$, $p < 0.01$). Transportation services (Y3) display similar patterns, with strong positive relationships with proximity to hotspots ($r = 0.268$, $p < 0.01$) and insecurity intensity ($r = 0.260$, $p < 0.01$).

The matrix indicates that agriculture, commerce, and transportation are all adversely linked to kidnapping, particularly through insecurity intensity and hotspot proximity, while income offers limited protective effects. These significant relationships justify further regression analysis.

Logistic Regression Analysis

Table 6 presents the results of the Binary Logistic Regression (Logit) model used to examine the effect of kidnapping on agricultural productivity, commercial activities, and transportation services in Okene Local Government Area.

Table 6: Binary Logistic Regression Results on the Effect of Kidnapping on Economic Activities in Okene LGA

Variables	Agriculture (Y ₁) β (Exp(B))	Commerce (Y ₂) B (Exp(B))	Transportation (Y ₃) B (Exp(B))
Frequency of Kidnapping (X ₁)	0.410 (1.507) **	1.822 (6.184) **	1.559 (4.754) **
Proximity to Hotspots (X ₂)	1.799 (6.044) **	2.441 (11.485) **	3.629 (37.675) ***
Intensity of Insecurity (X ₃)	2.160 (8.671) **	5.341 (208.721) ***	3.454 (31.627) ***
Family Size (X ₄)	0.381 (1.464) **	0.178 (1.195)	0.332 (1.394)
Household Income (X ₅)	-0.183 (0.833)	-0.022 (0.978)	-0.086 (0.918)
Constant	0.620 (1.859) **	-4.207 (0.015) ***	-2.908 (0.055) **
Observations	347	347	347

Note: Frequency of kidnapping (X₁); Proximity to hotspot (X₂); Intensity of insecurity (X₃); Family size (X₄); Household income (X₅); Agricultural productivity (Y₁); Commercial/trading activity (Y₂); Transportation services (Y₃)

*, is significant at the 0.10 level; **, is significant at the 0.05 level; ***, is significant at the 0.01 level

Source: Researcher's computations using SPSS, 2026

The binary logistic regression results in Table 6 present the effect of kidnapping on three key economic activities, agriculture, commerce/trading, and transportation, in Okene Local Government Area.

Effect of Kidnapping on Agricultural Productivity

The logistic regression results show that kidnapping significantly disrupts agricultural productivity in Okene LGA. Frequency of kidnapping (Exp(B) = 1.507) suggests that increased incidents raise the odds of agricultural disruption by about 1.5 times. Proximity to hotspots (Exp(B) = 6.044) indicates that farmers near high-risk areas are about six times more likely to experience disruption, while intensity of insecurity (Exp(B) = 8.671) exerts the strongest effect, showing that farmers who perceive higher insecurity are about 8.7 times more likely to reduce or abandon farming. Family size (Exp(B) = 1.464) has a weak positive association, whereas household income (Exp(B) = 0.833) shows a weak negative relationship, implying that higher-income households are slightly less vulnerable.

These findings support Human Security Theory and Routine Activity Theory, both of which explain how unsafe environments reduce access to productive spaces and expose rural livelihoods to criminal threats. The results are consistent with OjimaAchimi et al. (2024) and Sani and Mohammed (2025), who found that kidnapping reduces farm access, labour availability, and output. Overall, kidnapping constitutes a strong barrier to agricultural productivity in Okene LGA.

Effect of Kidnapping on Commerce/Trading

The regression results indicate that kidnapping strongly and significantly disrupts commerce and trading in Okene LGA. Frequency of kidnapping ($\text{Exp(B)} = 6.184$) implies that rising incidents increase the odds of business disruption by about 6.2 times. Proximity to hotspots ($\text{Exp(B)} = 11.485$) further shows that traders near risky areas are about 11.5 times more likely to experience disruption. Most strikingly, intensity of insecurity ($\text{Exp(B)} = 208.721$) has the largest effect, indicating that perceived insecurity overwhelmingly drives business withdrawal, reduced movement, and shortened market activities. Family size ($\text{Exp(B)} = 1.195$) and household income ($\text{Exp(B)} = 0.978$) show weak and insignificant effects.

These findings are consistent with Economic Deterrence Theory, which suggests that individuals withdraw from economic activity when risks outweigh expected returns, and with Human Security Theory, which identifies safety as a precondition for livelihood participation. Empirically, the results align with Ogbuke and Usman (2025), Ismail and Abdallah (2023), and Okoli et al. (2023), all of whom found that insecurity suppresses entrepreneurship and market participation. The evidence therefore suggests that kidnapping has a severe and direct negative impact on commercial activities in Okene LGA.

Effect of Kidnapping on Transportation

The logistic regression results reveal that kidnapping significantly disrupts transportation services in Okene LGA. Frequency of kidnapping ($\text{Exp(B)} = 4.754$) indicates that increased incidents raise the likelihood of transport disruption by about 4.8 times. Proximity to hotspots ($\text{Exp(B)} = 37.675$) has a particularly strong effect, showing that operators near dangerous routes are about 37.7 times more likely to experience disruption. Similarly, intensity of insecurity ($\text{Exp(B)} = 31.627$) indicates that higher perceived insecurity greatly increases the probability of route avoidance, service suspension, and mobility restrictions. Family size ($\text{Exp(B)} = 1.394$) and household income ($\text{Exp(B)} = 0.918$) remain weak and statistically insignificant.

These findings are well explained by Routine Activity Theory, which highlights how predictable travel routes become vulnerable in the absence of effective security, and by Human Security Theory, which emphasizes safe mobility as essential to development. The results are consistent with Olu et al. (2025), Kwanga et al. (2022), Faruk and Abdullahi (2022), and Isyaku et al. (2023), who all reported severe transport disruptions in insecure regions. Overall, kidnapping has an immediate and pronounced negative effect on transportation, undermining mobility, trade, and economic connectivity in Okene LGA.

Post Estimation Tests

The post-estimation diagnostic tests were conducted to assess the overall fitness, explanatory power, and predictive accuracy of the three logistic regression models used in the study.

Table 7: Summary of Diagnostic Tests

Diagnostic Test	Agriculture (Y ₁)	Commerce (Y ₂)	Transportation (Y ₃)
Omnibus Test (Chi-square)	23.690*** (p = 0.000)	47.401*** (p = 0.000)	48.773*** (p = 0.000)
Cox & Snell R ²	0.606	0.628	0.531
Nagelkerke R ²	0.571	0.659	0.651
Hosmer–Lemeshow Test (Chi-square)	9.377 (p = 0.312)	3.270 (p = 0.916)	13.991 (p = 0.082)
Overall Classification Accuracy (%)	89.0%	90.2%	88.8%
Area Under Curve (AUC)	0.727	0.814	0.819

Source: Researcher's computations using SPSS, 2026

The diagnostic statistics confirm the robustness and reliability of the three logistic regression models.

For agricultural productivity (Y₁), the Omnibus test is significant ($\chi^2 = 23.690$, $p = 0.000$), indicating that the predictors jointly improve model fit. The Cox & Snell R² (0.606) and Nagelkerke R² (0.571) show substantial explanatory power. The Hosmer–Lemeshow test ($p = 0.312$) is not significant, confirming good model fit. The model correctly classifies 89.0% of cases, with an AUC of 0.727, indicating acceptable predictive accuracy.

For commerce/trading (Y₂), the Omnibus test ($\chi^2 = 47.401$, $p = 0.000$) confirms strong overall fitness. Cox & Snell R² (0.628) and Nagelkerke R² (0.659) suggest high explanatory strength, while the Hosmer–Lemeshow test ($p = 0.916$) indicates excellent calibration. Classification accuracy is 90.2%, and the AUC of 0.814 reflects strong discrimination.

For transportation (Y₃), the model is also significant ($\chi^2 = 48.773$, $p = 0.000$), with R² values (0.531–0.651) indicating moderate-to-strong explanatory power. The Hosmer–Lemeshow test ($p = 0.082$) confirms acceptable fit. Classification accuracy is 88.8%, and the AUC of 0.819 indicates very good predictive performance.

Test of Hypotheses

The three hypotheses in this study were tested in this section based on the logisitic estimation results

Hypothesis One (Agriculture)

The null hypothesis (H₀₁) stated that kidnapping has no significant effect on agricultural productivity in Okene LGA. However, regression results show that frequency of kidnapping ($\text{Exp}(B) = 1.507$, $p < 0.05$), proximity to hotspots ($\text{Exp}(B) = 6.044$, $p < 0.05$), and intensity of insecurity ($\text{Exp}(B) = 8.671$, $p < 0.05$) significantly increase the likelihood of agricultural disruption. These findings indicate that rising incidents and heightened insecurity lead farmers to reduce or abandon farming. Therefore, H₀₁ is rejected and H₁₁ is accepted.

Hypothesis Two (Commerce/Trading)

The null hypothesis (H_{02}) stated that kidnapping has no significant impact on commerce in Okene LGA. Results show that frequency ($\text{Exp}(B) = 6.184$, $p < 0.05$), proximity ($\text{Exp}(B) = 11.485$, $p < 0.05$), and intensity of insecurity ($\text{Exp}(B) = 208.721$, $p < 0.01$) significantly increase commercial disruption. Traders are more likely to reduce operations or withdraw entirely as insecurity rises. Hence, H_{02} is rejected and H_{12} is accepted.

Hypothesis Three (Transportation)

The null hypothesis (H_{03}) stated that kidnapping has no significant effect on transportation services. However, frequency ($\text{Exp}(B) = 4.754$, $p < 0.05$), proximity ($\text{Exp}(B) = 37.675$, $p < 0.01$), and insecurity intensity ($\text{Exp}(B) = 31.627$, $p < 0.01$) significantly increase transportation disruption. Operators are more likely to avoid routes or suspend services under rising insecurity. Therefore, H_{03} is rejected and H_{13} is accepted.

Discussion of Findings

The findings provide strong evidence that kidnapping significantly disrupts agriculture, commerce, and transportation in Okene LGA. Across the three Logit models, frequency of kidnapping, proximity to hotspots, and intensity of insecurity consistently show positive and significant effects, indicating that insecurity is deeply embedded in local economic life and affects production, exchange, and mobility simultaneously.

In agriculture, intensity of insecurity emerges as the strongest predictor of disruption, suggesting that fear of victimization compels farmers to reduce or abandon cultivation. This supports Human Security Theory and Routine Activity Theory, which emphasize how unsafe environments undermine livelihoods. The results align with OjimaAchimi et al. (2024) and Sani and Mohammed (2025), confirming that kidnapping restricts farm access, labour, and output.

For commerce, insecurity strongly reduces market participation and profitability, with perceived insecurity exerting the largest effect. This supports Economic Deterrence Theory, as traders withdraw when risks outweigh benefits. The findings are consistent with Ogbuke and Usman (2025) and Okoli et al. (2023), who report that insecurity suppresses entrepreneurship and investment.

Transportation is similarly affected, particularly by hotspot proximity and insecurity intensity. Route avoidance, fare increases, and delivery delays reflect mobility breakdowns consistent with Routine Activity Theory and prior studies (Olu et al., 2025; Kwanga et al., 2022).

Above all, kidnapping operates as a systemic economic constraint in Okene LGA, cutting across sectors and socio-economic groups.

5.0 Conclusion and Recommendations

This study examined the effect of kidnapping on agriculture, commerce/trading, and transportation in Okene LGA using binary logistic regression. The findings provide clear evidence that kidnapping significantly disrupts all three sectors. Frequency of kidnapping, proximity to hotspots, and intensity of insecurity consistently increase the likelihood of economic disruption, with intensity of insecurity emerging as the strongest predictor. Agricultural activities are reduced as farmers abandon or limit access to farmlands. Commercial operations decline due to shortened business hours, restricted market participation, and reduced profitability. Transportation services are disrupted through route avoidance, higher fares, and delays in the movement of goods and people. Household income and family size show relatively minor effects, indicating that kidnapping impacts cut across socio-economic groups. The study concludes that kidnapping is not merely a security issue but a major constraint on local economic development. Its direct and indirect effects create a climate of fear that weakens productivity and undermines livelihoods in Okene LGA.

Based on the specific findings of this study, the following recommendations were proposed:

- i. Security efforts should be intensified in identified hotspots, including farmlands, markets, and major transport routes, through increased patrols and rapid response systems.
- ii. Also, the should secure economic corridors and monitored market environments should be established to restore confidence among farmers and traders.
- iii. Finally, reducing kidnapping frequency through improved intelligence gathering, inter-agency coordination, and community-based reporting systems is essential to minimizing economic disruption and promoting sustainable development.

This study contributes to knowledge by providing micro-level empirical evidence on how kidnapping affects agriculture, commerce, and transportation in Okene LGA. Unlike broader state or national studies, it offers a sector-specific and localized analysis of economic disruption. Methodologically, it applies Binary Logistic Regression to estimate the probability of sectoral disruption, advancing beyond descriptive approaches. The study also identifies intensity of insecurity and proximity to hotspots as key predictors, emphasizing the roles of perceived risk and spatial factors, while reinforcing Human Security and Routine Activity theories in a local context.

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