Military Expenditures, Insecurity, and Food Prices in Nigeria

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ABSTRACT

This study investigated the link between military expenditures, insecurity and food prices in Nigeria from 2005 to 2024. The specific objectives were to investigate the effect of military expenditures on insecurity in Nigeria and to determine the effect of insecurity on food prices in Nigeria. Secondary data from the Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics and the World Bank Indicators, etc were employed in the study. The study adopted the Auto Regressive Distributed Lag Model (ARDL) to analyze the secondary data. The result of the long- run ARDL estimation of the food price equation revealed that insecurity has a positive and insignificant effect on food prices, minimum wage has a positive and insignificant effect on food prices, imports has a positive and significant effect on food prices, exports has a negative and significant effect of food prices, exchange rate has a positive and significant effect on food prices while agricultural outputs has a negative and significant effect on food prices in the long run period. Furthermore, the result of the long- run ARDL estimation of the insecurity equation revealed that military expenditures has a positive and insignificant effect on insecurity, unemployment rate has a positive and significant effect on insecurity, poverty headcount has a negative and significant effect on insecurity, inflation rate has a positive and significant effect on insecurity while gross fixed capital formation has a negative and insignificant effect on insecurity in the long run period. The study concluded that the positive but insignificant relationship between insecurity and food prices in Nigeria suggests that insecurity alone does not fully explain fluctuations in food prices. It was also concluded that the positive but insignificant relationship between military expenditure and insecurity implies that increasing defense budgets alone cannot solve Nigeria's security crisis. Instead, Nigeria must adopt a broader security architecture that addresses economic, social, and political drivers of conflict alongside military measures. Based on the findings and conclusions it was recommended that local communities should prioritized strengthening the rural security to protect agricultural activities. Also, the government should encourage farmers to adopt insurance schemes that protect against losses due to conflict or instability. More so, government should prioritize comprehensive security reforms beyond military spending. Furthermore, the government should ensure that military budgets are efficiently allocated, managed, and monitored, among others.

Keywords: Military, Expenditures, Insecurity, Food, Prices

INTRODUCTION

The economic effect of military spending on insecurity and well-being of the populace continues to be the subject of considerable debate with a lack of any consensus in the literature. Military expenditure has globally been on the rise particularly in the last two decades as a result of persistent violence, complex aggression and terrorism thereby making it a necessity for governments all over the world to boost its military budget,

(Peltier,2023). In the case of Nigeria, the country faces internal threats as a result of hostilities from several sects like Boko Haram insurgencies in North-East, communal conflicts, Fulani herdsmen clashes, and various militant groups in the Niger Delta region, thus, causing increase in insecurity which often leads to adverse impacts on food prices.

Globally, military expenditure has increased tremendously fatter than ever with an estimate of $1917 billion in 2019, the highest level since 1988, with the United States leading in military expenditure of $732 billion, which remained by far the largest spender in the world in 2019, accounting for 38 percent of global military spending. China the 2nd largest military spender with $261 billion equivalent to 14 percent of global military expenditure, Russia, United Kingdom, France, Japan, India, Saudi Arabia, Germany and Brazil at $71.9, $62.7, $62.5, $59.3, $48.5, $46.7 and $35.4 billion respectively in the world and the highest among states in western Europe (Momoh, 2024). Furthermore, in 2020, 2021, 2022 and 2023, total global military expenditures stood at 1.98 trillion dollars, 2.11 trillion dollars, 2.24 trillion dollars and 2.44 trillion dollars respectively. United States maintained its position as the top spender with 916 billion dollars in 2023, accounting for 68 per cent of the North Atlantic Treaty Organization's (NATO) total military expenditure. Similarly, China allocated 296 billion dollars in 2023, marking its 29th consecutive year of increased military spending while Russia increased its military budget by 24 per cent to 109 billion dollars, driven by its ongoing conflict in Ukraine, (The Guardian, 2024; Financial Times, 2024 & Reuters, 2024).

At the regional level, Africa's military expenditure is estimated at $41.2 billion in 2019. Algeria's military expenditure of $10.3 billion in 2019 was the highest in North Africa and Africa as a whole, South Africa's military spending was the highest in sub-Saharan Africa at $3.5 billion and Nigerian was the second largest spender in Sub-Saharan Africa, with an estimate of $1.9 billion (Stockholm International Peace Research, 2018; Abiodun, Asaolu & Ndubuisi, 2020). Total military spending for Sub-Saharan Africa in 2020 stood at 18.2 billion dollars, marking a 1.92 per cent increase from 2019. In 2021, total military spending was around 40 billion dollars and in 2022 it decreased by 5.3 per cent to 38 billion dollars. In 2023, total military spending in Africa increased to 51.6 billion dollars, the highest since 2014, (Stockholm international Peace Research Institute (SIPRI),2024).

Nigeria faces significant security challenges, which affect food production and prices, compromising national stability. Military expenditure is expected to address insecurity, but its effectiveness is uncertain. In recent years spending on the military by the Nigeria state has been volatile (Eneje & Ogbu 2022). In 2005, Nigeria's military expenditures were N88.51 billion representing 0.40 per cent of GDP. In 2010, military spending stood at N299.11 billion representing 0.54 per cent of GDP. In 2015, it surged to N397.50 billion representing 0.42 per cent of GDP. Accordingly, Nigeria's military expenditures for 2020 was N974.91 billion representing 0.63 per cent of GDP. In 2021, 2022, 2023 and 2024, Nigeria's military expenditures were N1.783 trillion, N1.316 trillion, N1.975 trillion and N3.25 trillion respectively (Stockholm international Peace Research Institute (SIPRI),2024).

The scope and coverage of security expenditure include all budgetary allocation directed at safeguarding the country's borders against foreign threats, and also, any expenses incurred in connection with security related activities within Nigeria, (Dunne & Tian, 2016).

Accordingly, military spending has continued to be an important focus for research as it is an expenditure by governments that has influence beyond the resources it takes up, especially when it leads to or facilitates conflicts. While most countries need some level of security to deal with internal and external threats, there are opportunity costs, as the money could be used for other purposes that might improve welfare. Thus, investments in infrastructure, healthcare, education, and emergency preparedness, for instance, have all suffered as military spending and industry have crowded them out. Increased resources channeled to the military further increase the political power of military industries, ensuring that the cycle of economic dependence continues – militarized sectors of the economy see perpetual increases in funding and manpower while other human needs go unmet, (Peltier, 2023).

In Africa, although prices of food commodities vary widely among countries, rising food price inflation is a shared trend in the continent. For example, in August, 2022, the overall food price inflation in Africa grew to

an average of 12.2 per cent. This is about 0.5 per cent rise from 11.7 per cent in 2020, and 5.3 per cent rise from 6.9 per cent in 2019. A survey of market prices of edible oils, fruits, and five major grains (cassava, maize, beans, rice and wheat) consumed in the continent shows that countries with high food price inflation are Zimbabwe, Sudan and Ghana. In contrast, countries with low food price inflation include Benin, Guinea, and Gabon. Zimbabwe had the highest food price inflation (280 per cent in September 2022) followed by Sudan (125 per cent in September 2022) and Ghana (33.9 per cent in September 2022), while Benin (0.3 per cent) has the lowest food inflation rate followed by Guinea (2.7 per cent) and Gabon (3 per cent). The high food inflation rates in Zimbabwe, Sudan and Ghana were driven by net import dependence, volatile effective exchange rates and political instability in the countries (James, 2022).

In Nigeria, the rising cases of insecurity in Nigeria are alarming leading to death of farmers at the hands of armed herdsmen, unknown gunmen and other militia groups. This situation scared farmers away from their farms, leading not only to reduction in the quantity of staple foods but also in the total output of the agricultural sector in the country. More so, the rate of food price inflation has been on the increase for over half a decade. Food price inflation hit 23.12 per cent in August of 2022 from 22.02 percent in July, 2022. This is as result of increases in prices of Bread, Cereals, Milk, Cheese, Eggs, Fish, Soft drinks, Coffee, Tea, Fruits, Meat, Oils and fats, and Vegetables (National Bureau of Statistics, 2022). Factors that have contributed to hike in food prices in Nigeria ranged from increase in fuel price, transportation costs to insecurity in the country. Against this backdrop, this study examines the link between military spending, insecurity and food prices in Nigeria.

MATERIALS AND METHODS

Materials

Momoh (2024) inspected how an increase in military spending may affect both human security and the proliferation of weapons. Data for this study were gathered from secondary sources using a historical research approach, and content analysis was used for analysing the data. This study makes the case that increasing military spending has detrimental effects on human security in a variety of contexts, including the political, socio-psychological, and economic components of daily living. On the economic front, funds that could be utilised to raise citizen welfare are instead being spent to buy military hardware and software. In the political realm, it results in invasion and the funding of proxy wars, while on the social front, it has sparked hostility and concerns among nations. Lastly, this study recommended among other things that there is the need for collective efforts by member states of the United Nations through collective security to pressurized erring states.

Eneje and Ogbu (2022) examined the impacts of military expenditure on human security in Nigeria. Following ex post facto research design, data were collected from Budget Nigeria, newspapers, and corporate websites and analyzed using content analysis. The results revealed that military expenditure is on the increase, caused by increasing crime wave, with negative effects on human security indicators as health, food security, economy and education. Human security is vital for national development and should form the essential agenda of all nations. The government and its policymakers should focus more on harm reduction by investing in human security to reduce security threats and increase the capacity for peace building and public safety, with the resulting effects on budget reduction.

Abiodun, Asaolu and Ndubuisi (2020) examines the reasons insecurity still persists in Nigeria despite huge budgetary allocations to defence and military spending on war against terror and insecurity in the last one decade, and implications for state politics, economy and national security. The study employed a progressive theory of public expenditure while it relies on both primary and secondary sources of data. The study in its findings reveals that despite huge spending or expenditures on military operations within the years, the security of the state remains deteriorating as a result of bad governance, corruption and non-transparent procurement activities, poor leadership, and lack of defence strategies among others; thereby creating some loopholes in national politics, economy and weakened national security respectively. The security situation remains worsening; Boko haram attacks in the northeast, armed banditry in northwest, kidnapping in all parts of the country, militancy in Niger Delta and Biafran agitation for secession in the country. The study, therefore,

recommends that Nigerian government should endeavor to: shun corruption; ensure good governance, transparent procurement processes; and adopting defence strategies in compliance with global best practices towards ensuring a stable and secured society.

Nwozor and AkeMadupe (2019) posited that one of the major bases upon which human security stands is the guarantee that everyone will have access to the necessity of life, of which food is among them. The achievement of food security has become the major goal of nation states as well as the global community. However, food security according to Food and Agricultural Organization (FAO) is when all people of all times have physical and social and economic access to safe food consumed in sufficient quantity and quality to meet dietary needs and food preferences and is supported by the environment of adequate sanitation, health services and care, allowing for a healthy and active life.

Insecurity and food prices

Odu, Hassana and Afees (2024) conducted an analysis on insecurity and food inflation in Nigeria through exploratory and model-based scenarios. Their research revealed that if there are more attacks, food prices will increase at the aggregate and state levels. This is true for both in-sample and out-of-sample forecasts. They also found that implementing unconventional monetary policies in the agricultural sector may help reduce food inflation in some states. Therefore, they suggested that the government should prioritize efforts to reduce insecurity across all states and utilize unconventional monetary tools to mitigate food inflation during turbulent periods.

Using annual data from 2018 to 2022, Alfa and Alexander (2024) examined the trend of food price inflation and insecurity in post-covid-19 era in Nigeria. Data on prices of grains (maize, beans, rice and wheat), prices of fast foods (noodles, semovita, garri, spaghetti, egg, and milk, Coca-Cola) and failed state index (proxy for insecurity) were collected for the study. Graphs and charts were used to analyze the data. Findings from trend analysis show that Nigeria markets had, on the average, experienced more than 100 per cent rise in prices of wheat, rice, maize and beans over the period of 5 years investigated. Findings also show that there is about 68.8 per cent and 27.3 per cent increase in average prices of noodles and spaghetti respectively, while the prices of semovita, garri, egg, and milk, have increase more than double, except Coca-Cola whose price rises by about 27.4 per cent within the period of five years investigated. Findings further show that insecurity and COVID-19 pandemic were fundamental factors that triggered food price inflation over the study period. Given the findings, the study recommends that the stakeholder in Nigeria should increase expenditure on covid-19 vaccines and intensify measures that reduce insecurity in Nigeria.

Tanko, Nabuche and Abdullahi (2024) examined the effects of insecurity on food production in the Sokoto East Senatorial Zone, Nigeria using a survey data for a sample of three hundred and fifty-five (355) respondents. In the model the dependent variable is food production while the independent variables are insecurity and other factors such as climate change, access to inputs, and farming techniques. In the estimation, the study used Ordinary Least Square regression and the results show that that insecurity has a significant negative impact on food production in the study area. Additionally, the study found that other factors, including limited access to inputs, inadequate infrastructure, and unfavorable weather conditions, also contribute to a reduction in food production. These findings emphasize the need for policymakers and stakeholders to address issues of insecurity and other related factors to enhance food production and ensure food security in the Sokoto East Senatorial Zone. Implementing measures to improve security, provide better access to resources, and promote resilient farming practices will be crucial in mitigating the negative impacts on food production.

Ilesanmei and Odefadehan (2022) examined the impact of insecurity on agricultural food loss in Nigeria using the time series data from 2011 –2020. Regression analysis was employed to evaluate the impact of insecurity on agricultural food loss in Nigeria. The relationship examined was between the dependent variable: Agricultural gross domestic product (AGDP) which serves as a representative of agricultural food production. The explanatory (independent) variables are poverty rate, unemployment rate, crime rate, and federal government expenditures on internal security in Nigeria. The result indicated an R2 value of 0.42 which implies that 42% of the proportion of variation in AGDP was explained by the independent variables. Also, the

result revealed that CIR and UNEMP were negatively related to Agricultural productivity (AGDP) i.e. contribution to food loss whose coefficients indicate (-0.27) and (-0.67) respectively. It is therefore recommended that Government and policymakers should make an unrelenting effort to improve the agricultural sector with the aid of modern mechanized equipment in order to reduce the level of unemployment, poverty, and crime rate in Nigeria and solve issues of insecurity in the country.

Jung (2021) examines food insecurity in Nigeria, investigates its drivers in a cross-country setting, and assesses the role of policies. Using two proxies for food security, the study finds that high per capita consumption, high yields and low food inflation support food security. Cross-country estimates of yields and production provided by the FAO/OECD reveal that use of inputs is lower in Nigeria than in other countries, and that policies to raise crop yields positively correlate with better food security conditions.

Eze (2020) examines the prices of food products and its implications for food security in Nigeria. Data for the study were analyzed using histogram and Laspyres index. The study show that food price inflation is caused by frequent hike in the prices of petroleum products coupled with poor performance of the agricultural sector. The study further revealed that it is the poverty syndrome occasioned by a lack of purchasing power coupled with food price inflation that renders the populace vulnerable to food insecurity.

In a study carried out by Adebisi and Okotie, (2017) on an appraisal of Boko Haram‘s insurgency in the agricultural sector in Nigeria. They adopted a time series data analysis research approach, while descriptive statistics and t-tests were used to analyse the secondary data before and during the national insurgency. The result of their findings showed that agricultural value added to the GDP was high before the Boko Haram disruption and has reduced during the period of insurgency. According to their findings, they recommend that government should take legal and justifiable actions to make sure that the incidence caused by the Boko Haram on agricultural food loss is addressed, and the farmers are encouraged with better incentives to go back to their farmlands.

Chronology of Defence (Military) Budget and Spending in Nigeria 1999 - 2024

i. Military Budget (1999 - 2009)

The year 1999 marks the end of military administration in the country, giving room for transition to democratic government after several years of military rule in the state. Table 2.1 below shows the military budget for the period:

Table 2.1: Military (Defence) Budget in Nigeria (1999 - 2009)

Military (Defence) Budget in Nigeria (1999 - 2009)		
Year	**Expenditures (USD Billion)**	**Percentage (%) in Gross Domestic Product (GDP)**
1999	0.49	0.86 %
2000	0.37	0.54%
2001	0.57	0.78%
2002	0.9	0.95%
2003	0.59	0.57%
2004	0.64	0.49%
2005	0.67	0.40%
2006	0.78	0.35%
2007	0.97	0.37%
2008	1.62	0.49%
2009	1.5	0.51%

Source: Central Bank of Nigeria; and Suleiman (2015).

During the period, it is observed that budgetary allocations to military are rather too low in the country as a result of one reason or the other.

ii. Military Budget (2010 - 2024)

Table 2.2 reveals the military (defence) budget for the period 2010 - 2019

Military (Defence) Budget in Nigeria (2010 - 2024)		
Year	**Expenditures (USD Billion)**	**Percentage (%) in Gross Domestic Product (GDP)**
2010	1.99	0.54 %
2011	2.38	0.58%
2012	2.32	0.50%
2013	2.42	0.47%
2014	2.36	0.41%
2015	2.07	0.42%
2016	1.72	0.43%
2017	1.62	0.43%
2019	2.04	0.51%
2019	2.15	0.46 %
2020	2.57	0.63%
2021	4.47	1.01 %
2022	3.11	0.65 %
2023	3.19	0.81%
2024	3.85	N/A

Source: (Stockholm international Peace Research Institute (SIPRI), 2024).

Surprisingly, it is clear that between 2010 and 2024, Nigeria's military budgetary allocations and spending increased unavoidably. This was done in order to renew military efforts to destroy the activities of Boko haram terrorists in the northeast, checkmate the rise of militancy in the southeast, stop armed banditry in the northwest, and deal with other kidnapping cases throughout Nigeria. Additionally, some advanced or modern military hardware and weapons/ammunitions were purchased. The Nigeria National Assembly authorized the budget increase to aggressively address the problems of insufficient funding for Nigerian military and defense activities, which is the reason Boko haram cult has been conducting offensive attacks in the area.

Table 2.3: Top Ten Military Spending Nations in 2023

S/N	**Country**	**Military Budget**	**Global Percentage of Military Budget**
1	**United States**	**USD 916 Billion**	**37%**
2	**China**	**USD 296 Billion**	**13%**
3	**Russia**	**USD 130 Billion**	**4.5 %**
4	**India**	**USD 83.6 Billion**	**3.4%**
5	**Saudi Arabia**	**USD 75.8 Billion**	**3.1%**
6	**United Kingdom**	**USD 74.9 Billion**	**3.1 %**
7	**Germany**	**USD 66.8 Billion**	**2.7%**
8	**Ukraine**	**USD 66.4 Billion**	**2.7%**
9	**France**	**USD 61.3 Billion**	**2.5%**
10	**Japan**	**USD 50.2 Billion**	**2.1%**

Source: SIPRI, 2025

From Table 2.3 above, the United States occupy the top position as the country with the highest military budget of USD 916 billion with a global percentage of military budget of 37 %. China occupies the second position with a military budget of USD 296 billion and a global percentage of the military budget of 12 %. Moreover, Russia occupies the third position with USD 130 billion with a global percentage of military budget of 4.5 %. India occupies the fourth position with a military spending of USD 83.6 billion and a global percentage of the military budget of 3.2%. Besides, Saudi Arabia occupies the fifth position with a military spending of USD 75.8 billion and a global percentage of the military budget of 3.1%. United Kingdom occupies the sixth position with a military spending of USD 74.9 billion and a global percentage of the military

budget of 3.1 %. Germany occupies the seventh position with a military spending of USD 66.8 billion and a global percentage of the military budget of 2.7%. Ukraine occupies the eighth position with a military spending of USD 64.8 billion and a global percentage of the military budget of 2.7 %. In addition, France occupies the ninth position with a military spending of USD 61.3 billion and a global percentage of the military budget of 2.5 %. Furthermore, Japan occupies the tenth position with a military spending of USD 50.2 billion and a global percentage of the military budget of 2.1%.

Global view of High food prices and Food security

Globally, the market prices of foodstuffs have increased since 2019, following the outbreak of COVID-19 pandemic, and have almost doubled by 2022 in most developed and developing economies. For example, Turkey, one of the developed economies, with food price inflation of 13.2 per cent in 2020, recorded close to a double rate of 24.8 per cent in the first quarter of 2022 (Abubakar, Alexander, Alfa, & Esther, 2022). The world's food price inflation index rose to an average of 27.7 per cent in August 2022, from an average of 23.9 per cent and 21.6 per cent in December 2021 and December 2020 respectively (International Monetary Fund (IMF), 2022). Factors that have contributed to these inflationary pressures include global insecurity and COVID-19 pandemic, and had also dragged on the global markets for grains, tuber crops, edible oils, fruits and vegetables across the world (Alfa, 2019).

In Africa, although prices of food commodities vary widely among countries, rising food price inflation is a shared trend in the continent. For example, in August, 2022, the overall food price inflation in Africa grew to an average of 12.2 per cent. This is about 0.5 per cent rise from 11.7 per cent in 2020, and 5.3 per cent rise from 6.9 per cent in 2019. A survey of market prices of edible oils, fruits, and five major grains (cassava, maize, beans, rice and wheat) consumed in the continent shows that countries with high food price inflation are Zimbabwe, Sudan and Ghana. In contrast, countries with low food price inflation include Benin, Guinea, and Gabon.. Zimbabwe had the highest food price inflation (280 per cent in September 2022) followed by Sudan (125 per cent in September 2022) and Ghana (33.9 per cent in September 2022), while Benin (0.3 per cent) has the lowest food inflation rate followed by Guinea (2.7 per cent) and Gabon (3 per cent). The high food inflation rates in Zimbabwe, Sudan and Ghana were driven by net import dependence, volatile effective exchange rates and political instability in the countries (James, 2022).

FAO has examined the impact of high food prices on household welfare. The empirical analysis described in this section shows that, in the short term, the vast majority of poor urban and rural households arehit hardest by higher prices. Among the poor, it is the landless and female-headed households that are most vulnerable to sharp rises in basic food prices. The relative impact is not uniform, even among poor households, and depends on a number of factors. Particularly important is the extent to which households produce food for their own consumption compared with what they buy in the marketplace. A household is defined as a net food buyer when the value of food staples it produces is less than the value of food staples it consumes. Poor households tend to be net buyers of food, even in rural areas where agriculture and staple food production determine the principal livelihoods for many.

According to FAO data from nine developing countries, about three quarters of rural households and 97 percent of urban households are net food buyers. Net food buyers stand to lose from an increase in the price of food staples. The extent of the impact depends in part on dietary patterns. Households that spend a large proportion of their income on internationally traded food staples (such as wheat, rice and maize) are more likely to suffer a decline in overall welfare. These include most urban households. The extent of this decline depends on the ability of a household to shift consumption towards less-expensive foods that do not generally enter global markets, such as roots and tubers. In contrast, households with land and those that derive some income from the production and sale of food staples that are also traded internationally could benefit from higher world prices. However, high fuel and fertilizer prices are likely to offset some of these gains. In the medium term, most farmers tend to shift production towards more profitable crops. This could enable them to move from being net buyers to net sellers of staple foods. Their ability to change depends on the movement in relative prices as well as their access to land, resources and services needed to facilitate change.

FAO has simulated the short-term impact of a 10-percent increase in the price of key internationally traded staple foods on the income of different types of households in urban and rural area. It was not possible to use

actual price changes in each country as local currency prices do not always reflect world prices in a consistent manner and the increases in staple food prices vary among locations within countries. Using a uniform 10-percent increase illustrates how the effects are distributed among different household groups and allows more meaningful cross-country comparisons. Simulating the higher price increases occurring in many countries would yield higher impacts, but the distribution among household groups would remain the same. In terms of the percentage loss in income, the results show that the poorest households are hit hardest by rising food prices in both urban and rural areas. This is a cause for concern because the erosion of their real income harms not only their current ability to cover basic needs but also their prospects of escaping poverty. In order to cope with the added stress of high food prices, poor households may be forced to sell assets that would reduce their livelihood base, to reduce the number and/or the diversity of meals they consume, or to reduce expenditure on essential non-food items, such as health care and education. Households tend to be less affected in countries where the diet consists largely of food staples that are not internationally traded. For example, Ghanaian households appear to be relatively insulated from swings in international food markets because a large share of their diet is based on local staples such as cassava and sorghum.

METHODS

Research Design

The study adopted the ex-post facto research design in assessing the relationship between military expenditures, insecurity and food prices in Nigeria. This is because the regression model allows the opportunity of evaluating events that have already taken place by collecting relevant secondary data to determine the cause-and-effect relationship amongst the relevant variables. Furthermore, the study also employed descriptive research design such as tables, graphs, figures and percentages in analyzing trends in the performance of the variables captured in the study. The methodological procedures employed to achieve the research objectives is the analytical methodology. The type of analytical methodology is based on the time series properties of the variables affected by the study.

Model specification

Food price equation:

The food price equation is guided by the Structural theory of inflation. The structural theory of inflation opined that inflation is caused by "structural" weakness in a country's capacity to produce goods or maintain an adequate flow of supply. In this model, insecurity is the variable of interest, whereas wage rate, imports, exports, exchange rate as well as agricultural outputs are derived from the Structural theory of inflation.

The model is presented below:

FPR= f (INSEC, WR, IMP, EXP, EXR,AGOUT) (3.6)

In an econometric form the model is presented as:

$(FPR)=a_o+a_1INSEC+a_2(WR)+a_3(IMP)+a_4(EXP)+a_5(EXR)+a_6(AGOUT)+U$ (3.7)

In the log form, the model is expressed as:

$Ln(FPR)=a_o+a_1INSEC+a_2ln(WR)+a_3ln(IMP)+a_4ln(EXP)+a_5ln(EXR)+a_6ln(AGOUT)+U$ (3.8)

The a priori expectations of the parameters a_1 to a_7 with the dependent variable are;

$a_1>0$, $a_2><0$, $a_3>0$, $a_4<0$, $a_5><0$, $a_6<0$

Where;

FPR = Food prices measured in naira

INSEC = Insecurity measured by fragile States index in percentage

WR = Wage rate measured by average minimum wage in naira

IMP = Imports value measured in millions of naira

EXP = Exports value measured in millions of naira

EXR = Exchange rate being the rate of Nigerian naira with the US dollar

AGOUT= Agricultural outputs measured in millions of naira

a_o = constant term; and a_i to a_6 = coefficients of the various explanatory variables.

U = Stochastic error term

Description of variables and a priori expectations:

Food prices (FPR): This refers to the average price level for food across countries, regions and on a global scale. Food prices affect producers and consumers of food.

Insecurity (INSEC): Insecurity is the common feeling the people will experience which make them susceptible to danger, attacks, anxiety, and uncertainty. Insecurity tends to increase food prices.

Wage rate (WR): This is the amount of wage paid to a worker per unit of time. A rise in the amount paid to a worker can make food sellers to increase the prices of their commodities and vice versa. Thus, the coefficient of Wage rate can be either positive or negative.

Imports (IMP): An import is a good or service bought in one country that was produced in another country or other countries. A rise in imported goods will leads to imported inflation especially when the imports were expensive thus leading to increase in food prices.

Exports (EXP)**:** This refer to goods and services that are produced in one country and sold to buyers in another country. A rise in exports will encourage local production of foods stuff hence will lead to falling prices of foods.

Exchange rate (EXR): This the value of one currency in relation to the value of another currency. A depreciated currency with increase the exchange rate thus significantly increasing the cost of imported food items leading to food inflation.

Agricultural outputs (AGOUT): This refers to the value of the final products produced from farming activities. An increase in agricultural outputs will leads to food sufficiency and security thus leading to reduction food prices.

Insecurity equation

This equation is anchored on the frustration theory of insecurity. According to this theory, frustration is a direct blockade of a person's movement toward a defined goal; it produces irritable and uneasy feelings within the individual. From Nigeria perspective; it could be put that due to frustration resulting from goal blockade such as prolong period of unemployment, poverty, high level of inflation and other economic hardships. Nigerians who take to crime such as kidnapping, bandit activities and terror attack use it as substitute means to goal attainment, because they feel highly unsecured in the prevalence economic hardship (unemployment, poverty, increases in the prices of goods and services) in the country. In this model, unemployment rate, poverty and inflation rate are derived from the frustration theory of insecurity, military expenditures is the variable of interest while domestic investment is a control variable in the model.

Therefore, the empirical model for this can be expressed as:

INSEC =f (MEXP, UNEM, POVHC, INF, DINV) (3.1)

The econometric form of equation 3.1 can be specified as

$INSEC_t=a_o + a_iMEXP_t + a_2UNEM_t + a_3POV_t + a_4INF_t + a_5DINV_t + U$ (3.2)

The logarithmic form of the model is specified as:

$INSEC_t= a_o+a_1\ln(MEXP)t + a_{2\,l}UNEM_t + a_3POVHC_t + a_4INF_t + a_5\ln DINV\ t\ U$ (3.3)

Where:

INSEC= Insecurity measured by fragile States index in percentage

MEXP= Military expenditures measured in millions of naira

UNEM= Unemployment rate (in percentage)

POV = Poverty measured by poverty headcount ratio (in percentage)

INF = Inflation rate (in percentage)

DINV = Domestic investment proxy by gross fixed capital formation

U = Stochastic Error term

a_o = constant term; and a_1 to a_5 coefficients of the various explanatory variables.

The a priori expectations of the parameters a_l to a_4 with the dependent variable are;

$a_l><0$, $a_2>0$, $a_3> 0$, $a_4>0$, $a_5>< 0$

Description of variables and a priori expectation:

Insecurity (INSEC): Insecurity is the common feeling the people will experience which make them susceptible to danger, attacks, anxiety, and uncertainty.

Military expenditures (MEXP): Military expenditure is the amount of financial resources allocated by a country to raising and maintaining an armed forces or other methods necessary for defense purposes. A rise in military spending tends to either decrease or increase insecurity.

Unemployment (UNEM): This is when a person who is not employed and is seeking employment, cannot find work. A rise in the unemployment level tends to intensify insecurity.

Poverty: This is a state of being unable to access the basic needs of life. Increases in poverty levels is accompanied by increases in insecurity since the youths will be aggrieved for their inability to access the basic needs of life.

Inflation rate (INF): This is the persistent increase in the prices of goods and services in the economy. An increase in the prices of goods and services in the country could lead to economic hardship, hunger, hence insecurity.

Domestic investment (DINV): This refers to investment in the companies and products of someone's own country rather than in those of foreign countries. A rise in domestic investment could result to increase in employment and income leading to reduction in insecurity whereas a decline in domestic investment may lead

to increase in unemployment and poverty resulting in insecurity. Thus, the coefficient of domestic investment will be either positive or negative.

Sources of data collection

The data for this study were sourced from the secondary sources such as documents from the World Bank, National Bureau of Statistics, Central Bank of Nigeria Statistical Bulletin various years.

Model estimation procédures

Several estimation procedures were employed in this study to estimate the specified equations. These include the unit root test, co-integration test, autoregressive distributed lag model, error correction model, as well as diagnostic tests.

Unit Root Test

Before model estimation is carried out, the unit root test will be used to ascertain the stationarity property of the time series variables in the specified models. The importance of unit root test is that it enables us to avoid the problem of spurious regression output, and to know the order of integration of the time series variables in order to know the appropriate co-integration test method to employ (Gujarati & Porter, 2009). In this study, the Augmented Dickey-Fuller (1981) and Phillip Perron unit root test shall be utilized in determining the order of integration. The Augmented Dickey-Fuller (ADF) unit root test equation is specified as follows:

$$\Delta y_t = \omega + \delta y_{t-1} + \sum_{i=1}^{m} \theta_i \Delta y_{t-i} + \mu_t \qquad (3.9)$$

Where Δ is the first difference operator;y_t is a time series variable at current time (t); ω is the drift term; y_{t-1} is the one period lagged value of y_t; $\delta$is the coefficient of y_{t-1}; $\Delta y_{t-i}$is the lag valued of the first difference of y_t; m is the maximum lag length; δ_i is the coefficients of Δy_{t-i}; and μ_t is the white noise error term. The null hypothesis is such that the time series contains a unit root which implies that δ=0. The null hypothesis is rejected if δ is negative and statistically significant. The ADF unit root test is based on t-statistic test.

Hypothesis for unit root test:

$H_0: \delta = 0$ (Variable has unit root i.e.; time series is non-stationary)

$H_1: \delta < 0$ (Variable does not have unit root i.e.; time series is stationary)

Decision Rule:

(i) If t^*> ADF critical value in absolute terms, reject the null hypothesis

(i) If t^*< ADF critical value in absolute terms, do not reject the null hypothesis.

Note: t^* is the calculated value of the ADF unit root test value.

Similarly, using the Phillips-Perron (1988) test, the following equation is also specified as:

$$y_t = \alpha y_{t-1} + \varepsilon_t \qquad (3.10)$$

Where:

y_t is the parameter to be estimated; and ε_t is the random error term.

The null hypothesis using PP test requires that if $\phi = 1$, then the series is non-stationary or has a unit root but if $\phi < 1$, then the series is stationary.

If the order of integration of the time series variables are of order one (i.e., 1(1)), then Johansen co-integration test is suitable; but if the order of integration is a mixture of order zero and one (i.e., 1(0) and 1(1)), ARDL-bounds co-integration test procedure is used.

Co-integration Test

This involves testing for the presence or otherwise of co-integration between the series of the same order of integration through forming a co-integration equation. The basic idea behind co-integration is that if in the long run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary (Hall and Henry, 1989). A lack of co-integration suggests that such variables have no long-run relationship. In principle they can wander arbitrarily far away from each other (Dickey *& Fuller,* 1991).

This study employed the maximum likelihood test procedure established by Johansen &Juselius (1990) and Johansen (1991). Specifically, if 1/t is a vector of n stochastic variables, then there exists a p-lag vector auto-regression with Gaussian errors of the following form; Johansen's methodology takes its starting point in the vector auto-regression (VAR) of order P given by

$y_t=U+\Delta_1 y_{t-i}$-------$+\Delta p y_{t-p} + et$

Where;

y_t is nx1 vector of variables that are integrated of order commonly denoted (1) and et is an nx1 vector of innovations. To determine the number of co-integration vector, Johansen (1988) and Johansen &Juselius (1990) suggested two statistic tests, the first one is the trace test *(*λ trace). Ittest the null hypothesis that the number of distinct co-integrating vector is less than or equal to q against a general unrestricted alternative q=r, the test is calculated as follows;

$-T\sum 1n(1-\lambda_t)$

$i=r+l$

λtrace (r)

Where; T is the number of usable observations and the λi's are the estimated eigen value from the matrix. The second statistic test is the maximum eigen value test *(*λ max) that is calculated according to the following formula

$\lambda Max\ (r,r+l)=T\ 1n\ (1-\lambda r+1)$

The test concerns a test of the null hypothesis that there is r of co-integrating vectors against the alternative that r+1 co-integrating vector.

Auto regressive Distributed Lag Model (ARDL) Bounds Test Approach

This study employed the autoregressive distributed (ARDL) bounds test approach proposed by Pesaran, Shin and Smith (2001), based on unrestricted error correction model to estimate the joint impact equation. Compared to other cointegration procedures such as Engle and Granger (1987) and Johansen and Juselius (1990), the bounds test approach appears to have gained popularity in recent times for a number of reasons. First, the endogeneity problems and inability to test hypotheses on the limited coefficients in the long run associated with Engle-Granger method are avoided, that is, it has superior statistical properties on small samples as it is relatively more efficient in small sample data sizes evident in most developing countries. Second, the long run and short run parameters of the model are estimated simultaneously. Third, all the

variables are assumed to be endogenous. Fourth, it does not require unit root testing usually employed to determine the order of integration of variables. Lastly, whereas all the other methods require that the variables in a time series regression are integrated of order one, 1(1), only that of Pesaran et al. (2001) could be used regardless of whether the underlying variables are 1(0), 1(1) or fractionally integrated. Nonetheless, to apply the bounds test, it is important to ensure that the variables under consideration are not integrated at an order higher than one. In the presence of 1(2) variables, the critical values provided by Pesaranet al. (2001) are no longer valid.

The ARDL model for the study is specified in equation 3.8:

$$\Delta(FPR)_t = \delta_0 + \delta_1(FPR)_{t-1} + \delta_2 INSEC_{t-1} + \delta_3 ln WR_{t-1} + \delta_4 IMP1_{t-1} + \delta_5 EXP_{t-1} +$$

$$\delta_6 EXCH_{t-1} + \delta_7 AGOUT_{t-1} + \sum_{j=1}^{l} \tau_{1j} \Delta(FPR)_{t-j} + \sum_{j=0}^{n} \tau_{3j}$$

$$\Delta(INSEC)_t = \delta_0 + \delta_1(INSEC)_{t-1} + \delta_2 MEXP_{t-1} + \delta_3 ln UNEM_{t-1} + \delta_4 POVHC_{t-1} + \delta_5 INF_{t-1} +$$

$$\delta_6 DINV_{t-1} + \sum_{j=1}^{l} \tau_{1j} \Delta(INSEC)_{t-j} + \sum_{j=0}^{n} \tau_{3j}$$

Theory

Marxian theory of conflicts

German philosopher, economist, and political theorist Karl Marx (1818–1883) created the Marxian Theory of Conflict. In sociology, he is commonly recognized as the founder of conflict theory. According to Marx, competition for scarce resources keeps society in a state of constant conflict.

Concern over the unequal ownership and distribution of the means of production that divided society into two antagonistic classes—the class of the "haves" and the "have-nots," the impoverished and the wealthy, the working class/proletariat and the bourgeoisie led to the development of Marxist theory of conflict (1948), as modified by Salisu, Mohammed, and Abdullahi (2015).

Marxist theory thus reveals the plunder of the alleged common wealth to a select few at the expense of the many, as well as exploitative tendencies. This theory states that the life-or-death fight between two dominating socioeconomic strata is the root cause of war, insecurity, and instability, as exemplified by the Boko Haram insurgency in Northern Nigeria. The bourgeoisie, the class that controls the means of production and power, is on the one hand, while the proletariat, or poor masses, are on the other, depending on their labor to survive.

The Intractable Conflict Theory

In his 1989 essay "The Dynamics of Identity in Personal and Social Contract," Northrup made the theory well known globally (Onuoha, 2008). Despite several attempts to settle them, intractable conflicts continue to exist (Burgess & Burgess, 2006). Each side sees the other's unwavering position as a danger to its own existence. All of them deal with concepts or interests that the disputants believe are essential to their survival. Intractable conflicts in this context typically include rival factions vying for resources. Maiese (2006) states that intractable conflicts are those that remain unresolved for an extended period of time and then solidify at a high level of intensity and destructiveness.

A complicated mix of historical, religious, cultural, political, and economic issues are typically addressed by numerous parties. These problems, which are infamously challenging to overcome, are essential to human social existence. In actuality, parties usually decline to talk about or reach a consensus on such issues. Because of this, each side views the other's unyielding position as a threat to its own survival. In addition to having a great desire to cause each other as much physical and mental suffering as they can, they could develop a mutual terror of one another. Usually, this dread and hostility permeates the individuals' everyday life, impairing their ability to recognize any common problems they may have.

As conflict escalates, any physical issues could be buried beneath a broader set of identities, cultures, values, and beliefs. Disputes over land, money, and other resources can become increasingly symbolic.

The quantity theory of money

The quantity theory of money is primarily associated with the economist Irving Fisher, who formalized it in the early 20th century. The Quantity Theory of Money is an economic theory that links the money supply in an economy to its price level. It is often expressed using the Fisher Equation:

MV = PQ

Where:

M = Money supply

V = Velocity of money (how often money circulates in the economy)

P = Price level

Q = Real output (quantity of goods and services)

Assuming velocity and real output stay constant, the theory suggests that changes in the money supply have a direct, proportionate impact on the level of prices. Therefore, inflation will result from an increase in the money supply, and deflation will result from a decrease.

Core Assumption:

If the velocity (V) is stable and output (Q) grows slowly, an increase in the money supply (M) leads to a proportional increase in the price level (P), i.e., inflation.

The structural theory of inflation

Among other economists, the Structural Theory of Inflation is linked to Gershon Feder, Rudiger Dornbusch, and Joan Robinson. The foundation of this theory is the notion that structural elements in an economy, especially during periods of growth or change, cause inflation. The structural hypothesis places more emphasis on structural rigidities, bottlenecks, and imbalances in the economy than either demand-pull inflation or cost-push inflation, which concentrate on macroeconomic imbalances (demand vs. supply).

The core premise of the Structural Theory of Inflation includes:

Structural Rigidities: Long-term distortions in the production and distribution system of an economy lead to inflation. These could result from ineffective public services, monopolies, restrictive labor markets, or poor infrastructure. Imbalances in Important Sectors: For instance, a notable imbalance between the economy's various sectors (such as a flourishing oil sector and a faltering agricultural sector) may lead to inflation. On the supply side, limitations Inflationary pressures occur when vital industries, such as manufacturing, energy, or agriculture, are unable to satisfy rising demand because of insufficient investment, subpar infrastructure, or ineffective regulations.

External Shocks: Changes in commodity prices, fluctuations in foreign exchange rates, or interruptions in supply chains, particularly with regard to essential imports, can also cause structural inflation.

Monopolistic and Oligopolistic Behavior: Excessive pricing by large enterprises may result in inflation since they have the ability to control wages and prices. Inelasticity of Supply: Inflationary pressures grow when some industries are unable to raise their output rapidly enough to satisfy demand.

RESULT

Presentation and analysis of descriptive statistics and correlation matrix

Table 4.3: Descriptive statistics for insecurity equation

Sample: 2005 2024						
	INSEC	MEXP	UNEM	POVHC	INF	GFCF
Mean	98.22500	723.1845	20.73900	48.141.35	14.19500	254.6930
Median	99.10000	389.0000	18.60000	49.073.75	11.99000	138.5300
Maximum	103.5000	3250.000	38.00000	87.6984.8	31.43000	829.1100
Minimum	84.30000	88.51000	9.700000	32.093.40	6.600000	57.73000
Std. Dev.	4.056038	797.7574	9.593710	38079.72	6.605172	237.9204
Skewness	-1.998788	1.935921	0.511317	-0.030720	1.392651	1.196180
Kurtosis	8.043850	6.197633	1.912829	1.530007	4.262766	3.022354
Jarque-Bera	34.51753	21.01335	1.856435	1.803877	7.793736	4.769907
Probability	0.000000	0.000027	0.395258	0.405782	0.020305	0.092093
Sum	1964.500	14463.69	414.7800	1362827.	283.9000	5093.860
Sum Sq. Dev.	312.5775	12091922	1748.746	2.76E+10	828.9377	1075517.
Observations	20	20	20	20	20	20

Source: Authors Computation, 2025

The descriptive statistics of the variables in the insecurity equation as shown in table 4.1 indicates that the mean values of INSEC, MEXP, UNEM, POVHC, INF and GFCF are 98.22500, 723.1845, 20.73900, 48.41353, and 14.19500 respectively. The maximum values of INSEC, MEXP, UNEM, POVHC, INF and GFCF are 103.5000, 3250.000, 38.00000, 87.43175, and 31.43000 respectively. The minimum values of INSEC, MEXP, UNEM, POVHC, INF and GFCF are 84.30000,88.51000, 9.70000, 32.6000, and 6.600000 respectively. The skewness of the variables revealed that MEXP, UNEM, INF and GFCF are positively skewed whereas INSEC and POVHC are negatively skewed. According to the kurtosis result, INSEC, MEXP, INF and GFCF are more than 3 hence there are leptokurtic in their distribution while UNEM and POVHC are platykurtic in nature since there are less than 3. The low Jarque-bera values of INSEC, MEXP and INF indicates that the variables are not normally distributed while the rest of the variables are normally distributed.

Table 4.5: Correlation matrix for insecurity equation

	INSEC	MEXP	UNEM	POVHC	INF	GFCF
INSEC	1.000000	0.004648	-0.049344	-0.425045	-0.015680	-0.020965
MEXP	0.004648	1.000000	0.782167	-0.692765	0.861079	0.951666
UNEM	-0.049344	0.782167	1.000000	-0.780815	0.701926	0.875914
POVHC	-0.425045	-0.692765	-0.780815	1.000000	-0.575999	-0.787123
INF	-0.015680	0.861079	0.701926	-0.575999	1.000000	0.835687
GFCF	-0.020965	0.951666	0.875914	-0.787123	0.835687	1.000000

Source: Author's Computation, 2025

The result of the correlation matrix for the insecurity equation shows that INSEC (insecurity) has a positive correlation with MEXP but it correlated negatively with UNEM, POVHC, INF and GFCF. Military expenditures (MEXP) has a negative correlation with POVHC but correlated positively with INSEC, UNEM, INF and GFCF. Unemployment (UNEM) has negative correlations with INSEC and POVHC whereas it has positive correlations with MEXP, INF, and GFCF. Poverty headcount (POVHC) has negative correlations with the rest of the variables in the model.

Furthermore, inflation rate (INF) has negative correlations with INSEC and POVHC but it correlated with MEXP, UNEM, and GFCF. Also from the result, gross fixed capital formation (GFCF) has negative correlations with INSEC and POVHC but it has positive correlations with MEXP, UNEMP, and INF.

Table 4.6: Correlation matrix for food price equation

	FPR	INSEC	MINW	IMP	EXP01	EXR	AGOUT
FPR	1.000000	-0.226314	0.439078	0.598437	0.585346	0.701701	0.621034
INSEC	-0.226314	1.000000	0.272028	0.187133	0.143334	0.122909	0.203811
MINW	0.439078	0.272028	1.000000	0.920236	0.741333	0.815752	0.913001
IMP	0.598437	0.187133	0.920236	1.000000	0.900144	0.936799	0.982716
EXP01	0.585346	0.143334	0.741333	0.900144	1.000000	0.863940	0.859912
EXR	0.701701	0.122909	0.815752	0.936799	0.863940	1.000000	0.960285
AGOUT	0.621034	0.203811	0.913001	0.982716	0.859912	0.960285	1.000000

The correlation matrix for the food price equation above indicated that food price (FPR) has a negative correlation with INSEC whereas it has positive correlations with the rest of the variables. Similarly, INSEC only has a negative correlation with FPR but correlated positively with the rest of the variables. Minimum wage (MINW) has high positive correlations with imports (IMP), exports (EXP), exchange rate (EXR) and agricultural outputs (AGOUT), but it has low positive correlations with FPR and INSEC.

Also from the result, IMP has high positive correlations with MINW, EXP, INSEC, EXR, and AGOUT whereas it has low positive correlation with INSEC. Exports (EXP) has high positive correlations with FPR, MINW, IMP, EXR, and AGOUT but it has positive correlations with INSEC. Furthermore, exchange rate (EXR) and agricultural outputs (AGOUT) have low positive correlation with INSEC but high positive correlations with the rest of the variables.

Presentation and analysis of Econometric Data

Lag length selection

The study used VAR lag order choice to choose the lag lengths. The outcomes of the analysis reported in tables 4.5 and 4.6 below suggest the maximum lag length of one and two at five per cent level of significance for the insecurity and food price equations respectively.

Table 4.7: Lag order for insecurity equation

VAR Lag Order Selection Criteria						
Endogenous variables: INSEC						
Exogenous variables: C MEXP UNEM POVHC INF GFCF						
Date: 04/25/25 Time: 13:45						
Sample: 2005 2024						
Included observations: 18						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-31.86632	NA	4.038899	4.207369	4.504159	4.248292
1	-26.22258	6.897906*	2.451556*	3.691397*	4.037653*	3.739141*
2	-26.21784	0.005264	2.803105	3.801982	4.197703	3.856547
* Indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Table 4.8: Lag order for food price equation

VAR Lag Order Selection Criteria						
Endogenous variables: FPR						
Exogenous variables: C INSEC MINW IMP EXP EXR AGOUT						
Date: 04/25/25 Time: 13:43						
Sample: 2005 2024						
Included observations: 17						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-41.61845	NA	18.80043	5.719817	6.062905	5.753921
1	-41.59754	0.022132	21.70631	5.835005	6.227106	5.873981
2	-35.12112	6.095454*	11.85411*	5.190721*	5.631834*	5.234568*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Unit root result

Table 4.9: Augmented Dickey-Fuller unit root test for Food Price equation

Variables	**ADF Level (ADF 1st Diff)**	**ADF Critical value level (ADF Critical value 1st diff) at 5%**	**Decision**
FPR	-0.941155 (4.595217)	-3.029970 (-3.040391)	1(1)
INSEC	-5.924140	-3.029970	1(0)
MINW	-0.799276 (-4.532709)	-3.029970 (-3.040391)	1(1)
IMP	1.743978 (-3.279242)	-3.029970 (3.040391)	1(1)
EXP	0.731628 (-3.485418)	-3.040391 (-3.052169)	1(1)
EXR	2.678868 (-4.008045)	-3.040391 (-3.040391)	1(1)
AGOUT	-5.284379	-3.029970	1(0)

Source: Researcher's computation, 2025.

According to the estimated result on table 4.7, the Augmented Dickey-Fuller result indicate that food price (FPR), minimum wage (MINW), imports (IMP), exports (EXP) and exchange rate (EXR) were stationary at first difference since their ADF critical values are all greater than the ADF values at levels at first difference at 5 per cent level in absolute terms. However, insecurity (INSEC) and agricultural output (AGOUT) were stationary at levels using 5 per cent level of significance since their ADF test statistics at levels are greater than the critical values in absolute terms.

Since the variables in the food price equation are of mixed order of integration, the autoregressive distributed lag model (ARDL) was adopted to estimate and check for the long run relationship of the time series in the study.

Table 4.10: Augmented Dickey-Fuller unit root test for Insecurity equation

Variables	ADF Level (ADF 1st Diff)	ADF Critical value level (ADF Critical value 1st diff) at 5%	Decision
MEXP	0.994876 (-3.432371)	-3.081002 (-3.081002)	1(1)
INSEC	-5.924140	-3.029970	1(0)
UNEM	-0.531706 (-4.245741)	-3.029970 (-3.040391)	1(1)
POVHC	-1.992720 (-5.217862)	-3.029970 (-3.040391)	1(1)
INF	-0.062537 (-4.214465)	-3.029970 (-3.04039)	1(1)
GFCF	1.397879 (-3.823660)	-3.081002 (-3.081002)	1(1)

Source: Researcher's computation, 2025.

According to the estimated result on table 4.8, the Augmented Dickey-Fuller result indicate that military expenditures (MEXP), unemployment rate (UNEM), poverty headcount (POVHC), inflation rate (INF) and gross fixed capital formation (GFCF) were stationary at first difference since their ADF critical values are all greater than the ADF values at levels at first difference at 5 per cent level in absolute terms. However, only insecurity (INSEC) was stationary at levels using 5 per cent level of significance since its ADF test statistics at levels is greater than the critical values in absolute terms.

Since the variables in the inequality equation are of mixed order of integration, the autoregressive distributed lag model (ARDL) was adopted to estimate and check for the long run relationship of the time series in the study.

Autoregressive distributed lag model results (ARDL)

Table 4.11: ARDL Bound test for Food price equation

Null Hypothesis: No long-run relationships exist				
Test Statistic	Value	K		
F-statistic	3.859361	6		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.12	3.23		
5%	2.45	3.61		
2.5%	2.75	3.99		
1%	3.15	4.43		

Source: Researcher's computation using Eviews 9, 2025.

From the ARDL bound test result presented in table 4.9, there is a long run relationship amongst the variables considered in the equation. This is due to the fact that the value of F-statistic (3.859361) is greater than the critical value at 5 per cent level in both the upper (3.61) and lower (2.45) bounds. Therefore, the null hypothesis of absence of no levels relationship is discarded and the study proceeds with the estimation of the long run and the short run equations as presented below;

Table 4.12 Ardl long-run result for food price equation Dependent variable: FPR

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INSEC	0.260329	0.164330	1.584185	0.1883
MINW	0.000143	0.000188	0.758040	0.4906
IMP	0.019998	0.005200	3.845721	0.0184
EXP	-0.000729	0.000270	-2.698235	0.0542
EXR	0.048767	0.012816	3.805126	0.0190
AGOUT	-0.001441	0.000454	-3.175012	0.0337
C	-14.001976	16.132968	-0.867911	0.4344

Source: Researcher's computation, 2025.

The long run result for the food price equation as represented on table 4.10 shows that all the explanatory variables were consistent with their theoretical postulations. From the result, insecurity (INSEC) has a positive relationship with food price in the long run. The result show that an increase of 1 per cent in insecurity leads to increases of 0.260329 per cent in food price (FPR) in Nigeria under the evaluation period. Similarly, minimum wage (MINW), imports (IMP) and exchange rate (EXR) all have positive relationships with food price in the long run. This depict that a 1 per cent increase in minimum wage (MINW), imports (IMP) and exchange rate (EXR) leads to0.000143, 0.019998, and 0.048767 per cents increases in food prices in Nigeria in the long run.

However, export (EXP) and agricultural output (AGOUT) all have negative relationships with FPR in the long run under the evaluation period. This depicts that a 1 per cent increase in EXP and AGOUT leads to decline in FPR by 0.000729 per cent and 0.001441 per cent respectively.

The result further reveals that INSEC and MINW are not statistically significant at both 5 and 10 per cent levels since their p-values of 0.1883 and 0.4906 are all greater than 0.05 and 0.10 respectively. On the contrary, IMP, EXP, EXR and AGOUT are all statistically significant at 10 per cent level since their p-values of 0.0184, 0.0543, 0.0190 and 0.0337 are less than 0.05 and 0.10 respectively.

Table 4.13: ARDL short-run result for Food price equation Dependent variable: FPR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FPR(-1))	0.678065	0.098850	6.859544	0.0024
D(INSEC)	0.318831	0.397040	0.803020	0.4670
D(MINW)	-0.000511	0.000199	-2.565293	0.0623
D(IMP)	0.001275	0.000301	4.236039	0.0133
D(EXP)	0.000725	0.000670	1.081837	0.3402
D(EXR)	0.079451	0.018578	4.276519	0.0129
D(AGOUT)	-0.000807	0.000639	-1.264223	0.2748
ECM (-1)	-0.335269	0.467665	-0.716899	0.0006

Source: Researcher's computation, 2025.

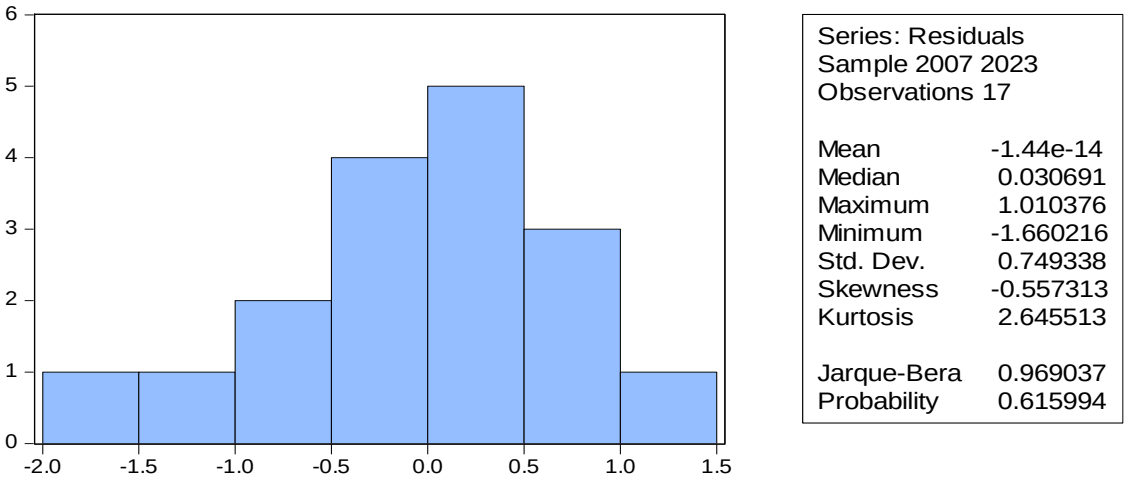
According to the short-run result in table 4.13, all the explanatory variables except exports (EXP) were consistent with their theoretical postulations. From the result, insecurity (INSEC) has a positive relationship with food price in the short run. The result show that an increase of 1 per cent in insecurity leads to increases of 0.318831 per cent in food price (FPR) in Nigeria under the evaluation period. Similarly, imports (IMP), exports (EXP), and exchange rate (EXR) all have positive relationships with food price in the long run. This depict that a 1 per cent increase in imports (IMP) and exchange rate (EXR) leads to0.0001275, 0.000725, and 0.079451 per cents increases in food prices in Nigeria in the short run respectively.

However, minimum wage (MINW) and agricultural output (AGOUT) all have negative relationships with FPR in the short run under the evaluation period. This depicts that a 1 per cent increase in MINW and AGOUT leads to decline in FPR by 0.000511 per cent and 0.000807 per cent respectively.

The result further reveals that INSEC, EXP and AGOUT are not statistically significant at both 5 and 10 per cent levels since their p-values of 0.4679, 0.3402 and 0.2748 are all greater than 0.05 and 0.10 respectively. However, MINW, IMP, and EXR are all statistically significant at 10 per cent level since their p-values of 0.0623, 0.0133 and 0.0129 are less than 0.05 and 0.10 respectively.

The error correction mechanism coefficient of -0.335269 satisfies all the three criteria for its acceptability, i.e., it must be negative, fractional and statistically significant. Therefore, it reaffirms the existence of long run relationship amongst the variables in the model. It shows that the speed of adjustment is slow since only 33.53 per cent of the short run disequilibrium is corrected each period in the long run.

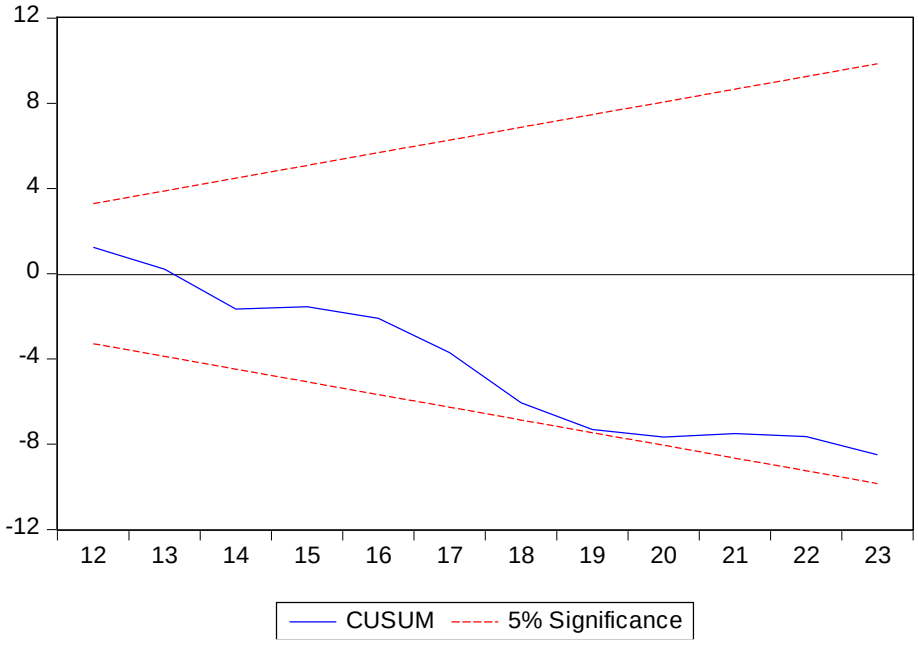
Fig. 4.1: Normality test for food price equation



Source: Researcher's computation, 2025.

The result in figure 4.1 shows the normality test for the food price equation. The null hypothesis asserts that the distribution is uniformly distributed if the p-value is not significant and is bigger than the selected level of significance of 5 per cent. As a result, the null hypothesis that the distribution is normally distributed is accepted since the p-value of the Jargue – Bera (0.615994) is bigger than the 5 per cent significant level.

Fig. 4.2: Stability test for food price equation



The CUSUM result as shown in figure 4.1 above indicates that the blue line falls within the upper and the lower bound, therefore, we conclude that our model is stable over the period of analysis.

Table 4.16: Breusch-Godfrey Serial Correlation LM Test for Food price equation

: Breusch-Godfrey Serial Correlation LM Test			
F-statistic	29.80380	Prob. F(2,2)	0.0325
Obs*R-squared	16.44812	Prob. Chi-Square (2)	0.0003

The result of the Breusch-Godfrey LM test for auto/serial correlation is presented in table 4.16. From the result, it can be seen that the residuals from the estimated food price equation are serially correlated. This is because the probability value associated with the test, 0.0325, is less than the critical value of 0.05, based on the 5 percent level of significance.

Autoregressive distributed lag model results (ARDL) for insecurity equation

Table 4.15: ARDL Bound test for insecurity equation

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	6.763301	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Researcher's computation using Eviews 9, 2025.

From the ARDL bound test result presented in table 4.15, there is a long run relationship amongst the variables considered in the equation. This is due to the fact that the value of F-statistic (6.763301) is greater than the critical value at 5 per cent level in both the upper (3.79) and lower (2.62) bounds. Therefore, the null hypothesis of absence of no levels relationship is discarded and the study proceeds with the estimation of the long run and the short run equations as presented below;

Table 4.16: ARDL long-run result for insecurity equation Dependent variable: INSEC

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MEXP	0.000651	0.002342	0.278051	0.7857
UNEM	0.214769	0.111909	1.919141	0.0791
POVHC	-0.196407	0.107045	-1.834802	0.0914
INF	0.146295	0.143280	1.021038	0.3274
GFCF	-0.009712	0.010279	-0.944810	0.3634
C	113.935371	6.708740	16.983126	0.0000

Source: Researcher's computation, 2025.

The long run result for the food price equation as represented on table 4.16 shows that all the explanatory variables except poverty headcount (POVHC) were consistent with their theoretical postulations. From the result, military expenditure (MEXP) has a positive relationship with insecurity in the long run. The result show that an increase of 1 per cent in MEXP leads to increases of 0.000651 per cent in insecurity (INSEC) in Nigeria in the long run under the evaluation period. Similarly, unemployment (UNEM) and inflation rate (INF) all have positive relationships with INSEC in the long run. This depict that a 1 per cent increase in UNEM and INF leads to 0.214769 and 0.146295 per cents increases in INSEC in Nigeria in the long run.

On the other hand, poverty headcount (POVHC) and gross fixed capital formation (GFCF) all have negative relationships with INSEC in the long run under the evaluation period. This depicts that a 1 per cent increase in POVHC and GFCF leads to decline in INSEC by 0.0196407 per cent and 0.009712 per cent respectively.

Furthermore, the result indicates that MEXP, INF and GFCF are not statistically significant at both 5 and 10 per cent levels since their p-values of 0.7857, 0.3274 and 0.3634 are all greater than 0.05 and 0.10 respectively. However, UNEM and POVHC are all statistically significant at 10 per cent level since their p-values of 0.0791 and 0.0914 are less than 0.05 and 0.10 respectively.

Table 4.15: ARDL short-run result for insecurity equation Dependent variable: INSEC

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MEXP)	0.000436	0.001584	0.275200	0.7878
D(UNEM)	0.143817	0.077357	1.859123	0.0877
D(POVHC)	-0.131521	0.084932	-1.548553	0.1474
D(INF)	0.097964	0.097855	1.001111	0.3365
D(GFCF)	-0.006503	0.007248	-0.897267	0.3872
ECM (-1)	-0.669636	0.109547	-6.112767	0.0001

Source: Researcher's computation, 2025.

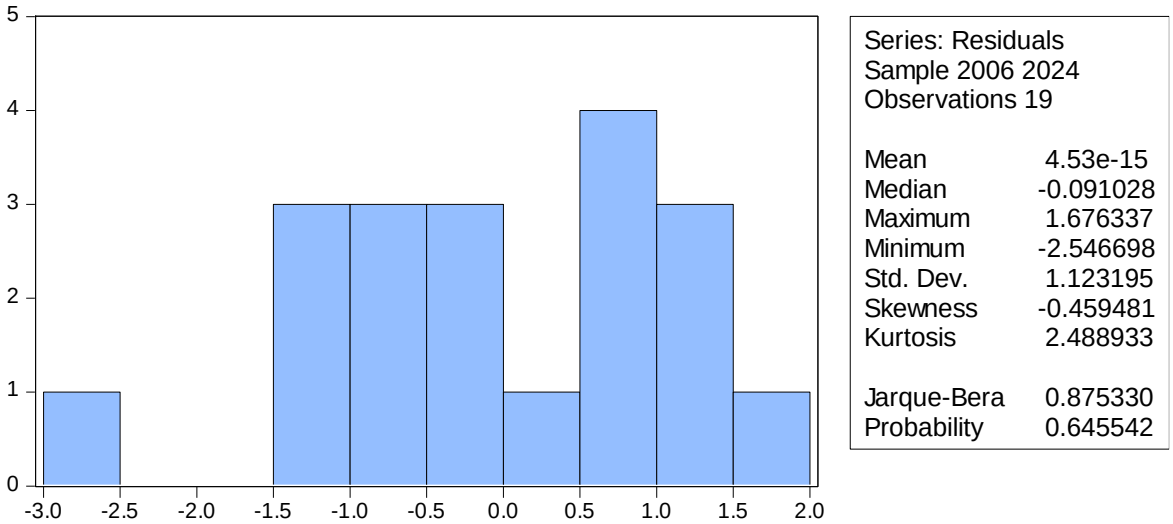
According to the short-run result in table 4.17, all the explanatory variables except poverty headcount (POVHC) were consistent with their theoretical postulations. From the result, military expenditure (MEXP) has a positive relationship with insecurity in the short run. The result show that an increase of 1 per cent in MEXP leads to increases of 0.318831 per cent in insecurity (INSEC) in Nigeria in the short run under the evaluation period. Similarly, unemployment (UNEM), and inflation rate (INF) all have positive relationships with INSEC in the long run. This depict that a 1 per cent increase in UNEM and INF leads to 0.143817 and 0.097964 per cents increases in INSEC in Nigeria in the short run respectively.

However, poverty headcount (POVHC) and gross fixed capital formation (GFCF) all have negative relationships with INSEC in the short run under the evaluation period. This depicts that a 1 per cent increase in POVHC and GFCF leads to decline in FPR by 0.131521 per cent and 0.006503 per cent respectively.

The result further reveals that MEXP, POVHC, INF and GFCF are not statistically significant at both 5 and 10 per cent levels since their p-values of 0.7878, 0.1474, 0.3365, and 0.3872 are all greater than 0.05 and 0.10 respectively. However, UNEM statistically significant at 10 per cent level since its p-value of 0.0877 is less than 0. 10..

The error correction mechanism coefficient of -0.669636 satisfies all the three criteria for its acceptability, i.e., it must be negative, fractional and statistically significant. Therefore, it reaffirms the existence of long run relationship amongst the variables in the model. It shows that the speed of adjustment is relatively fast since about 66.96 per cent of the short run disequilibrium is corrected each period in the long run.

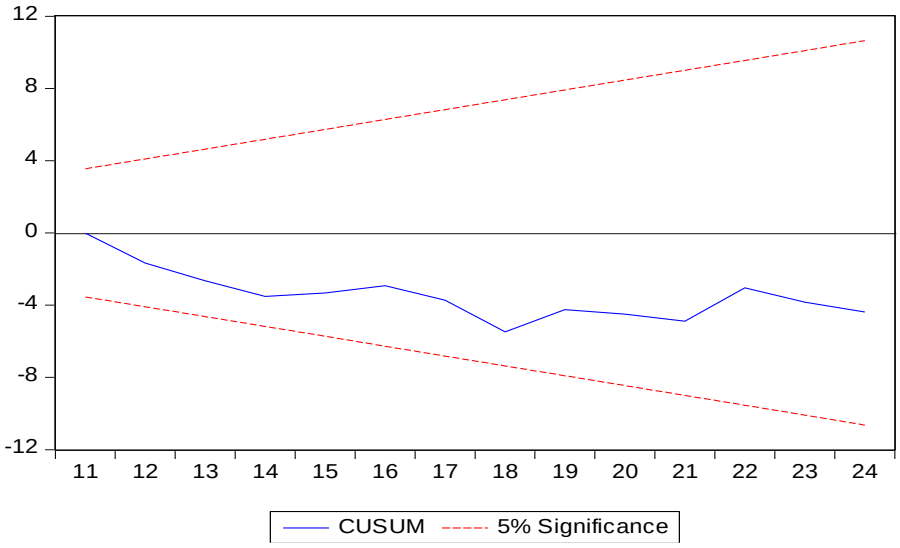
FIG. 4.3: Normality test for insecurity equation



Source: Researcher's computation, 2025.

The result in figure 4.1 shows the normality test for the food price equation. The null hypothesis asserts that the distribution is uniformly distributed if the p-value is not significant and is bigger than the selected level of significance of 5 per cent. As a result, the null hypothesis that the distribution is normally distributed is accepted since the p-value of the Jargue – Bera (0.645542) is bigger than the 5 per cent significant level.

FIG. 4.4: Stability test for insecurity equation



The CUSUM result as shown in figure 4.4 above indicates that the blue line falls within the upper and the lower bound, therefore, we conclude that our model is stable over the period of analysis.

Table 16: Breusch-Godfrey Serial Correlation LM Test for insecurity equation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	3.042792	Prob. F (2,10)	0.0929
Obs*R-squared	7.188182	Prob. Chi-Square (2)	0.0275

The result of the Breusch-Godfrey LM test for auto/serial correlation is presented in table 4.16. From the result, it can be seen that the residuals from the estimated insecurity equation are not serially correlated. This is because the probability value associated with the test, 0.0929, is greater than the critical value of 0.05, based on the 5 percent level of significance.

DISCUSSION

This discussion is based on the objectives of the study and the findings of other researchers.

From the result, military expenditure has a positive and insignificant effect on insecurity in Nigeria under the evaluation period. This finding is consistent with the findings of Momoh (2024), Eneje and Ogbu (2022) as well as Abiodun, Asaolu and Ndubuisi (2020). The research finding that military expenditure has a positive but insignificant effect on insecurity in Nigeria suggests that although increased spending on the military is associated with a rise in insecurity, this relationship is not strong enough to be statistically meaningful. In simpler terms, while more funds are allocated to defense, it does not lead to a significant reduction in insecurity and, may even correlate with increase in insecurity. Several reasons can explain this outcome. One, it may be that military spending in Nigeria may not always be efficiently utilized. Corruption, procurement fraud, and poor management can lead to situations where funds do not translate into improved security capabilities on the ground. Two, even with increased budgets, if the military and police structures are plagued by poor training, low morale, or outdated strategies, spending more money may not effectively address insecurity challenges like terrorism, banditry, and communal clashes. Three, non-military dimensions of Insecurity. Insecurity in Nigeria is deeply rooted in social, economic, and political factors such as poverty, unemployment, ethnic tensions, and weak governance. Military responses alone, no matter how well-funded, may not address these root causes, leading to continued or even worsening insecurity. Lastly, heavy military

presence without corresponding development efforts can sometimes alienate communities, especially in regions like the North East. This may create a cycle where military interventions fuel resentment, leading to more insecurity.

From the results, insecurity has a positive and insignificant effect on food prices in both the short-run and long-run periods under the evaluation period. This finding corroborates the findings of Odu, Hassana and Afees (2024), Alfa and Alexander (2024) as well as Nanji *et al* (2020). The finding that insecurity has a positive but insignificant effect on food prices in Nigeria means that while insecurity tends to push food prices upward, the effect is weak and not statistically strong enough to draw firm conclusions from. In other words, although there is a tendency for food prices to rise when insecurity increases, other factors likely play a much bigger role in determining food prices. This assertion reinforces the finding of Tanko, Nabuche and Abdullahi (2024) who stressed that there are other factors apart from insecurity that affects food prices and production in Nigeria.

This outcome may be due to the following reasons. One, influence of other stronger factors and economic variables such as inflation, exchange rate fluctuations, fuel prices, transportation costs, and climate change (e.g., droughts, floods) may have a stronger impact on food prices than insecurity alone, making the effect of insecurity relatively small and insignificant in statistical terms. Two, the localized impact of insecurity. Insecurity in Nigeria often affects specific regions (like the North-East, North-West, or parts of the Middle Belt) rather than the entire country at once. As a result, while insecurity may disrupt agricultural production in some areas, the national food market can adjust by sourcing food from safer zones, diluting the overall impact on food prices. Three, government interventions. Programs like the Anchor Borrowers' Programme, food subsidies, and emergency food distributions by the government and NGOs might help cushion the effects of insecurity on food availability, preventing sharp price increases. Lastly, market adaptation and food imports. Traders and suppliers may quickly adapt to insecurity by rerouting supply chains or importing food from other countries, minimizing the shocks to food availability and stabilizing prices to some extent.

CONCLUSION

This study investigated the link between military expenditures, insecurity and food prices in Nigeria from 2005 to 2024. Firstly, from the findings the study concluded that there is a positive but insignificant effect of insecurity on food prices in Nigeria. The positive but insignificant relationship between insecurity and food prices in Nigeria suggests that insecurity alone does not fully explain fluctuations in food prices. Other economic and structural factors are likely more dominant, and thus, solutions to food price problems must be comprehensive and multi-sectoral, not just focused on security improvements. The policy implications of the findings are that tackling food price volatility requires multidimensional policies, not just security measures. While improving security in rural farming areas remains important, economic stabilization policies (like controlling inflation and ensuring smooth transportation) are also critical for maintaining stable food prices. It highlights the need for better agricultural resilience strategies to protect food production against insecurity and other shocks.

Secondly, from the findings, it is concluded that military expenditure has a positive but insignificant effect on insecurity in Nigeria. A positive but insignificant relationship between military expenditure and insecurity implies that increasing defense budgets alone cannot solve Nigeria's security crisis. Instead, Nigeria must adopt a broader security architecture that addresses economic, social, and political drivers of conflict alongside military measures. The policy implications of this finding imply that the finding highlights the limitations of a militarized approach to national security. It suggests a need for holistic strategies that combine military efforts with socio-economic development, justice reforms, dialogue, and community-based security measures. Hence, policymakers should focus not just on how much is spent, but how it is spent and ensure transparent, accountable, and strategic deployment of military resources.

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