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Analysis of Farmers' Level of Productivity Before and After the Insurgency in Benue State, Nigeria.

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ABSTRACT

In this study, the analysis of insurgency on food production status in Benue State, Nigeria was investigated. The objectives of the study were analysed as follows: examine the socio-economic characteristics of internal displaced person and none displaced persons in the study area. Compare farmer level of productivity before and after insurgency in the area. The study utilized data from 383 farmers in areas affected by insurgency and 200 farmers in areas not affected by insurgency. The collected data were analysed using descriptive statistics and paired sample t-test, at the 0.05 level of significance. Results of the socio-economic characteristics of the respondents in each population revealed that they were mostly married male, illiterate, with large household sizes, middle aged and well experienced in farming activities. The socio-economic characteristics also show that the farmers affected by insurgency earned less on-farm income as compared to those in areas not affected by insurgency. Both populations lacked access to credit, healthcare, extension services and piped borne water and were not members of cooperative societies. The paired sample t-test revealed that the productivity (yield/ha) of farmers before the advent of insurgency was significantly higher than that after insurgency in the region. The challenges faced by farmers as a results of the impact of insurgency in the study area were found to be universal with all identified (22) challenges having a score of 100 %. It was concluded that insurgency has a significant impact on the productivity of famers in the study area. It was therefore recommended that relevant organs of society should intervene by enhancing agricultural productivity through the provision of qualitative agricultural inputs and modern farming facilities. These organs should also strive to improve household food security by expanding emergency food and nutrition programs in the study area. Furthermore, relevant stakeholders should provide access to health care and affordable education in the insurgency-affected regions through the use of mobile clinics and provision of scholarships and safe learning spaces.

1.0 INTRODUCTION

Apart from the development related challenges that confront every other developing country, there has been a growing threat posed by insurgencies and violent conflicts carried out by non-state actors and groups, whose actions are generally seen to constitute grave security risks to the lives and property of the citizens (Aina, 2019). The growing strategic and operational effectiveness of the violent non-state actors also engender enormous human and economic costs (Osumah, 2013a). This makes studies on insurgencies central as a way of understanding the trends, pull and push factors as well as their consequences. Insurgency involves any kind of armed uprising against an incumbent government. It is characterized by protracted, asymmetric violence, ambiguity, the use of complex terrain (jungles, mountains, and urban areas), psychological warfare, and political mobilization which are all designed to protect the insurgents and eventually alter the balance of power in their favour (Calvert, 2010).

Insurgent or terrorist activities have been going on from time immemorial, but have not attracted much attention due to its low level of operation in different political systems. Interest about the scourge of terrorism has however, been re-invigorated due to the September 11th, 2001 attacks on America. Since then, the general attitude as observed in many state-policies and the international community has been one condemning this phenomenon, chiefly because of the great damage it has had on human lives and properties. Insurgent attacks have become easier with the near annihilation of state territorial boundaries in the age of globalization. Through the process of globalization, the world's societies are intricately linked, especially through the current advancements in technology, which has enhanced global communication resulting in what is considered as a global village, a world in which national boundaries are fast crumbling and the state is gradually being stripped of its most valued characteristic of sovereignty (Ochefu, 2003).

The continent has long been characterized by political violence, border permeability, territorial disputes, trafficking of all kinds, and ethnic-sectarian violence (Ujunwa, Okoyeuzu, & Kalu, 2019).

Recently, herdsmen attacks in Africa and Nigeria have also attracted attention. Mwanfupe (2015) disclosed that crop farmers-herders conflict is also prevalent in African countries such as Cameroun, Tanzania, Sudan and Kenya among others. According to Bagu and Smith (2019), these conflicts are emerging and disrupting communities in Democratic Republic of Congo, Central Africa Republic, Mali, and across the West African sub-region. In a study conducted by Idrissuo et al. (2017) in Northern Benin, it was found that crop farmers-herders conflict arising from the competition over access to land, water, and grazing resources have diverse causes. They are related to crops damages, thefts, and aggression, the occupation of corridors and systematic eviction of herders. These scholars observed that conflicts are on the increase because of the erosion of societal values. For them, herders'-crop farmers' conflicts were in the past settled in an out-of-court and friendly manner by elders of the communities which reduced tensions. However, society has changed, and people nowadays are more individualistic. Consequently, therefore, people prefer the formal institutional settlement involving the police and the court.

In the North-central region of Nigeria, agricultural farm products are majorly produced in the region. The region has crop farmers such as Berom, Jukuns, Tivs and Idomas, who are sedentary landowners. The pastoralists are of the Fulani tribesmen and are from Kanem Bornu, Kwoya, Manga, Fulbe, Kanuri, Tuaregs and Shuwa Arabs. In December 2018 alone, the violent conflict between farmers and herders claimed over 2, 000 lives in the North-central Nigeria (Bagga, 2019).

Benue State is the most affected by the pastoralist-farmer conflict. In 2014 alone, 853 lives were lost between January and March. Between 2014 and 2016, in 11 Local Government Areas in Benue State, 4,194 Christians were killed while 2,957 Christians were injured. In eight (8) Local Government Areas in Benue state, 195, 576 Christian homes were destroyed by pastoralists and 30 churches were burnt down on 1st January, 2018. On the other hand, the Fulani pastoralists lost 214 people and 3200 cows (Osumah, 2013a).

The violent conflict between the herdsmen and the crop-farmers has been submerged under various perspectives, including the perspectives of the State, farmers, herders, media and the NGO. (Benjamin, Maganga and Abdullahi, 2009; Okoli and Atelhe, 2014), ethnicity, self-determination, cultural differences (Adogi, 2013; Ogu, 2016), increase in agro-pastoralism and expansion in farming activities (Blench, 2010), land grabbing by the capitalist farmers (Abass, 2012), and politics of the belly and petty corruption (Aina, 2019) among others. All these views have tried to explain the nature and dynamics of crop farmers-herders conflict.

Specifically, the research intends to:

i. examine the socio-economic characteristics of internally displaced persons and non displaced persons in the study area.
ii. Compare farmers' level of productivity before and after insurgency in the study area.

2.0 METHODOLOGY

2.1 The study area

The study was conducted in Benue State, North-Central Nigeria. The State is code named the *Food Basket of the Nation*. Benue State is an agrarian society, with well over 70% of its population dependent on agriculture (Terdoo

& Giuseppe, 2020). The State lies between latitudes 6° 25' N and 8° 8' N of the equator, and between longitudes 7° 47' E and10° 00' E of the Greenwich meridian, and has a total land area of 30,800 sq/km. Benue State was carved out from the former Benue Plateau State in 1976 and was named after River Benue. The State is structured into 23 Local Government Areas (LGAs), with Head Quarters in Makurdi (Figure 1 Map of Benue State). The main ethnic groups in the State are Tiv, Idoma and Igede. Benue State shares boundaries with Nasarawa State to the North, Taraba State to the East, Cross River State to the South, Enugu State to the South-West and Kogi State to the West. The State has a projected population of about 6,141,300 based on growth rate of 3.2% (National Population Commission (NPC) of 2006.

The monthly distribution of rainfall in Benue State is bimodal, with the annual total averaging between 1200 and 1400 mm (Osumah 2013a). The temperatures are constantly high throughout the year, average ranges from 23° C –32° C. The vegetation in the State is typical of that of the southern Guinea Savannah, which is the dominant vegetation belt of Central Nigeria (Terdoo & Giuseppe, 2020). The major crops produced in the State include: rice, sweet potatoes, soya beans, maize, millet, cassava, yam, oil palm, tomatoes, and cowpea among others. Benue State has remained the worst hit by herders'-crop farmers' conflict in North-Central Nigeria (Kwaja 2014; McGregor 2014; Fayonyomi *et al*, 2018), with 20% of the number of casualties recorded (Kwaja, 2019).

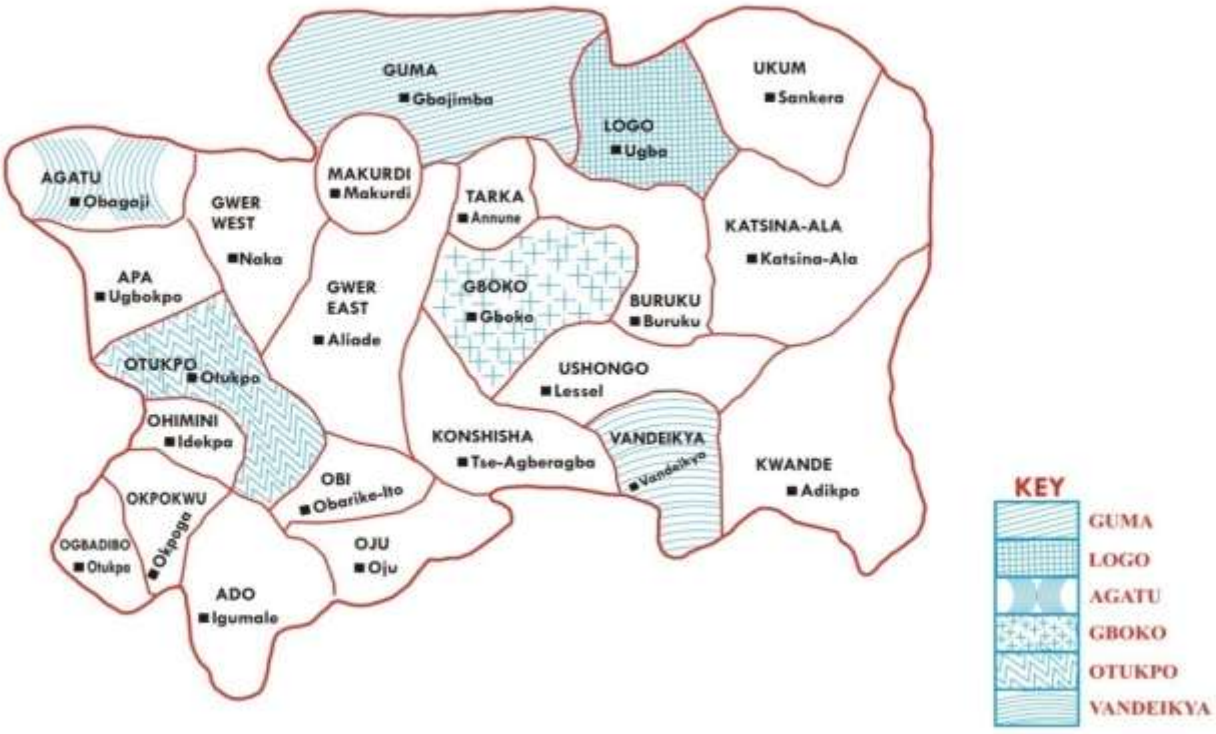

Fig. 1: Map of Benue State showing the study areas
Source: Adopted from Convafresh, 2021

Experimental Design and Data Collection

This study employs cross-sectional survey design. The design enables the researcher to collect data from a cross-section of the target population. The study collected data through both primary and secondary sources.

Primary data was collected using structured questionnaire. Data was collected on the socio-economic characteristics of the respondents, level of productivity before and after the insurgency, level of food security; factors affecting food security; differences in food security in areas with insurgency and those areas without insurgency; and the coping strategies with food insecurity.

The data for the study was collected using a well-structured questionnaire and was administered with the help of trained ADPS (Agricultural Development

Project Staff) as enumerators. The questionnaires consisted of seven (7) sections in line with the specific objectives. Section A deals with the socio-economic characteristics of respondents, Section B with the difference in farmers' level of productivity before and after the insurgency, Section C with the level of food security in the study areas; Section D addressed the factors affecting food security; Section E dealt with the coping strategies of the areas with food insecurity while section F dealt with the comparative analysis of food security in areas with insurgency and those areas without insurgency. Finally, Section G addressed the challenges imposed on the respondents affected by insurgency in the study area.

Model Specification/ Data Analysis Techniques

Descriptive statistics such as frequencies and percentages, mean and standard deviation were used to analyse objective (I) while Paired Sample T-Test was used to achieve objective (II).

2.2.1 Descriptive statistics

Descriptive statistics was used to achieved the socio-economic characteristics of internally displaced persons and non-displaced persons

2.2.2 Paired Sample T-Test

The model equation and the specification of variables used in this research are shown below**:**

$$t = \sum(\frac{\mathrm{d}}{s_d/\sqrt{n}}) \quad (3)$$

Where;

d = the mean of the differences between the paired observations
s_d = standard deviation of the difference between the paired observations
n = the number of paired observations

3.0 RESULTS AND DISCUSSION:

3.1 Socio-Economic Characteristics of the Farming Populations Affected by Insurgency

Results of the socio-economic characteristics of farmers affected by insurgency in the study area are presented in Table 1.The age distribution of the respondents indicates that a significant proportion of the population affected by insurgency in Benue State, Nigeria, falls within the older age brackets, with 46.7% being 46 years or older, and a mean age of 44 years. This indicates that older people were more involved in farming activities in the population affected by insurgency in Benue state as compared to the younger ones. This can be attributed to the desire of the younger populations to move into nearby towns to engage in menial jobs instead of taking refuge in the internally displaced persons camps (Sulaiman and Ja'afar-Furo, 2010).

Furthermore, the average household size was found to be 7 persons, with 62.7% of households comprising 6-10 members (Table 3). This indicates that populations affected by insurgency are associated with moderate to large household sizes. These can be ascribed to boredom and some level of idleness among the married populations in the IDP camps; a situation that encourages pregnancies and consequent child births in the camps. Large household sizes can imply a higher dependency ratio and greater strain on household resources, potentially exacerbating the effects of insurgency on food security and economic stability (Black *et al.,* 2011).

Similarly, on-farm income is a critical indicator of economic stability. In the current study, the mean farm income of the respondents was observed to be ₦343,000 with a majority (58.7%) of the farmers earning between ₦201,000 and ₦400,000 (Table 3). Such low farm income compared with the moderate to large household sizes in the study area indicates that farmers affected by insurgency are not earning much from farm production. This is likely due to the small farm sizes and poor quality of farm inputs among others (Hussani *et al.,* 2020).

The distribution of the respondents in terms of years spent in education shows that the mean years of education among the respondents is 7 years, with 32.1% having 0-4 years of education. This shows that they are largely illiterate as four years in school could barely guaranty a sound primary level of education. Again this situation can be linked to the lingering farmer-herder crisis that metamorphosed into the present insurgency situation in the area. Furthermore, such low educational attainment can limit access to information and resources, impacting the ability to adopt improved agricultural practices (Bartolotta, 2011).). Similarly, access to health care among the populations affected by insurgency in the study area was found to be relatively balanced, with 51.2% of respondents having access (Table 1).

The distribution of the farmers affected by insurgency with regards to monthly food expenditure indicates that average monthly food expenditure of the respondents is ₦30,000, with the majority (62.1%) spending between ₦21,000 and ₦40,000.This finding contradicts with the low farm incomes accruable to the farmers who are displaced from their original homes as a result of insurgency as earlier documented by Jayne, *et al.,* (2014).

From Table 1 it was found that a significant 84.3% of the respondents lack access to credit, which is crucial for purchasing inputs and investing in agricultural improvements. This shows that, the farmers lacked financial support needed to aid them in their farming activities. (Maxwell & Caldwell, 2008).The distribution of the respondents with respect to access to clean water shows that only 7% of respondents have access to piped water, underscoring significant infrastructural deficits.

The gender distribution shows that 76% of respondents are male (Table 3). This skewed distribution might reflect cultural norms and gender roles in agricultural labor. Gender disparities can affect access to resources and decision-making in farming households (Doss, 2001). This indicates that the male populations among people affected by insurgency are more engaged in farming activities than their female counterparts.

The mean number of household members assisting in farming is was found to be 5, with 72.1% having 1-5 members contributing labor (Table 3). It has been established that family labour is a crucial component of agricultural operations, especially in the absence of hired labour due to financial constraints (Ellis, 2000).Thus populations affected by insurgency who suffer serious financial constraints are likely to rely on family labour for their agricultural production as observed in the current study.

Also, the distribution of the respondents in terms of time spent on the farm per day show that they spend an average of 5.7 hours daily on farming activities, with 52.2% working 6-10 hours per day. Long working hours can indicate high labor demands and possibly inadequate mechanization (Binswanger & McIntire, 1987). Similarly, the average number of days spent on the farm per week was found to be 5, with 67.4% working 5-8 days/week (Table 1). This high level of labor input reflects the intensive nature of farming in the region, potentially exacerbated by the need to recover from the disruptions caused by insurgency as earlier asserted by Chayanov (1966).

The distribution of the respondents with respect to access to market information indicate that only 39.9% of them have access to market information as shown in Table (1).. This finding may or may not be impacted by the presence of insurgency in the study area and thus could be a subject for further research.

The distribution of the respondents with regards to involvement in off-farm activities show that small fractions (29.5%) of the farmers affected by insurgency are involved in off-farm activities, which can provide alternative income sources and diversify economic risks (Table 1). This can be attributed to the challenge of internally displaced persons living in make-shift abodes to find the rightful other economic engagements in their new environments (Reardon,1997).

Again from Table 1 it was found that a significant majority (79.9%) of the respondents are married. Fortunately, marital status can influence household stability and labour availability as married households might have better social support networks, which can be vital in conflict situations such as insurgency (Ellis, 2001).

The mean farm size of farmers affected by insurgency in the study area was found to be 4.4 hectares, with 53.3% of the farmers having a farm size of 1-4 hectares (Table 3). Such low farm sizes could be attributed to land fragmentation which is a common issue in rural areas of developing nations, impacting agricultural efficiency irrespective of insurgency or not. Jayne *et al.* (2014) asserted that small farm sizes can limit economies of scale and productivity among farmers. Furthermore, insurgency (which leads to displacement of persons from their original land), non-availability of labour and absence of mechanization tools required to cultivate large land areas could be a further hindrance to large scale farming in the study area.

The distribution of the respondents with respect to membership of cooperative societies shows that only 24.3% of respondents are members of cooperative societies. However, it is established that cooperatives can provide access to shared resources, credit, and market information, enhancing productivity and resilience (Bernard & Spielman, 2009).

Furthermore, it was observed from Table 3 that a mere 23.2% of respondents have access to extension services, which are vital for disseminating agricultural knowledge and technologies. Lack of extension services can hinder productivity and adaptation to new agricultural methods as asserted by Haggblade, *et al.,* (2004). Therefore, the attention of governmental and non-governmental organization is needed towards the provision of extension services to vulnerable populations in insurgency situations. Similarly, the average farming experience of farmers affected by insurgency was found to be 30 years, with 67.9% having 21-40 years of experience (Table 1). This suggests that, extensive farming experience can enhance productivity through accumulated knowledge and skills (Wiggins, 2009). However, older farmers might also be resistant to change and innovation.

The distribution of the respondents in terms of level of education shows that 32.6% of them have non-formal education, while 25.8% have primary education. Higher education levels correlate with better farming practices and productivity just as educational interventions can improve agricultural outcomes (Weir & Knight, 2000). Finally, it was observed that the mean livestock income of the respondents is ₦84,000, with 74.9% earning ₦0-100,000. Livestock farming provides crucial income and food security, especially in conflict-affected regions where crop farming might be disrupted (Reardon, 1997).

Table 1: Socio-economic Characteristics of Respondents in Areas Affected by Insurgency (N =383)

S/No	Variable	Frequency	Percentage (%)	Mean
1.	**Age (Years)**			**44**
	≤ 25	25	6.5	
	26 – 35	64	16.7	
	36 – 45	115	30.0	
	≥ 46	179	46.7	
2.	**Household Size (Persons)**			**7**
	1 – 5	125	32.6	
	6 – 10	240	62.7	
	11 – 15	17	4.4	
	16 – 20	1	0.3	
3.	**On-farm Income (₦'000)**			**343**
	≤ 200	66	17.2	
	201 – 400	225	58.7	
	401 – 600	63	16.4	
	601 – 800	25	6.5	
	≥ 801	4	1.0	
4.	**Education Years**			**7**
	0 – 4	123	32.1	
	5 – 9	100	26.1	
	10 – 14	105	27.4	
	15 – 19	55	14.4	
5.	**Access to Health Care**			
	Yes	196	51.2	
	No	187	48.8	
6.	**Household Monthly Food Expenditure (₦'000)**			**30**
	1 – 20	97	25.3	
	21 – 40	238	62.1	
	41 – 60	37	9.7	
	61 – 80	8	2.1	
	≥ 81	3	0.8	
7.	**Access to Credit**			
	Yes	60	15.7	
	No	323	84.3	
8.	**Access to Piped Water**			
	Yes	27	7.0	
	No	356	93.0	
9.	**Gender**			
	Male	291	76.0	
	Female	92	24.0	
10.	**Household Members Assisting in Farming (Persons)**			**5**
	1 – 5	276	72.1	
	6 – 10	106	27.7	
	11 – 15	1	0.37	
11.	**Daily Hours on Farm**			**5.7**
	1 – 5	183	47.8	
	6 – 10	200	52.2	
12.	**Weekly Number of Days on Farm**			**5**
	1 – 4	125	32.6	
	5 – 8	258	67.4	
13.	**Access to Market Information**			
	Yes	153	39.9	
	No	230	60.1	
14.	**Involvement in Off-farm Activities**			
	Yes	113	29.5	
	No	270	70.5	

15.	**Marrital Status**			
	Married	306	79.9	
	Single	77	20.1	
16.	**Farm Size (Ha)**			**4.4**
	1 – 4	204	53.3	
	5 – 8	179	46.7	
17.	**Membership of Cooperative Society**			
	Yes	93	24.3	
	No	290	75.7	
18.	**Access to Extension Services**			
	Yes	89	23.2	
	No	294	76.8	
19.	**Farming Experience (Years)**			**30.0**
	1 – 20	78	20.4	
	21 – 40	260	67.9	
	41 - 60	41	10.7	
	61 – 80	4	1.0	
20.	**Level of Education**			
	Non-formal	125	32.6	
	Primary	99	25.8	
	Secondary	96	25.1	
	Tertiary	48	12.5	
	University	14	3.7	
	Others	1	3.0	
21.	**Livestock Income (₦' 000)**			**84**
	0 – 100	287	74.9	
	101 – 300	83	21.7	
	301 – 500	10	2.6	
	501 – 700	2	0.5	
	701 – 900	1	0.3	

Source: Field Survey, 2024

Socio-Economic Characteristics of the Farming Populations not affected by Insurgency

Results of the socio-economic characteristics of the respondents not affected by insurgency are presented in Table 2. The age distribution of farmers not affected by insurgency in Benue State shows that 50.5% of respondents are aged 46 years or older, with a mean age of 44 years. This older demographic profile is indicative of an aging farming population. Thus farming should be made attractive to the younger ones to boost their participation if farming towards greater productivity in the area.

The average household size of farmers living in areas not affected by insurgency was observed to be 8 persons, with 59% of households having 6-10 members (Table 4). Larger household sizes
can provide for labour advantages, as more family members would contribute to farm activities. However, they also pose challenges in terms of resource allocation and food security, especially, if economic resources are limited (Black *et al*., 2011). As earlier mentioned, on-farm income is a critical indicator of economic stability in any human settlement. In this study the distribution of the respondents not affected by insurgency in Benue State show that the mean on-farm income is ₦641,000, with 32% earning between ₦401,000 and ₦600,000, and 24.5% earning ₦801,000 or more. This higher income distribution suggests better economic stability and potential for investment in farming inputs and technology, which can enhance productivity and resilience (Haggblade *et al.,* 2004). Higher incomes in non-affected areas likely reflect less disruption to farming activities and access to market. The distribution of the respondents not affected by insurgency show that the mean years of education among farmers is 6 years, with 36.5% having 0-4 years of education. However, limited educational attainment can restrict access to information and modern farming techniques, potentially hindering agricultural productivity (Adogi, 2013). The significant proportion of respondents with minimal education underscores the need for educational interventions and adult education programs in the study area.

It was also observed that only 42.5% of respondents not affected by insurgency in the study area have access to health care, with a significant 57% lacking access. This finding was not different from the populations under insurgency. Nevertheless, adequate health care is essential for maintaining a productive workforce as poor health can lead to reduced labour availability and increased household expenditure on health services, affecting their overall economic stability (Ersado, 2006).Thus improving health care access to

rural populations can mitigate these negative impacts and enhance their overall well-being.

Also, the socio-economic characteristics of the farmers not affected by insurgency in the study area show that the mean monthly food expenditure is ₦57,000, with 29% spending between ₦41,000 to ₦60,000, and 17.5% spending between ₦81,000 or more.

The distribution of the respondents not affected by insurgency in Benue state shows that access to credit is available to only 38% of respondents, while 62% lack such access. This is similar to the observation among the farmers affected by insurgency in the study area. This shows that insurgency may not be responsible for the lack of access to credit among the farming populations in the area.

Furthermore the distribution of the respondents indicate that only 21% have access to piped water and a huge 79 % lack such access, indicating significant infrastructural challenges Therefore, investment in water infrastructure is critical for improving living conditions and agricultural output of the farming populations in the study area (Howard & Bartram, 2003).

The gender distribution shows that 66% of the respondents are male, while only 44 % are female. This male predominance is similar to the observations in the farmer populations affected by insurgency and similarly reflects the cultural norms of the people where men typically dominate farming activities. Gender disparities can impact access to resources and decision-making, often leaving women with limited opportunities and support in agricultural roles (Doss, 2001).

The mean number of household members assisting in farming activities in the populations that is not affected by insurgency in the study area was observed to be 6 persons, with 56% having 0-5 members contributing labour.

It was further observed that the farmers not affected by insurgency in Benue state spend an average of 6 hours daily on farming activities, with 72% working 6-10 hours. Just like with the case of those affected by insurgency in the study area, this intensive labour input reflects the demands of small-scale farming and the absence of mechanization. Consequently, such long working hours can lead to fatigue and reduced efficiency, highlighting the need for the provision of labour-saving technologies in the area (Binswanger & McIntire, 1987).

Also, the distribution of the respondents revealed that the average time spent on the farm per week is 5 days, with 75.5% working 5- 8 days. This high labour commitment underscores the importance of improving farming practices to enhance productivity and reduce labour burdens on the farmers (Chayanov, 1966).

The socio-economic characteristics of the respondents show that 52.5% have access to market information, while 47.5 % lack access. This reflects moderate access to market information among farmers not plagued by insurgency in the region and reflects a higher access level compared to the farmers impacted by insurgency stability and economic resilience (Haggblade, *et al*., 2004). Therefore, enhancing market information systems can empower farmers to maximize their earnings and reduce market risks irrespective of the presence or absence of insurgency.

The socio-economic distribution further shows that 38.5% of respondents are involved in off-farm activities, while greater 61.5 % are not involved but rely only on farming for income and other benefits. Similar finding was obtained among the faming populations affected by insurgency Diversification into off-farm activities provides additional income sources and reduces economic risks associated with agricultural dependency. This diversification is essential for enhancing livelihood resilience and stability in the region (Reardon, 1997).

Similarly, it was also observed that a significant majority (90%) of respondents are married. This could be ascribed to the cultural norms of the respondents which seem to permit early marriage for obvious reasons related farming needs. Consequently, married households might benefit from pooled resources and labour, enhancing agricultural productivity and economic resilience (Ellis, 2000).

Table 2 also shows that the mean farm size of the farmers not affected by insurgency in the study area stood at 5 hectares, with 52 % having 5 - 8 hectares. Compared with the manual labour inputs observed among the respondents, such farm sizes could be termed as large. Therefore, land consolidation, effective land management strategies and technologies are crucial for maintaining large scale cultivation towards optimizing agricultural output in the area (Jayne *et al.,* 2014).

It was also observed from Table 4 that 59 % of the respondents are members of cooperative societies, while only 41 % are non-members. These large-scale involvements of the farmers in cooperative societies underscore the well-informed nature of the farmers and the availability of such schemes in the area as compared to the low involvement observed from the farming populations affected by insurgency in the region. Cooperatives can provide access to shared resources, credit, and market information, enhancing productivity and resilience. Membership in cooperatives has been shown to improve income stability and social capital among farmers and should be further encouraged in the area (Bernard & Spielman, 2009).

On access to extension services among the farming populations not affected by insurgency in the study area, it was similarly observed that only 45% of respondents have access just as with the case of those impacted by insurgency. Therefore, strengthening extension services in the study area can significantly improve agricultural outcomes and the livelihood of farmers (Anderson & Feder, 2007).

Table 4 also shows that the mean farming experience of farmers not affected by insurgency is 26.7 years, with 56.5 % having 21 - 40 years of experience. Therefore, farming populations should be encouraged to get involved right from their childhood ages.

The distribution of the respondents (farmers not affected by insurgency in Benue State) shows that just like with the case of those affected by insurgency, 36 % have non-formal education, while 33.5 % have primary education. Only a small fraction of the farmers (8.5 %) has higher educational qualifications (Tertiary and University combined) as shown in Table 2. This shows that the culture and location other than insurgency are determinants of the educational levels of farmers in the study area (Weir & Knight, 2000).

It was further indicative from Table 2 that the mean livestock income of farmers not affected by insurgency in the study area is ₦180,000, with 55 % earning between ₦ 0 - 100,000. This was considerably higher as compared with the livestock earnings of those affected by insurgency. (Nwafor *et al.,* 2011). Therefore, enhancing livestock farming practices especially among vulnerable populations in the study area can improve the overall household resilience and economic well-being of the farmers.

Table 2: Socio-economic Characteristics of Respondents in Areas not affected by Insurgency (N =200)

S/No	Variable	Frequency	Percentage (%)	Mean
1.	**Age (Years)**			**44**
	≤ 25	17	8.5	
	26 – 35	34	17.0	
	36 – 45	48	24.0	
	≥ 46	101	50.5	
2.	**Household Size (Persons)**			**8**
	1 – 5	59	29.5	
	6 – 10	118	59.0	
	11 – 15	16	8.0	
	16 – 20	4	2.0	
	>20	3	1.5	
3.	**On-farm Income (₦'000)**			**641**
	≤ 200	15	7.5	
	201 – 400	39	19.5	
	401 – 600	64	32.0	
	601 – 800	33	16.5	
	≥ 801	49	24.5	
4.	**Education Years**			**6**
	0 – 4	73	36.5	
	5 – 9	68	34.0	
	10 – 14	42	21.0	
	15 – 19	17	8.5	
5.	**Access to Health Care**			
	Yes	85	42.5	
	No	114	57.0	
	Adamant	1	0.5	
6.	**Household Monthly Food Expenditure (₦'000)**			**57**
	1 – 20	18	9.0	
	21 – 40	57	28.5	
	41 – 60	58	29.0	
	61 – 80	32	16.0	
	≥ 81	35	17.5	
7.	**Access to Credit**			
	Yes	76	38.0	
	No	124	62.0	
8.	**Access to Piped Water**			
	Yes	42	21.0	
	No	158	79.0	
9.	**Gender**			
	Male	132	66.0	
	Female	68	34.0	
10.	**Household Members Assisting in Farming (Persons)**			**6**
	0 – 5	112	56.0	
	6 – 10	82	41.0	
	≥ 11	6	3.0	

11.	**Daily Hours on Farm**			**6**
	1 – 5	56	28.0	
	6 – 10	144	72.0	
12.	**Weekly Number of Days on Farm**			**5**
	1 – 4	49	24.5	
	5 – 8	151	75.5	
13.	**Access to Market Information**			
	Yes	105	52.5	
	No	95	47.5	
14.	**Involvement in Off-farm Activities**			
	Yes	77	38.5	
	No	123	61.5	
15.	**Marital Status**			
	Married	180	90.0	
	Single	20	10.0	
16.	**Farm Size (Ha)**			**5**
	1 – 4	84	42.0	
	5 – 8	104	52.0	
	≥ 9	12	6.0	
17.	**Membership of Cooperative Society**			
	Yes	118	59.0	
	No	82	41.0	
18.	**Access to Extension Services**			
	Yes	90	45.0	
	No	110	55.0	
19.	**Farming Experience (Years)**			**26.7**
	1 – 20	67	33.5	
	21 – 40	113	56.5	
	41 - 60	20	10.0	
20.	**Level of Education**			
	Non-formal	72	36.0	
	Primary	67	33.5	
	Secondary	44	22.0	
	Tertiary	11	5.5	
	University	6	3.0	
21.	**Livestock Income (₦' 000)**			**180**
	0 – 100	110	55.0	
	101 – 300	57	28.5	
	301 – 500	14	7.0	
	501 – 700	10	5,0	
	701 – Above	9	4.5	

Source: Field Survey, 2024

Farmers Level of Productivity before and after Insurgency in the Study Area

The paired samples t-test conducted to compare crop yields (Productivity) before and after the insurgency in the study area is shown in Table 3 which reveals significant findings. The paired sample statistics and correlation can be found in Appendix B. The results indicate a mean difference of 181.32 units between the yields before and after the insurgency, with a standard deviation of 170.70 and a standard error mean of 8.72. The 95% confidence interval of the difference ranges from 164.17 to 198.47, with a t-value of 20.79 and a significance level (p-value) of 0.00. This statistical analysis underscores a profound impact of the insurgency on agricultural productivity.

The substantial mean difference of 181.32 units highlights a severe reduction in crop yields due to the insurgency. This decrease can be attributed to various factors such as displacement of farmers, destruction of farmlands, and disruption of agricultural activities. Similar studies have documented the detrimental effects of conflict on agricultural output. For instance, a study by Brück (2004) on the impact of civil war on agricultural production in Mozambique found significant declines in crop yields during periods of conflict. The findings from this analysis align with these observations, indicating that the insurgency has led to a notable decline in agricultural productivity in the study area.

Furthermore, the standard deviation of 170.70 suggests considerable variability in the differences between yields before and after the insurgency.

Research by Iqbal *et al*., (2010) on the impact of conflict on agriculture in Pakistan's Khyber Pakhtunkhwa province similarly noted that the extent of yield reduction varied significantly depending on the intensity and duration of conflict in different areas.

Table 3: Paired Sample t-test of Farmers Productivity before and after Insurgency

	Paired Differences					t	df	Sig.(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Yield before Insurgency- Yield after Insurgency	181.324	170.704	8.723	164.173	198.474	20.788	382	0.000**

Source: Field Survey, 2024, ** = significant at P ≤ 0.05

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

The t-value of 20.79 and the extremely low p-value (0.00) indicate that the observed differences in yields before and after the insurgency are statistically significant. This means that the likelihood of these results occurring by chance is exceedingly low, reinforcing the conclusion that the insurgency has had a profound and statistically significant negative impact on agricultural yields. Statistical significance in this context provides strong evidence to support policy interventions aimed at mitigating the adverse effects of conflict on agriculture.

4.2 Recommendations

Thus, the findings from this study have important implications for policymakers and stakeholders involved in agricultural development and conflict resolution. The significant reduction in yields underscores the need for targeted interventions to support affected farmers, such as rehabilitation of farmlands, provision of agricultural inputs, and implementation of security measures to protect farming communities. Future research should focus on longitudinal studies to assess the long-term impact of insurgency on agriculture and explore strategies to enhance the resilience of farming systems in conflict-prone areas. Moreover, comparative studies across different regions affected by conflict could provide deeper insights into the mechanisms through which insurgency affects agricultural productivity and inform more effective policy responses.

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