



**EFFECT OF RURAL-URBAN MIGRATION ON LABOUR SUPPLY AMONG
MAIZE FARMING HOUSEHOLDS IN ITESIWAJU LOCAL GOVERNMENT AREA
OF OYO STATE, NIGERIA**

¹Yisa, E. S., ²Adewumi, A., ^{*1}Yisa, J. and ¹Amusat, A. R.

¹Department of Agricultural Economics and Farm Management, Federal University of Technology, P.M.B. 65,
Minna, Niger State, Nigeria

²Department of Agribusiness Management, Federal College of Freshwater Fisheries Technology, New Bussa,
Niger State, Nigeria

***Correspondence Email:** joky4sure@gmail.com

GSM: +2347035341672

ABSTRACT

The study investigates the effects of rural-urban migration on labour supply among maize farming households in Itesiwaju Local Government Area of Oyo State, Nigeria. A two-stage sampling technique was employed to select 120 maize farmers from ten communities within the study area. Primary data were collected using structured questionnaires and interview schedules. Data analysis was conducted using descriptive statistics and a multiple regression model. The study shows that the majority (74.2%) of farmers fall within the age range of 31-50 years, with an average age of 41 years and only 58.3% of the farmers are married. Furthermore, the average farming experience in the study area was 16 years. Findings highlighted that key migration drivers include desire to be civilized (87.50%), to secure job (80.00%), to find a partner (71.67%) and to change environment (71.67%). The OLS regression results revealed that migration significantly reduces labour supply for maize production, with an estimated 2% decline in farm labour supply for every 1% increase in household migration at $p \leq 0.10$. Other significant variables influencing labour supply in the study area were education status ($p \leq 0.05$), farming experience ($p \leq 0.01$), credit access ($p \leq 0.01$) and farm size ($p \leq 0.01$). The major constraints faced by the maize farmers were insecurity (90.83%), small farm holding (87.50%), inadequate labour supply (85.83%) and inadequate extension service (68.33%). The study underscores the urgent need for policies promoting rural economic development, mechanized farming, and youth engagement in agriculture to curb migration-driven labour shortages. It recommends targeted government interventions, including financial incentives for rural farmers, improved access to credit, and the provision of essential infrastructure. Addressing these challenges will enhance agricultural productivity and contribute to food security in Nigeria.

Keywords: Labour, Migration, Rural, Supply and Urban

INTRODUCTION

Rural-urban migration has emerged as a dominant internal migration pattern globally, particularly in developing countries like Nigeria. This movement is driven by multiple socio-economic, demographic, and environmental factors, including employment opportunities, education, and improved living standards in urban centers. While migration can present opportunities for economic advancement, it often exerts significant pressure on rural agricultural communities, particularly by reducing the availability of labour for farming activities. In Nigeria, where agriculture remains a fundamental sector of the economy, labour migration from rural areas has become a pressing concern, as it disrupts farming operations and impacts household food security (Eze, 2019). The exodus of able-bodied youth from rural communities to urban centers leaves older individuals and children to manage agricultural activities, thereby reducing productivity and increasing the cost of labour (Biodun *et al.*, 2019).



The study examines how rural-urban migration affects labour supply among maize farming households in Itesiwaju Local Government Area of Oyo State, Nigeria.

Despite the recognition of rural-urban migration's impact on agricultural labour, existing studies have not sufficiently explored the specific consequences for maize farming households in Nigeria. Previous research has largely focused on the general economic effects of migration, neglecting its sector-specific implications on staple crop production (Obayelu *et al.*, 2020). As maize is a staple food and an essential cash crop in Nigeria, any decline in its production due to labour shortages could have far-reaching consequences for food security and rural livelihoods. Moreover, while some studies have highlighted the role of remittances in rural economies, they have not adequately addressed whether these financial inflows compensate for the loss of physical labour in farming communities (Abizu, 2018). This study seeks to bridge this gap by providing empirical insights into how labour migration affects maize farming households and the broader agricultural sector in Itesiwaju LGA.

The primary objective of the study was to examine the effect of rural-urban migration on labour supply among maize farming households in Itesiwaju Local Government Area, Oyo State. Specifically, the study aims to assess the extent of labour shortages caused by migration, and analyze its effect on maize production. Understanding these dynamics is crucial for policymakers and agricultural stakeholders seeking to develop targeted interventions that can enhance labour retention in rural farming communities. Findings from this study will inform the formulation of policies aimed at revitalizing rural agriculture, improving mechanization, and incentivizing youth participation in farming. Given the increasing trend of migration, it is imperative to implement sustainable agricultural policies that address labour shortages while enhancing productivity in rural areas (Igene *et al.*, 2023). Addressing these challenges will not only support local food production but also contribute to national food security and economic stability.

MATERIALS AND METHODS

The Study Area

The study was conducted in Itesiwaju Local Government Area (LGA) of Oyo State, Nigeria. The Local Government Area is one of the 33 Local Government Areas of the State. According Thomas (2022), the population of the LGA was at 182,100 people. The LGA occupies about 1534.193sqkm land mass and lies in the savannah belt of the Northern part of Oyo State otherwise known as Oke-ogun area of the State. The major indigenous ethnic groups of the LGA are Yoruba while other groups such as Fulani, Hausa, Igbo and Togolese represent the minority there. Farming is the major occupation of the people of Itesiwaju LGA. The crops grown in the area include; maize, tobacco, sorghum, millet cowpea, groundnut, yam and soya beans.

Sampling Technique and sample size

The study population consisted of maize farmers in Itesiwaju LGA of Oyo State. A two-stage sampling procedure was used to randomly select a total of 120 maize farmers from 10 communities in the LGA. The data were obtained through the use of a structured questionnaire complemented with an interview schedule. The content of the questionnaire was design to collect information on the socio-economic characteristics of the maize farmers, causes of migration to urban centers, labour supply and the production constraints encountered by the farmers. The data were collected with the assistance of trained enumerators under the supervision of the researchers.

Data Analysis

The data collected from the respondents were analyzed using descriptive statistics such as; frequency distribution table, mean and percentages as well as inferential statistics such as

multiple regression model. The OLS regression model used is specified implicitly in equation (1).

$$Y = f(X_1, X_2, X_3, \dots, X_{10}) \quad ..(1)$$

However, four (4) functional forms of the model were tested in order to determine the best fit for this study. The explicit forms of the regression model are specified in equations (2) to (5).

Linear: $Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \dots + \beta_{10} X_{10} + e \quad ..(2)$

Semi-log: $Y = a + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \dots + \beta_{10} \ln X_{10} + e \quad ..(3)$

Exponential: $\ln Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \dots + \beta_{10} X_{10} + e \quad (4)$

Double-log: $\ln Y = a + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \dots + \beta_{10} \ln X_{10} + e \quad ..(5)$

Where;

Y = Labour supply in maize production (man-days)

X₁ = Age (years)

X₂ = Gender (male=1, otherwise =0)

X₃ = Education (years)

X₄ = Experience (years)

X₅ = Access to credit (₦)

X₆ = Household size (number)

X₇ = Farm size (hectares)

X₈ = Migration (number of households that migrated).

X₉ = Employment opportunities (available=1, otherwise=0)

X₁₀ = Land (available=1, otherwise=0)

a = Constant,

β₁ – β₁₀ = Coefficients estimated

e = Error term

RESULTS AND DISCUSSION

Socio-economic Characteristics of Farmers

This section examines the socio-economic characteristics of farmers within the study area, emphasizing key variables that potentially influence rural-urban migration trends. The findings, as presented in Table 1, indicate that the majority (74.2%) of farmers fall within the age range of 31-50 years, with an average age of 41 years. This suggests that most farmers are within their youthful and economically active years, making them more likely to migrate in search of better opportunities. This observation aligns with the theoretical expectation that younger individuals exhibit a higher propensity to migrate compared to their older counterparts. These results are consistent with the findings of Ajah and Ajah (2014), who reported a mean age of 44 years among rice farmers in Nigeria.

Additionally, the study reveals that a significant proportion (87.5%) of the farmers are male, while only 12.5% are female. This gender disparity in maize farming can be attributed to cultural norms that traditionally position men as the primary breadwinners, whereas women are often relegated to domestic responsibilities. The predominance of male farmers may also be explained by the physically demanding nature of farming activities, which are more suited to men. This finding aligns with the observations of Okere and Shittu (2012), who noted that small-scale farming is predominantly undertaken by males, while females are more involved in lighter agricultural tasks such as processing, harvesting, and marketing.

With regard to marital status, the results indicate that only 58.3% of the farmers are married, a relatively low proportion compared to findings from other studies such as those of Ugwuja *et al.* (2011) and Tanko (2017), which report a higher prevalence of married farmers. Marital status is a crucial factor in household dynamics, as married farmers are more likely to have larger household sizes and greater responsibilities in terms of food security and financial obligations. Household size analysis further reveals that a majority (84.2%) of farmers have

between one and six household members, with an average household size of two persons. This suggests a predominance of small to moderately sized households. Larger household sizes are often associated with access to an inexpensive or free labour supply for farm operations. However, the reported mean household size of two is considerably lower than the eleven members reported by Tanko (2017) among farmers in Kaduna State, Nigeria.

The findings also show that over 70% of the farmers have attained formal education, ranging from primary to tertiary levels. Education plays a crucial role in agricultural productivity, as it enhances farmers' ability to adopt and implement new agricultural techniques disseminated by extension services. Furthermore, a higher level of education is associated with an increased likelihood of migration, as educated individuals may seek better economic opportunities outside their communities. This observation is supported by Awoniyi and Salma (2012), who argue that higher educational attainment among farm households contributes to increased income generation and poverty reduction.

Lastly, the analysis of farming experience shows that the average maize farmer in the study area has approximately 16 years of farming experience. This figure closely aligns with the 20 years reported by Oyekale and Idjesa (2009) among maize farmers in Rivers State, Nigeria. Farming experience is a crucial determinant of agricultural success, as it reflects a farmer's exposure to challenges in agriculture and their ability to adapt to and overcome these difficulties. More experienced farmers are typically more adept at employing effective farming practices, which may enhance productivity and sustainability in the sector.

Table 1 Distribution of Farmers According to Socioeconomic Characteristics

Variables	Frequency (n = 120)	Percentage	Mean
Age			41.00
Below 30	15	12.5	
31-40	60	50.0	
41-50	29	24.2	
51-60	11	9.2	
Above 60	5	4.1	
Sex			
Male	105	87.5	
Female	15	12.5	
Marital Status			
Single	16	13.3	
Married	70	58.4	
Divorce	18	15.0	
Widowed	16	13.3	
Education Level			
Non-formal	33	27.5	
Primary	11	9.2	
Secondary	53	44.2	
Tertiary	23	19.1	
Farming experience			16.00
0 – 5	38	31.7	
6 – 10	20	16.7	
11 – 15	15	12.5	
16 – 20	7	5.8	
Above 20	40	33.3	
Household size			2.00
1 – 3	101	84.2	
4 – 6	10	8.3	
7 – 9	6	5.0	
Above 10	3	2.5	

Causes of Rural-Urban Migration Among the Farmers

The findings from this study highlight several key factors driving rural-urban migration among the maize farmers in the study area as presented in Table 2. The results highlight civilization as a major factor in rural-urban migration, signifying a shift towards modern urban lifestyles, better infrastructure, and enhanced access to digital services. Rural communities often lack modern amenities, compelling individuals to relocate in pursuit of better social and technological integration. This trend aligns with the findings of Al-Maruf *et al.* (2022), who emphasized that rural inhabitants migrate to urban areas due to dissatisfaction with outdated infrastructure and limited access to contemporary services.

The results also indicates that better employment prospects in urban areas serve as a strong pull factor for migration. Rural economies, which are largely agrarian, often fail to provide sufficient income, pushing individuals toward cities where they anticipate higher wages and stable job opportunities. This finding is consistent with Tanko (2017) and Hanif *et al.* (2020), who both found that landlessness, low annual income, and extreme poverty were significant push factors for agricultural labourers migrating to urban centers. This implies that without targeted rural economic development programs, migration to urban areas will persist, exacerbating labour shortages in agricultural sectors. More so, the pursuit of a marital partner and improved social status was identified as another reason for migration. In urban areas, individuals may have greater opportunities for social networking and marriage prospects. The implication of this is that rural communities may experience demographic imbalances, particularly a decline in young, marriageable individuals, further weakening local economies and communities. This aligns with the study of Ma *et al.* (2019) which identified social networks as a crucial determinant of migration decisions among rural populations.

Results also show that natural disasters and environmental degradation contribute to migration among the maize farmers, as individuals seek safer and more stable living conditions. Climate change has led to an increase in rural-to-urban migration due to flooding, soil degradation, and unpredictable weather patterns affecting agricultural productivity. Al-Maruf *et al.* (2022) found that climate-induced extremes such as river erosion and seasonal famine significantly influenced migration decisions. The implication here is the need for better climate resilience strategies in rural areas, including improved irrigation systems, soil conservation, and disaster preparedness programs to mitigate forced migration.

Access to better educational facilities in urban areas was another significant driver for migration among the farmers. Rural areas often lack quality educational institutions, leading families to move in search of better academic opportunities for their children. The implication is that policymakers must prioritize the expansion of quality education in rural areas to reduce educationally motivated migration. This is consistent with findings by Das *et al.* (2024), who noted that access to quality schooling is a primary reason for migration, especially among younger populations.

Table 2 Causes of Rural-Urban Migration in the Study Area.

Causes	*Frequency	Percentage	Ranking
To be civilized	105	87.50	1 st
To secure job	96	80.00	2 nd
To find partner	86	71.67	3 rd
To change environment	86	71.67	3 rd
Household migrate to settle in urban area	79	65.83	4 th
Further education	64	53.33	5 th
To escape natural disaster	21	17.50	6 th
Total	537		

Note: * implies multiple responses recorded

Summarily, this finding reinforces the multifaceted nature of rural-urban migration among farmers. Economic, social, environmental, and educational factors collectively drive migration, emphasizing the need for comprehensive rural development policies. To mitigate excessive rural-urban migration, governments must invest in rural infrastructure, create employment opportunities, improve educational access, and implement climate adaptation strategies. Without such interventions, migration trends will continue, leading to further depopulation of rural areas and increased pressure on urban centers.

Effect of Rural-Urban Migration on Labour Supply in Maize Production

The regression estimate of the effects rural-urban migration on labour supply in maize production in the study area is presented in Table 3 and it revealed critical insights into the relationship between migration and agricultural labour. The double-log functional form was selected due to its highest R-square value and the number of significant variables. The model's F-ratio of 104.46, significant at the 1% level, underscores the robustness of the statistical framework, affirming its explanatory power. The coefficient of multiple determination (R^2) of 0.9888 signifies that 98.88% of the variation in labour supply was accounted for by the model's explanatory variables. This result implies that rural-urban migration plays a pivotal role in shaping labour availability in maize production.

The study found that the coefficient of migration (-0.0215) was negatively signed and significant at the 10% level, indicating that a 1% increase in the number of migrants within a household leads to a 2% decline in labour supply for farming activities. This finding aligns with that of Biodun *et al.* (2019) which asserts that rural-urban migration reduces agricultural labour availability, thereby negatively impacting farm productivity. A similar trend has been observed in studies from China, where agricultural labour migration has been shown to reduce labour input in farming activities, potentially leading to inefficiencies in farm management (Shi, 2018).

The negative coefficient for educational status (-0.0395), significant at the 5% level, implies that a 1% increase in formal education years results in a 4% decline in labour supply. This supports the assertion that increased education encourages rural dwellers to seek non-agricultural employment in urban areas, thereby reducing their participation in farming. The shift away from agricultural labour due to increased educational attainment suggests that policies should aim to balance educational advancement with incentives for agrarian engagement to mitigate rural labour shortages. The study of Hanif *et al.* (2020) has shown that better-educated individuals are more likely to migrate in search of improved economic opportunities, further exacerbating the labour shortage in rural agricultural settings.

Similarly, access to credit (-0.0173) was negatively signed and significant at the 1% level, indicating that a 1% increase in credit access leads to a 2% reduction in labour supply. This suggests that increased credit availability facilitates investment in non-agricultural enterprises, leading to decreased reliance on farm-based labour. Previous findings of Bassie *et al.* (2022) corroborate this observation, demonstrating that remittances and credit availability often result in labour reallocation to off-farm activities, thereby reducing direct agricultural labour input. This trend suggests the need for policies that ensure credit mechanisms also support sustainable farming investments to retain labour within the agricultural sector.

Conversely, the coefficient for farming experience (0.0587) was positively signed and statistically significant at the 1% level, indicating that increased farming experience leads to greater labour supply. Experienced farmers are more likely to remain engaged in agricultural production due to their deep-rooted knowledge and ability to optimize production processes. This aligns with findings of Das *et al.* (2020) that suggest farming experience enhances

resilience against migration-induced labour shortages. Therefore, strategies aimed at retaining experienced farmers in rural areas could help mitigate the adverse effects of labour migration on agricultural productivity.

Lastly, farm size (0.1272) was positively signed and statistically significant at the 1% level, signifying that an increase in farm size leads to higher labour supply. Larger farms require more labour, thereby creating employment opportunities and encouraging labour retention in rural areas. This finding is consistent with prior research of Du *et al.* (2023) which has shown that larger farm holdings necessitate greater workforce engagement, thus mitigating some of the adverse effects of migration. Policy implications include supporting farm expansion initiatives and mechanization to enhance labour efficiency in response to migration-driven labour shortages.

Table 3: Effect of rural-urban migration on labour supply in maize production

Variable	Linear	Semi-log	Exponential	Double log
Age	-0.4125 (-0.11)	589.8442 (0.56)	-0.0006 (-0.46)	0.0592 (1.26)
Gender	-1.1032 (-0.07)	-153.5727 (-0.60)	0.0095 (1.73*)	0.0134 (1.17)
Education status	-54.7685 (-1.67*)	7.9842 (0.02)	-0.0281 (-1.44)	-0.0395 (-2.25**)
Farming experience	39.6237 (2.20**)	25.8690 (1.74*)	0.0051 (1.68*)	0.0587 (4.67***)
Credit access	-0.0004 (-1.48)	-1.1923 (-1.42)	-5.32e-08 (-0.54)	-0.0173 (-5.10***)
Household size	-4.4716 (-0.35)	-3.7003 (-0.55)	-0.0014 (-0.31)	0.0097 (0.47)
Farm size	96.7234 (6.13***)	64.9600 (6.56***)	0.1907 (4.16***)	0.1272 (3.45***)
No of migrant	-9.2040 (-1.82*)	-5.2667 (-0.46)	0.0014 (0.79)	-0.0215 (-1.93*)
Employment situation	-4.5327 (-1.29)	-4.0325 (-1.72*)	-0.0004 (-0.36)	-0.0091 (-0.87)
Land acquisition	-0.2972 (-0.08)	-0.7611 (-0.44)	0.0009 (0.71)	0.0077 (0.75)
Constant	89.9272 (0.29)	-44.4710 (-0.72)	2.9384 (27.96*)	2.6209 (29.84*)
R-squared	0.9519	0.8396	0.8249	0.9897
Adjusted R-squared	0.9474	0.8247	0.8089	0.9888
F-ratio	95.48***	56.53***	51.36***	104.46***

***, ** and * implies significance at 1%, 5% and 10% levels of probability.

Figure in parenthesis are t-values.

Constraints Faced by the Maize Farmers

The results presented in Table 4 highlight a range of critical constraints that impede maize production in the study area. Notably, insecurity, small farm holdings, inadequate labour supply, and insufficient extension services emerged as the most significant challenges facing maize farmers. Insecurity remains a dominant constraint affecting maize farmers, particularly in regions plagued by conflict, banditry, and insurgency. The presence of insecurity discourages farmers from expanding their farms, investing in improved technologies, and accessing markets. Recent studies such as those of Yisa *et al.* (2019) and Falade and Labaeka

(2020) have further corroborated this assertion, emphasizing that insecurity limits farm productivity by restricting access to farmland and increasing production costs. The persistent threat of violence disrupts farming activities, thereby exacerbating food insecurity and reducing household income levels.

Similarly, small farm holdings pose a significant challenge to maize farmers. The limited availability of arable land reduces economies of scale, making it difficult for farmers to adopt mechanized farming and other modern agricultural practices. The prevalence of fragmented land ownership hinders efficient farm management and restricts overall productivity. Durba *et al.* (2019) and Ameh *et al.* (2020) have shown that smallholder farmers often struggle with low yield outputs due to inefficient land use and lack of access to improved seeds and fertilizers.

Inadequate labour supply further compounds the challenges faced by maize farmers. Labour shortages, exacerbated by rural-urban migration and aging farming populations, result in increased dependence on hired labour, thereby inflating production costs. This issue is particularly pronounced during peak agricultural seasons when labour demand is high. Ogunleye *et al.* (2024) also identified labour shortages as a key determinant influencing farmers' ability to adopt improved agricultural practices and implement effective risk management strategies.

The role of extension services in mitigating these challenges cannot be overstated. Inadequate access to agricultural extension services limits farmers' ability to acquire knowledge on improved agronomic practices, pest management, and modern farm technologies. Babamaaji *et al.* (2022) have indicated that increased extension support enhances productivity and sustainability in maize farming. Strengthening extension services through government and private sector interventions could significantly alleviate some of the production constraints identified in this study.

Table 4: Constraints Faced by the Maize Farmer in the Study Area

Constraints	*Frequency	Percentage (%)	Ranking
Insecurity	109	90.83	1 st
Small farm holding	105	87.50	2 nd
Inadequate labour supply	103	85.83	3 rd
Inadequate extension service	82	68.33	4 th
Rural urban migration	79	65.83	5 th
High cost of input	42	35.00	6 th
Poor crop yield	40	33.33	7 th
Old age	19	15.83	8 th
Total	579		

Note: * = Multiple responses

The identified constraints have far-reaching implications for food security, rural livelihoods, and national agricultural policies. If not adequately addressed, these limitations will continue to suppress maize productivity, thereby increasing reliance on imports and undermining food self-sufficiency. Policymakers must prioritize security interventions to safeguard agricultural zones, implement land tenure reforms to facilitate land expansion, and promote policies that incentivize youth participation in agriculture to mitigate labour shortages. Furthermore, strengthening agricultural extension services and improving farmers' access to financial credit could significantly enhance productivity. Addressing these constraints holistically will be essential in achieving sustainable agricultural development and ensuring the resilience of maize farming systems in Nigeria.

CONCLUSION AND RECOMMENDATIONS

Based on the results obtained from this study, it was concluded that rural-urban migration negatively and significantly affected labour supply among maize farming households in Itesiwaju LGA of Oyo State. The major factors that influenced rural youths' decision to migrate from rural to urban areas were becoming civilized and getting better employment opportunities. Insecurity, small farm holding, inadequate labour supply and extension services were the most sever constraints limiting the maize farmers in the study area.

The findings of this study have significant implications. Firstly, strategies to address the adverse effects of rural-urban migration on labour supply should include incentives for youth to remain engaged in agriculture, such as skill development and mechanization support. Secondly, educational programs should integrate agricultural entrepreneurship to ensure that educated individuals still find farming attractive. Thirdly, credit provision policies should be structured to encourage reinvestment in agricultural activities rather than non-farm enterprises. Tax incentives should also be provided for agro-based companies to create a conducive environment for them in the rural areas of the state. This may motivate the rural area people to stay in their communities thereby contributing their quota to agricultural and community development. Lastly, promoting farm consolidation and mechanization can help counteract labour shortages caused by migration.

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