

The Impact of Rural to Urban Youth Migration on Labor Availability for Banana Production in Janale District, Somalia

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Abstract

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Agriculture is central to Somalia's economy and food security, yet it is increasingly constrained by rural-urban youth migration. This study examines the effects of youth migration on agricultural labor availability and banana farming in Janale District, a historically important banana-producing area along the Shabelle River. Using a descriptive research design, primary data were collected through structured questionnaires administered to 96 farming households, focusing on migration patterns, labor availability, youth participation in banana production, and perceived impacts on productivity and output. The findings show that youth migration is widespread and increasingly normalized, driven mainly by insecurity, access to humanitarian assistance, and limited rural education and employment opportunities. These dynamics have substantially reduced agricultural labor availability, particularly among young workers, resulting in low youth involvement in banana farming and widespread perceptions of declining productivity and banana output. Despite these constraints, only a minority of farmers have adopted labor-saving technologies or alternative practices, indicating limited adaptive capacity. The study demonstrates that youth migration has become a critical constraint on banana production in Janale District, with significant implications for rural livelihoods and food security and underscores the need for integrated policies that strengthen rural security, support agricultural investment, and create viable opportunities for youth within agriculture.

1. Introduction

Agriculture is the backbone of Somalia's economy, providing employment for a large part of the population and contributing significantly to the country's gross domestic product (GDP). In Somalia, agriculture sector is about 45.8% of Somalia's labor force aged 15 years and above is engaged in agriculture, while herding, fishing, and other agriculture-related activities account for 9.4%, 4%, and 7.2% of employment, respectively. Additionally, agriculture contributes approximately 61% of the country's GDP, making it a vital sector for economic

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growth and food security. Recent evidence from Somalia confirms that agricultural performance is closely linked to labor dynamics and broader economic outcomes, underscoring the sector's vulnerability to labor shortages (Osman et al., 2025a).

Among the key agricultural activities in Somalia, banana farming has historically played an important role, especially in the southern regions. Janale District, along the Shabelle River, was once a major center for banana production, benefiting from fertile soils and a favorable climate (Mohamed et al., 2025). In the 1990s, Somalia cultivated nearly 11,000 hectares of bananas, making it one of Africa's leading exporters (Food and Agriculture Organization of the United Nations [FAO], 2020). Rural-to-urban youth migration has been widely documented as a major contributor to agricultural labor shortages in sub-Saharan Africa, reducing farm productivity and threatening rural livelihoods (Osman et al., 2025b). However, decades of conflict and instability have caused a severe decline in banana cultivation. By 2020, the cultivated area had shrunk to just 1,388 hectares, and total production had dropped to 23,684 tons, a small fraction of global output (FAO, 2025). One of the primary reasons for this decline is the ongoing rural-to-urban migration of youth, which has significantly reduced the availability of agricultural labor in rural areas like Janale. Young people are leaving farming communities in search of better job opportunities, education, and living conditions in urban centers. This migration trend has created labor shortages, particularly in labor-intensive sectors such as banana farming. The shortage of young, able laborers has affected farm productivity and the incomes of farming households, as older farmers struggle to meet cultivation and harvest demands. Although several studies have explored youth migration in Somalia (Yusuf et al., 2019; Griffith et al., 2023; Osman & Abebe, 2023; Hoffmann et al., 2022), there is limited research focusing specifically on how this migration affects the availability of agricultural labor and banana production in Janale.

The objectives of this study are to examine the socio-economic and cultural characteristics of the study participants in Janale District, to investigate the impact of rural-to-urban youth migration on the availability of agricultural labor in the banana farming sector, to analyze the effects of reduced labor availability on banana farm productivity and household incomes, and to propose policy recommendations aimed at addressing labor shortages in banana production resulting from youth migration.

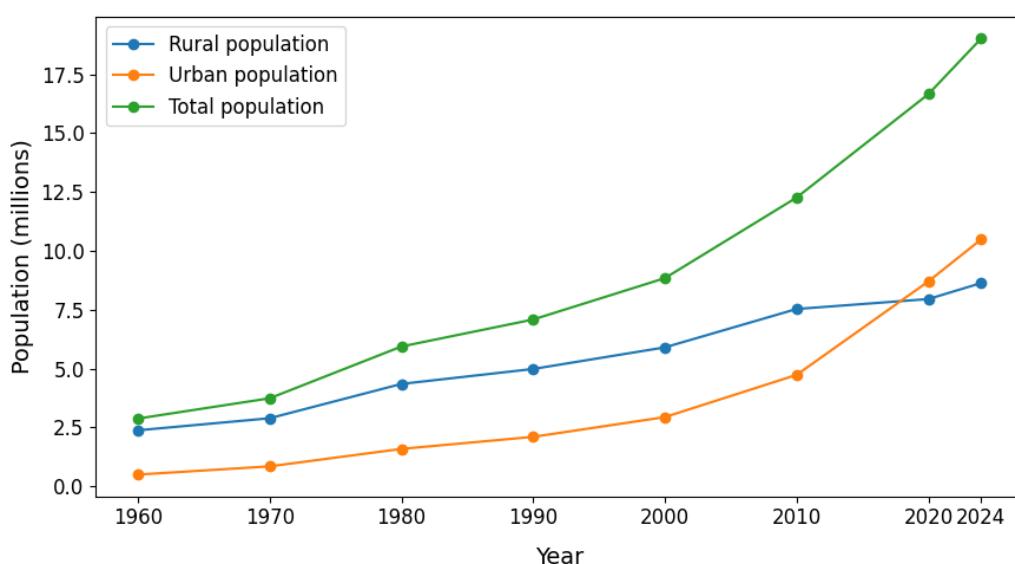


Figure 1. Rural and urban population trends in Somalia, 1960–2024 (World Bank, 2024)

Figure 1 depicts the historical distribution of Somalia's rural and urban populations from 1960 to 2024, highlighting a sustained decline in the rural population alongside rapid urban growth.

This long-term demographic shift reflects intensified rural-to-urban migration, particularly among youth, which has progressively reduced the availability of agricultural labor in rural areas. The acceleration of urbanization after the 1990s coincides with periods of economic disruption and conflict, contributing to labor shortages in agriculture and undermining productivity in labor-intensive sectors such as banana farming. These population dynamics align with trends reported in the World Bank's World Development Indicators, which document the structural implications of urbanization for rural livelihoods and agricultural systems in Somalia (World Bank, 2024).

Table 1 summarizes changes in banana production and harvested area in Somalia between 1961 and 2022, illustrating significant fluctuations in output and cultivated land over the period. The production and harvested area data presented in Table 1 are derived from FAO (2023). When interpreted alongside the population trends shown in Figure 1, these fluctuations reveal a strong structural linkage between demographic change and the long-term decline of banana cultivation. During the 1960s and early 1970s, when Somalia's population was overwhelmingly rural, banana production expanded markedly, supported by abundant agricultural labor and the labor-intensive nature of plantation farming in riverine areas such as the Shabelle Valley. From the 1980s onward, however, banana output and harvested area became increasingly unstable and ultimately declined, coinciding with a steady reduction in the rural population share and accelerating urbanization. Although temporary production recoveries were observed around 1990, these gains were not sustained, as continued rural-to-urban migration, youth out-migration, and conflict-induced displacement progressively constrained labor availability. By the 2000s and into the 2020s, when the rural and urban populations approached parity, banana production had fallen to historically low levels, indicating that labor shortages—rather than agro-ecological limitations alone—had become a binding constraint on the sector.

Table 1. Banana production and harvested area in Somalia, 1961–2022 (FAO, 2023)

Year	Area harvested (Ha)	Total production (Ton)	Change (%)
1961	1,100	98,000	-
1970	4,900	140,300	41.16
1980	2,600	60,400	-56.90
1990	6,200	110,000	82.11
2000	2,300	42,000	-61.81
2022	1,384	23,650	-43.68

2. Literature Review

The existing literature provides a multifaceted scholarly foundation for examining the relationship between rural-urban youth migration and agricultural labor dynamics in sub-Saharan Africa. Collectively, prior studies establish key conceptual frameworks for understanding migration decision-making, document structural tensions between demographic change and labor-intensive agricultural systems, and highlight persistent gaps in context-specific evidence for fragile and conflict-affected settings such as Somalia. A conceptual synthesis of this literature reveals three overarching themes: the complexity of economic, social, and environmental drivers of youth migration; the differentiated and often uneven impacts of migration on agricultural productivity and rural livelihoods; and a persistent policy divide between strategies aimed at retaining youth in agriculture and those promoting structural transformation through urbanization and labor reallocation.

2.1. The multidimensional drivers of youth migration: Beyond simple economics

The literature consistently frames rural-urban migration not as a singular event but as a dynamic, aspirational process. While foundational economic push-pull factors are affirmed – inadequate rural employment (Mbah et al., 2016), search for education (Mbah et al., 2016; Zakari et al., 2025), and lack of infrastructure (Rufai et al., 2021) – the abstracts complicate this narrative. Eckert et al. (2019) offer a crucial corrective to the presumed youth disinterest in agriculture, finding high interest in farming among Kenyan youth, suggesting migration is often a pragmatic choice amidst structural constraints, not a rejection of rural life. This is echoed in the work of Assan and Kharisma (2019), who highlight how neoliberal policies shape labor-seeking behavior within national boundaries. Furthermore, de Brauw et al. (2014) note the paradox of persistently low migration rates in some African contexts despite potential gains, hinting at invisible barriers – perhaps social, informational, or risk-related – highly relevant to a post-conflict setting like Somalia. This conceptual lens warns against reducing migration causation in Janale District to mere poverty, urging an investigation into the interplay of aspirations, perceived opportunity, and structural limitations.

2.2. The dual impact on agricultural labor: Depletion and restructuring

The most direct conceptual link to the article's focus is the documented effect of youth outmigration on farm labor. Multiple studies confirm a reduction in the agricultural labor force, leading to increased labor costs and lower productivity (Mbah et al., 2016; Zakari et al., 2025; Paudel et al., 2025). This establishes a clear, negative causal pathway for banana production in Janale. However, the literature also introduces moderating variables and countervailing effects. Paudel et al. (2025) and Langill et al. (2023) introduce the critical concept of intra-household dynamics and adaptation strategies. Their work suggests that the impact is not uniform but mediated by factors such as household composition (whose labor is lost), the use of remittances for farm investment, and adoption of labor-saving technologies or cooperative models. Langill et al. (2023) further highlight the potential for gendered restructuring of agricultural roles, a dimension often overlooked. This shifts the conceptual understanding from a simple labor drain to a complex process of agrarian change, in which households may adapt through mechanization, crop substitution, or task reallocation, potentially transforming the social relations of banana production.

2.3. The policy dilemma between rural retention and economic diversification

A central tension in the literature concerns divergent policy prescriptions for managing rural-urban youth migration. One strand, represented by Mbah et al. (2016) and Zakari et al. (2025), emphasizes rural retention strategies, advocating investments in physical and social infrastructure – such as roads, electricity, schools, and health facilities – alongside agricultural incentives including access to credit and production inputs to enhance the attractiveness of farming. This perspective aligns closely with efforts to mitigate the “push” factors driving youth out of rural areas. In contrast, another strand of the literature, exemplified by Rufai et al. (2021) and Bandiera et al. (2022), conceptualizes migration as an integral component of economic development and prioritizes improving labor market outcomes for migrants and receiving economies. Policy recommendations within this framework stress rural economic diversification, skills development, and the expansion of salaried employment opportunities, envisioning development pathways in which rural youth contribute to economic growth through higher-productivity and more diversified sectors rather than remaining exclusively in agriculture. This divide reflects a broader debate in the literature over whether policy should focus on retaining youth in agriculture or supporting structural transformation in which youth mobility contributes to wider economic development, despite short-term pressures on labor-intensive sectors such as banana farming.

2.4. Synthesis of existing evidence and research gaps in the Janale District context

The reviewed literature offers a robust conceptual foundation but also reveals a significant contextual gap. Most existing studies focus on West and East African settings, with limited attention to Somalia or other post-conflict contexts. The distinctive combination of clan-based land tenure systems, prolonged conflict, weak formal institutions, and the central economic importance of banana exports in districts such as Janale creates an analytical landscape that is not adequately captured in the current literature. Moreover, although remittances are acknowledged as an important outcome of migration (Adu Gyamfi et al., 2021; Madondo & Dhobha, 2025), their specific role in financing agricultural investment—particularly in perennial and labor-intensive crops such as bananas—remains insufficiently examined. In addition, Dessalegn et al. (2023) explicitly highlight a prevailing research bias toward migration drivers rather than its impacts, especially on sending communities, underscoring a critical gap that this study seeks to address.

In conclusion, these gaps frame the relevance of the Janale District case. The existing literature conceptualizes youth migration as a rational, aspiration-driven response to structural rural constraints, while also indicating its potentially adverse—yet contextually mediated—effects on agricultural labor availability. This study therefore navigates the tension between documenting migration-induced labor pressures on banana production and examining the adaptive strategies employed by rural households. By situating these dynamics within the unresolved policy debate between agricultural labor retention and broader rural transformation, the study advances a nuanced analysis that moves beyond simplistic narratives of rural decline.

3. Materials and Methods

3.1. Study area and population

The study was conducted in Janale District and surrounding villages in the Lower Shabelle region of Somalia, an area historically recognized for intensive banana production. The total estimated population of Janale and its neighboring villages is approximately 8,000, with a substantial proportion of residents engaged in agricultural activities, particularly banana farming.

Primary data were collected through structured questionnaires administered to individuals involved in agricultural production in Janale town and nearby villages. The survey focused specifically on farming households, with emphasis on assessing the impact of rural-to-urban youth migration on labor availability in banana production. In addition to primary field data, the study also utilized secondary sources, including reports from relevant institutions, peer-reviewed journal articles, theses, statistical databases, and other related publications, to contextualize and support the empirical findings.

The survey sample size was determined using the proportional sample size formula proposed by Newbold et al. (2019). To obtain a conservative and sufficiently large sample, the population proportion was set at $p=0.50$, which is standard practice when the true proportion is unknown. The calculation was based on a 95% confidence level and a margin of error of 10%. The sample size was computed using the following formula:

$$n = \frac{Np(1-p)}{(N-1)\sigma_p^2 + p(1-p)}$$

where

n is the required sample size;

N is the total population of Janale District;

p is the estimated population proportion (set to 0.50 to maximize sample size);

σ_p^2 is the variance of the estimated proportion, defined as $\sigma_p^2 = \frac{e^2}{z^2}$ as

e is the margin of error; and

z is the standard normal value corresponding to the selected confidence level.

Using this formula, the required sample size was calculated as 96 respondents. The collected data were analyzed using descriptive statistical techniques to assess the relationship between rural-to-urban youth migration and the availability of agricultural labor in banana production. The results provide empirical insight into the key labor-related challenges facing the sector and inform policy discussions aimed at enhancing agricultural productivity and rural livelihoods.

3.2. Instrument development and pretesting

Data were collected using a structured questionnaire developed based on relevant literature addressing rural-urban migration and agricultural labor dynamics, drawing in particular on prior studies by Yusuf et al. (2019), Griffith et al. (2023), Osman and Abebe (2023), as well as reports published by the FAO (2020).

3.3. Questionnaire structure and administration

The questionnaire was organized into four main sections covering socio-demographic characteristics, migration experiences and drivers, agricultural labor availability, and perceptions of productivity and sectoral change. The instrument was administered in Af-Somali, the local language, and subsequently translated into English for analysis. To ensure linguistic accuracy and conceptual equivalence, a back-translation procedure was employed.

3.4. Ethical considerations

Ethical approval was obtained from the Institutional Review Board of Zamzam University of Science and Technology (No. 2024-1). Participation was voluntary, and participants were informed of the study's purpose, their right to withdraw, and measures ensuring confidentiality and anonymity. Informed verbal consent was obtained prior to participation. No personal identifiers were collected, and all data were used solely for academic research in accordance with the Declaration of Helsinki.

4. Results

4.1. Demographic and socio-economic characteristics

Table 2 shows that the respondent population is predominantly young, with 57.4% aged 30 years or younger, indicating a strong representation of economically active age groups. The 21–25 age cohort constitutes the largest share (24.0%), while respondents aged 51 years and above are minimally represented (4.2%). The gender distribution is relatively balanced, with a slight male majority (55.2%). Most respondents are married (77.1%), reflecting prevailing socio-cultural norms and suggesting household responsibilities that may shape labor participation, household decision-making, and livelihood strategies.

Table 2. Demographic characteristics of respondents

Age Group	Frequency	Percentage
<20	18	18.8

21-25	23	24.0
26-30	14	14.6
31-35	13	13.5
36-40	7	7.3
41-45	9	9.4
46-50	8	8.3
>51	4	4.2
Total	96	100.0
Sex		
Male	53	55.2
Female	43	44.8
Total	96	100.0
Marital Status		
Single	15	15.6
Married	74	77.1
Divorced	7	7.3
Total	96	100.0

Table 3 indicates that the majority of respondents are economically active, with high employment levels dominated by agriculture, while the prevalence of family-based living arrangements underscores the continued importance of extended households in shaping labor allocation and livelihood strategies in rural areas.

Table 3. Educational status, employment, and family living arrangements of respondents

Currently studying	Frequency	Percentage
Yes	18	18.8
No	78	81.3
Total	96	100.0
Currently employed	Frequency	Percentage
Yes	78	81.3
No	18	18.8
Total	96	100.0
If yes, what job	Frequency	Percentage
Farmer	34	35.4
Shopkeeper	10	10.4
Transporter	12	12.5
Tractor driver	12	12.5
Rural construction worker	14	14.6
Fertilizer distributor	3	3.1
Student	11	11.5
Total	96	100.0
Family living	Frequency	Percentage
Yes	83	86.5
No	13	13.5
Total	96	100.0

Table 4 presents household characteristics, landholding sizes, and income diversification patterns, showing that most households are medium-sized with generally moderate landholdings, while the high reliance on non-agricultural income sources—particularly

remittances – underscores income diversification as a key livelihood strategy for coping with agricultural and labor-related constraints.

Table 4. Household characteristics, landholding size, and income diversification

Family size	Frequency	Percentage
Three-four	17	17.7
Five-six	35	36.5
Seven-eight	26	27.1
Nine-ten	14	14.6
Eleven and above	4	4.2
Total	96	100.0
Landholding size	Frequency	Percentage
Less than 50	4	4.2
51-100	16	16.7
101-150	38	39.6
151-200	21	21.9
200-250	13	13.5
251-300	1	1.0
301 above	3	3.1
Total	96	100.0
Source of income outside of agriculture	Frequency	Percentage
Yes	70	72.9
No	26	27.1
Total	96	100.0
Source of income outside agriculture	Frequency	Percentage
Construction	2	2.1
Security guards	13	14.0
Driver	18	19.0
Tailor	8	8.3
Warehouse worker	4	4.2
Remittance	30	31.0
Teaching	21	22.0
Total	96	100.0

4.2. Youth migration patterns and drivers

Table 5 shows that youth migration is widespread in the study area, with 70.8% of households reporting direct experience and 84.3% indicating rural-urban migration of at least one household member, suggesting that migration has become a common and increasingly normalized household strategy. The primary drivers include lack of security, access to aid and financial support from NGOs, education, and employment opportunities, while lifestyle-related motivations play a comparatively minor role, a pattern that aligns with the observed shift toward income diversification and reduced reliance on agriculture.

Table 5. Respondents' experience with youth migration, primary reasons for migration, and rural-urban household mobility

Respondents' experience with youth migration	Frequency	Percentage
Yes	68	70.8

No	28	29.2
Total	96	100.0
Primary reasons for youth migration from Janale		
Job opportunities	10	10.4
Education	13	13.5
Better quality of life	3	3.1
Lack of security	23	24.0
Access to aid and financial support from NGOs	19	19.8
Total	68	100.0
Household members' migration from rural to urban areas		
Yes	81	84.3
No	15	15.6
Total	96	100.0

4.3. Labor availability and impacts on banana farming

Table 6 summarizes farmers' perceptions of labor availability and youth involvement in banana farming, revealing that labor scarcity is a major constraint, as only 33.3% of respondents consider labor to be adequate while 66.7% report limited to no availability. Youth participation remains low, with 58.3% indicating no youth involvement, and most respondents perceive a significant or moderate decline in agricultural labor over time, largely attributed to youth migration. This assessment is reinforced by the fact that more than half of the farmers (56.3%) report direct experiences of labor shortages in banana farming linked to youth migration, underscoring its substantial impact on agricultural labor dynamics in Janale.

Table 6. Participants' perceptions of labor availability, youth involvement, and the effects of youth migration on banana farming in Janale

	Frequency	Percentage
Participants' perceptions on labor availability for banana farming in Janale		
Adequate	32	33.3
Limited	33	34.4
Insufficient	25	26.0
No labor force available	6	6.3
Total	96	100.0
Participant responses on youth involvement in banana farming in Janale		
Yes	40	41.7
No	56	58.3
Total	96	100.0
Effects of youth migration on agricultural labor availability for banana farming in Janale		
Significant decreased	43	44.8
Moderate decreased	33	34.4
No change	8	8.3
Increased	12	12.5
Total	96	100.0
Farmers' experiences of labor shortages in banana farming due to youth migration in Janale		
Yes	54	56.3
No	37	38.5
Not applicable	5	5.2

Total	96	100.0
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Table 7 indicates that youth migration has had a pronounced impact on agricultural labor availability and farm performance in banana farming in Janale. A substantial majority of respondents (78.2%) reported some degree of labor reduction, including 39.6% noting a slight reduction, 32.3% reporting a significant reduction, and 6.3% indicating that no labor force is available, while only 21.9% perceived no impact. Consistent with this pattern of labor decline, 64.6% of respondents reported a decrease in productivity, whereas 29.2% observed no change and a small minority (6.3%) perceived an increase in productivity, which may be attributed to the adoption of innovations, mechanization, or improved farm management practices. Despite the widespread labor constraints, only 40.6% of respondents reported adopting alternative farming practices such as labor-saving technologies, mechanization, or crop diversification, while the majority (59.4%) continue to rely on traditional farming practices. In terms of production outcomes, 83.3% of respondents reported a decline in banana output, including 44.8% indicating a slight decrease and 38.5% reporting a significant decrease, whereas only 16.7% perceived no impact. Overall, these findings demonstrate that youth migration has substantially reduced agricultural labor availability, negatively affected productivity and production levels, and exposed limited adaptive capacity within the banana farming sector to effectively mitigate labor shortages.

Table 7. Impact of youth migration on agricultural labor for banana farming in Janale

	Frequency	Percentage
Effects of youth migration on agricultural labor availability for banana farming in Janale		
Not impact	21	21.9
A slight reduction in labor	38	39.6
Significant reduction in labor	31	32.3
No labor available	6	6.3
Total	96	100.0
Impact of labor shortages on banana farming productivity in Janale		
Productivity has decreased	62	64.6
Productivity has stayed the same	28	29.2
Productivity has increased	6	6.3
Total	96	100.0
Participants' adoption of alternative farming practices due to labor shortages in banana farming		
Yes	39	40.6
No	57	59.4
Total	96	100.0
Perceptions of the impact of reduced agricultural labor on overall banana farming sector		
No impact	16	16.7
Slight decrease in production	43	44.8
Significant decrease in production	37	38.5
Total	96	100.0

5. Discussions

5.1. Demographic and socio-economic characteristics

The demographic structure of respondents reveals a rural labor system that is inherently vulnerable to youth migration. The dominance of young adults within the economically active age range reflects the central role of youth in agricultural labor, particularly in labor-intensive systems such as banana production. This same group, however, is also the most prone to migration under conditions of insecurity and limited economic opportunity. Long-term studies of Somali youth mobility show that migration has become a normalized livelihood strategy shaped by protracted conflict, generational expectations, and constrained rural futures, rather than an exceptional response to short-term shocks (Ciabbarri, 2024). In this context, the loss of youth labor directly weakens agricultural production capacity, making farms highly sensitive to even moderate levels of out-migration.

Socio-economic characteristics further explain why labor losses result in declining productivity rather than effective adaptation. Although most respondents reported being employed, agriculture remains the dominant livelihood, supplemented by fragmented rural non-farm activities that rarely generate sufficient capital for reinvestment. Similar findings from other African agrarian settings show that youth migration reduces family labor availability and undermines farm performance, particularly where production remains labor dependent (Zakari et al., 2025). The prevalence of medium-sized landholdings in Janale intensifies this vulnerability, as such farms rely heavily on household labor yet lack the resources to mechanize or hire workers. While remittances provide short-term household stability, evidence from Somalia indicates that displacement, insecurity, and institutional weakness limit their conversion into agricultural investment, reinforcing a cycle of labor loss and declining output (Osman & Abebe, 2023). Together, these dynamics explain why youth migration in Janale District contributes to persistent labor shortages and reduced banana productivity rather than structural transformation of the rural economy.

5.2. Youth migration patterns and drivers

The results show that youth migration in Janale District has become a normalized and widespread household strategy, rather than an occasional response to hardship. The high incidence of rural-urban migration indicates that mobility is now embedded in everyday livelihood decision-making, consistent with evidence from Somalia showing that migration has evolved into a routine response to prolonged insecurity, economic precarity, and institutional weakness (Griffith et al., 2023). In this context, migration is less an individual choice and more a collective household strategy aimed at managing risk and securing alternative income sources when agricultural livelihoods become increasingly uncertain.

The predominance of lack of security and access to NGO-related aid as migration drivers highlights the structural forces shaping youth mobility. Conflict and insecurity continue to push young people away from rural production systems, while the spatial concentration of humanitarian assistance in urban areas creates additional incentives for relocation (Ciabbarri, 2024; Griffith et al., 2023; Mbatha & Roodt, 2014). Education and employment opportunities further reinforce this pattern, reflecting broader African labor market conditions in which rural youth face limited access to stable, salaried employment and remain trapped in low-productivity agricultural work (Bandiera et al., 2022). As emphasized in the urbanisation literature, such migration does not automatically generate positive rural transformation; instead, where institutional capacity and rural-urban linkages are weak, it can intensify agricultural labor shortages and undermine productivity (Sakketa, 2023).

5.3. Labor availability and impacts on banana farming

The findings demonstrate that youth migration has translated into a systemic labor constraint in banana farming in Janale District. Most farmers perceive labor availability as limited or insufficient, alongside low youth involvement in banana production, indicating a structural

weakening of the local agricultural workforce. This pattern aligns with broader evidence from Africa showing that young people remain concentrated in informal, low-return agricultural work with few prospects for advancement, making exit from farming a rational response rather than an anomaly (Bandiera et al., 2022). In labor-intensive crops such as bananas, where timely operations are critical, even partial labor losses can disrupt production cycles. The widespread perception of declining labor availability over time, directly attributed to youth migration, suggests that Janale's banana sector is increasingly unable to reproduce its labor base.

The consequences of labor shortages extend beyond availability to productivity decline, reduced output, and limited adaptive response. Most respondents reported falling productivity and declining banana production, while only a minority adopted labor-saving technologies or alternative practices. This limited adaptation capacity reflects constraints highlighted in the literature on Somalia and sub-Saharan Africa, where insecurity, weak institutions, and lack of capital restrict farmers' ability to mechanize or reorganize production in response to labor shocks (Griffith et al., 2023; Sakketa, 2023). While a small share of farmers reported stable or improved productivity—likely linked to localized innovation or management improvements—these cases remain exceptions rather than evidence of sectoral transformation. Consistent with the livelihood constellation framework, migration may reduce household risk through remittances, but it simultaneously erodes agricultural labor and undermines productive capacity when supportive rural-urban linkages and investment channels are absent (Griffith et al., 2023). Overall, the results indicate that youth migration has become a critical driver of labor scarcity and production decline in Janale's banana farming, exposing the sector's vulnerability and limited resilience under conditions of prolonged rural out-migration.

6. Conclusions

This study demonstrates that rural-to-urban youth migration has substantial implications for banana farming in Janale District, Somalia. By documenting both the extent of household migration and its perceived effects on agricultural labor, productivity, and output, the study provides district-level empirical evidence of a growing constraint on local production systems. Youth migration in Janale is not an occasional response to hardship but an increasingly normalized household strategy, driven primarily by insecurity, uneven access to humanitarian assistance and services, and limited rural economic opportunities. As young and able workers exit agriculture, banana farming—an inherently labor-intensive activity—faces persistent labor scarcity. Most respondents reported reduced labor availability and linked this decline to lower farm performance and a sector-wide reduction in output, confirming that labor shortages have become a binding constraint on production rather than agro-ecological conditions alone.

The findings have important implications for Somalia's food security, rural development, and economic stability. Banana production has historically been a vital cash crop in southern riverine areas, and continued labor shortages risk further weakening one of the country's key agricultural value chains. At the household level, the growing reliance on remittances and non-agricultural income sources reflects a structural shift away from rural livelihoods, with long-term consequences for rural economies and the intergenerational transfer of farming knowledge and skills. While migration may reduce short-term risk through income diversification, it simultaneously undermines the productive capacity of banana farming where investment channels, mechanization, and supportive rural-urban linkages remain limited.

This study contributes to the literature by offering one of the first district-level empirical analyses linking youth migration to banana farming outcomes in Somalia, moving beyond general accounts of migration to demonstrate how labor loss directly reshapes agricultural

productivity and sector performance. To address these challenges, policy responses should prioritize strengthening rural security, designing rural development and aid interventions that support production zones, and creating attractive opportunities for youth within agriculture through skills training, access to inputs and credit, and targeted mechanization and labor-saving support. These measures are essential to stabilizing the rural labor force, safeguarding banana production, and promoting sustainable agricultural development in fragile settings.

Authorship Contribution Statement

Each author contributed significantly to the study. AIA: Statistical analysis, Data curation, Writing – review & editing. AHA: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. HMA: Data collection, Investigation, Validation, Writing – review & editing. HAO: Sampling design, Data curation, Visualization, Writing – review & editing. MAM: Interpretation of results, Validation, Writing – review & editing. All authors have read and approved the final manuscript.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability

Data will be made available on request.

References

Adu Gyamfi, B., Kwarteng, C. T., & Appiagyei, E. (2021). Public policy and migration in Africa: A multi-theoretical approach. In O. Abegunrin & S. O. Abidde (Eds.), *African migrants and the refugee crisis* (pp. 23–54). Springer. https://doi.org/10.1007/978-3-030-56642-5_2

Assan, J.K., & Kharisma, D.D. (2019). Political Economy of Internal Migration and Labor-Seeking Behavior of Poor Youth in Ghana. *Ghana Studies* 22, 3–35. <https://dx.doi.org/10.1353/ghs.2019.0001>

Bandiera, O., Elsayed, A., Smurra, A., & Zipfel, C. (2022). Young adults and labor markets in Africa. *Journal of Economic Perspectives*, 36(1), 81–100. <https://doi.org/10.1257/jep.36.1.81>

de Brauw, A., Mueller, V., & Lee, H. L. (2014). The role of rural–urban migration in the structural transformation of Sub-Saharan Africa. *World Development*, 63, 33–42. <https://doi.org/10.1016/j.worlddev.2013.10.013>

Ciabarri, L. (2024). Assemblages of mobility and violence: The shifting social worlds of Somali youth migration and the meanings of *tahriib*, 2005–2020. *Journal of Eastern African Studies*, 18(1), 58–77. <https://doi.org/10.1080/17531055.2024.2333071>

Dessalegn, M., Debevec, L., Nicol, A., & Ludi, E. (2023). A critical examination of rural out-migration studies in Ethiopia: Considering impacts on agriculture in the sending communities. *Land*, 12(1), 176. <https://doi.org/10.3390/land12010176>

Eckert, E., Turner, E., & Yeager Sallah, J. A. (2019). *Youth rural–urban migration in Bungoma, Kenya: Implications for the agricultural workforce* (RTI Press Occasional Paper No. OP-0062-1908). RTI Press. <https://doi.org/10.3768/rtipress.2019.op.0062.1908>

Food and Agriculture Organization of the United Nations. (2020). *FAOSTAT statistical database*. <https://www.fao.org/faostat/>

Food and Agriculture Organization of the United Nations. (2023). *Crops and livestock products*. FAOSTAT database. <https://www.fao.org/faostat/en/#data/QCL>

Food and Agriculture Organization of the United Nations. (2025). *Crops and livestock products database*. FAOSTAT. <https://www.fao.org/faostat/en/#data>

Griffith, D., Muneepakul, R., Guerry, G., Carmona Cabrero, A., Johnson, J. C., Munoz-Carpeta, R., Puma, M., Lall, U., & Homayounfar, M. (2023). Migration and livelihood constellations: Assessing common themes in the face of environmental change in Somalia and among agro-pastoral peoples. *International Migration*, 61(5), 186–200. <https://doi.org/10.1111/imig.13122>

Hoffmann, R., Wiederkehr, C., Dimitrova, A., & Hermans, K. (2022). Agricultural livelihoods, adaptation, and environmental migration in sub-Saharan drylands: A meta-analytical review. *Environmental Research Letters*, 17(8), 083003. <https://doi.org/10.1088/1748-9326/ac7d65>

Langill, J. C., Crossland, M., Elias, M., Vinceti, B., Paez Valencia, A. M., Traoré, A., & Traoré, D. (2023). Land restoration amid male outmigration: The cases of Burkina Faso and Kenya. *Ecological Restoration*, 41(4), 220–235. <https://doi.org/10.3368/er.41.4.220>

Madondo, E., & Dhabha, H. (2025). Harnessing migration for sustainable development in Africa: Challenges and opportunities. *International Journal of Research in Business and Social Science*, 14(1), 80–88. <https://doi.org/10.20525/ijrbs.v14i1.3770>

Mbah, E. N., Ezeano, C. I., & Agada, M. O. (2016). Effects of rural-urban youth migration on farm families in Benue State, Nigeria. *International Journal of Agricultural Research, Innovation and Tech*, 6(1), 14–20. <http://www.ijarit.webs.com>

Mbatha, C. N., & Roodt, J. (2014). Recent internal migration and labour market outcomes: Exploring the 2008 and 2010 national income dynamics study (NIDS) panel data in South Africa. *South African Journal of Economic and Management Sciences*, 17(5), 653–672. <https://hdl.handle.net/10520/EJC162629>

Mohamed, A. A., Omar, I. M., Yusuf Ibey, A. M., & Omar, M. M. (2025). Climate change and migration dynamics in Somalia: A time series analysis of environmental displacement. *Frontiers in Climate*, 6, 1529420. <https://doi.org/10.3389/fclim.2024.1529420>

Newbold, P., Carlson, W. L., & Thorne, B. (2019). *Statistics for business and economics, global edition* (9th ed.). Pearson Education.

Osman, A. A., & Abebe, G. K. (2023). Rural displacement and its implications on livelihoods and food insecurity: The case of inter-riverine communities in Somalia. *Agriculture*, 13(7), 1444. <https://doi.org/10.3390/agriculture13071444>

Osman, B. M., Omar, O. M., & Hassan, A. Y. (2025a). Dynamic linkages between agricultural production and economic growth in fragile economies: the case of Somalia. *Cogent Economics and Finance*, 13(1). <https://doi.org/10.1080/23322039.2025.2564202>

Osman, B. M., Shire, S. A., Ali, F. H., & Mohamed, A. A. (2025b). Examining the drivers of environmental degradation in Somalia: the role of agriculture, economic and population growth. *Discover Sustainability*, 6(1). <https://doi.org/10.1007/s43621-024-00786-2>

Paudel, G. P., Nguyen, T. T., & Grote, U. (2025). Trade-offs between labour migration and agricultural productivity: Evidence from smallholder wheat systems in Nepal. *Journal of International Development*, 37(2), 202–229. <https://doi.org/10.1002/jid.3959>

Rufai, A. M., Ogunniyi, A. I., Salman, K. K., Salawu, M. B., & Omotayo, A. O. (2021). Rural transformation and labor market outcomes among rural youths in Nigeria. *Sustainability*, 13(24), 13794. <https://doi.org/10.3390/su132413794>

Sakketa, T. G. (2023). Urbanisation and rural development in sub-Saharan Africa: A review of pathways and impacts. *Research in Globalization*, 6, 100133. <https://doi.org/10.1016/j.resglo.2023.100133>

World Bank. (2024). *World Development Indicators*. <https://databank.worldbank.org/source/world-development-indicators>

Yusuf, A. A., Muturi, W., & Samantar, M. S. (2019). Factors influencing youth unemployment in Puntland State of Somalia: The case of Garowe District. *International Journal of Contemporary Applied Researches*, 6(3), 173–195. <https://www.ijcar.net>

Zakari, A., Manuwa, A., Abdullahi, A. G., & Aisha, H. Z. (2025). The effects of rural-urban youths migration on rice production in Bauchi State, Nigeria. *International Journal of Agricultural and Veterinary Science*, 7(1). <https://doi.org/10.70382/mejavs.v7i1.023>