

Why Do Rural Households Migrate Seasonally? Drivers and Livelihood Implications in Sekota Woreda, Ethiopia

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Abstract

Growing rural poverty, declining agricultural productivity, and climate-related stresses have made seasonal labor migration an integral component of rural livelihood systems across many developing countries, including Ethiopia. This study examined the determinants of seasonal labor migration and rural livelihoods in Sekota Woreda, Wag Himra Zone, Amhara Region, Ethiopia. Quantitative and qualitative data were integrated using a mixed-methods research approach. Focus groups and key informant interviews were used to supplement the structured household survey that was used to gather primary data from 186 rural households. The main factors influencing seasonal labor migration were found using descriptive statistics and a binary logistic regression model. Seasonal migration was positively affected by household food insecurity and PSNP participation, with both variables being statistically significant ($p < 0.05$). In contrast, seasonal migration was negatively associated with landholding size, livestock ownership, and access to credit, fertilizer use, and extension services ($p < 0.05$). The results also show that migration patterns have changed significantly over time. In order to find employment on farms, seasonal migrants used to mostly move to rural, agriculturally productive areas. However, as the construction industry has grown and job opportunities in urban areas have increased, migrants have moved more and more toward urban centers. The study's conclusions show that seasonal labor movement has become a vital livelihood strategy for rural households with limited resources, underscoring enduring structural issues with food insecurity, poverty, land scarcity, and restricted access to financial institutions. The results highlight the necessity of integrated rural development interventions that support sustainable rural livelihood opportunities, increase household food security, and improve access to agricultural extension, credit access, fertilizer access, and livestock support. Distress-driven seasonal labor migration can be reduced by increasing the efficiency of smallholder agriculture and focusing on vulnerable households through efficient social support programs.

Keywords: Seasonal labor migration; rural livelihoods; determinants; binary logistic regression; livelihood diversification; Ethiopia

1. Introduction

Migration is moving from one place to another, whether temporarily or permanently. Rural-urban, rural-rural, urban-urban, urban-rural, internal, and international migration are among its various manifestations (Deshingkar and Grimm 2004, IOM 2011, Simard 2016) . For rural households in developing nations, seasonal labor migration a type of temporary migration has grown in importance as a means of subsistence, especially in areas where agriculture is marked by low productivity, frequent climate shocks, and few job prospects (IOM 2011, Tacoli, McGranahan and Satterthwaite 2015).

Seasonal labor migration contributes significantly to rural livelihoods worldwide by increasing food security, lowering sensitivity to agricultural risks, and diversifying household income sources (Deshingkar and Start 2003, Devereux, Sabates-Wheeler and Longhurst 2012, Gautam 2017). However, a complex interplay of institutional, environmental, demographic, and socioeconomic factors frequently drives migration. Migration may have negative effects, such as labor shortages in agriculture, family separation, and societal disturbance, but it can also have positive effects, such as increased livelihood prospects and remittances. As a result, migration is becoming more widely acknowledged as a method for livelihood adaptation as well as a reaction to ongoing environmental and economic stress (Ayele and Degefa 2022).

Migration, both domestic and foreign, has a long history in Africa. Environmental degradation, climate variability, poverty, conflict, and unequal economic prospects have all contributed to an increase in migration within the continent (Li and Samimi 2022). According to (Kassim, Alhassan and Appiah-Adjei 2021), Each of the three main actors involved in migration are migrants, places of origin, and destination areas experiences unique socioeconomic ramifications. Internal migration has become a key tactic for rural households looking to diversify their sources of income, and it typically encounters less legal obstacles than international migration.

Seasonal labor movement has become more prevalent in Ethiopian rural households, especially in areas that are prone to drought and environmental degradation. Among the main causes of migration are poverty, persistent food insecurity, land scarcity, unemployment, and shocks connected to climate change (FAO and IO 2018, Asefawu 2022). A finding by (Wolde, D'Odorico and Rulli 2023), (IOM 2011, FAO and IO 2018), and draw attention to the intimate connection between migration and food poverty, stressing that households frequently relocate in order to maintain financial stability and manage food consumption during difficult times. Seasonal

migration transforms from a temporary coping technique into a long-term livelihood adaptation strategy when these shocks continue over time (Ayele and Degefa 2022).

Food insecurity is still a significant issue in Ethiopia despite government initiatives to enhance rural livelihoods. According to national estimates, there were over 10.2 million food insecure individuals in 2016, 8.5 million in 2017, and almost 8 million in 2018 (FAO and IO 2018). In order to augment agricultural revenue through wage employment and remittances, a large number of rural households participate in seasonal labor migration. Prior research has looked at the factors that influence seasonal migration, rural livelihoods, and rural out-migration in various regions of Ethiopia (Tegegne and Penker 2016, Woldegebriel 2017, Asefawu 2022, Etana, Snelder et al. 2022). However, empirical evidence remains limited for Wag Himra Zone, one of the country's most environmentally degraded and food-insecure areas.

In the Amhara Region's Wag Himra Zone, Sekota Woreda has persistent food insecurity, low agricultural output, land degradation, and periodic drought. Many rural households have adopted seasonal labor migration as a crucial livelihood option as a result of these circumstances. Despite the fact that migration has become common in the region, there is little empirical data on the variables influencing migration choices and how they affect household livelihoods. Designing policies that promote sustainable rural livelihoods while addressing the underlying causes of migration requires an understanding of these relationships. Thus, in Sekota Woreda, Wag Himra Zone, Amhara Region, Ethiopia, this study seeks to determine the factors that influence seasonal labor migration and investigate its socioeconomic determinants on rural household livelihoods. It is anticipated that the results would add to the expanding body of knowledge on rural livelihoods and migration and offer evidence-based recommendations to development professionals and policymakers who are trying to improve livelihood resilience in areas that are environmentally vulnerable regions.

1.2 Theoretical literatures

Seasonal labor migration has been explained by several migration theories that emphasize both economic and livelihood motivations. The Push–Pull Theory proposed by (Lee 1966) argues that migration decisions are influenced by unfavorable conditions in the place of origin (push factors) and attractive opportunities in destination areas (pull factors). Land scarcity, food insecurity, poverty, environmental degradation, and a lack of employment opportunities are common push

factors in rural Ethiopia, while higher wages, better job prospects, and easier access to services in urban areas or commercial agricultural areas are pull factors (Asfaw, Tolossa and Zeleke 2010, Teweldebrihan, Gebehawot et al. 2023).

The New Economics of Labour Migration (NELM), developed by (Stark and Bloom 1985), views migration as a household strategy rather than an individual decision. This theory states that households send one or more members to lower risks related to agricultural output, address market flaws, and diversify revenue sources. Migration-related remittances improve livelihood resilience, finance profitable ventures, and balance household consumption, especially in areas with restricted access to formal credit and insurance.

The Sustainable Livelihood Framework (SLF) reported by (DFID 2000), further explains migration as one of several livelihood strategies adopted by households facing vulnerability. In order to pursue livelihood strategies that enhance well-being and lessen vulnerability, the framework highlights how households combine various assets, including human, natural, physical, financial, and social capital. Therefore, when local livelihood assets are insufficient to maintain household welfare, seasonal labor migration can be viewed as a strategy for livelihood diversification (Deshingkar and Start 2003, Asefawu 2022).

2. Methods and Materials

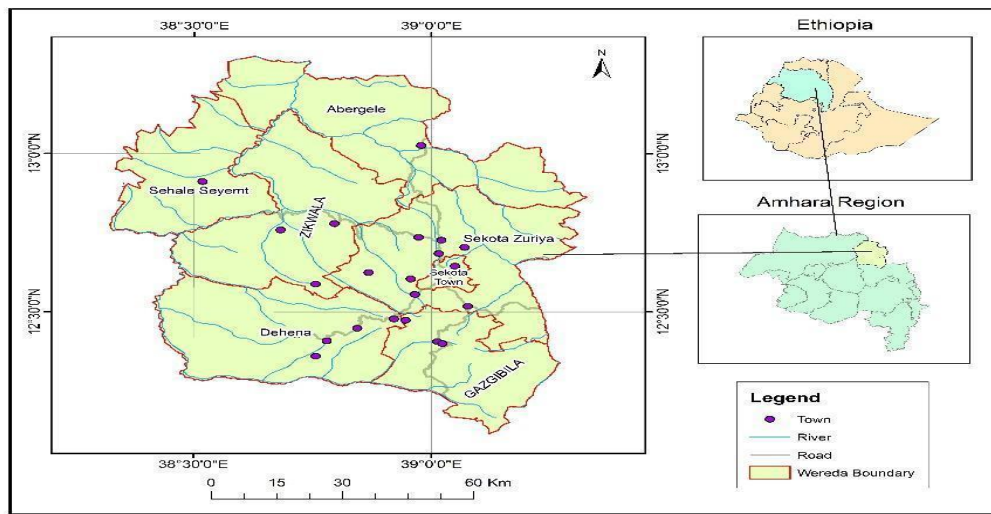
2.1 Study Area

The study was carried out at Sekota Woreda, which is situated in the Wag Himra Zone of the Amhara National Regional State in northern Ethiopia, as shown in figure 1. The woreda is located between latitudes 12°22'28'–12°54'29' N and longitudes 38°46'14'–39°18'44' E. One of the northern Ethiopian districts most vulnerable to drought is Sekota Woreda, which is marked by frequent droughts, irregular rainfall, degraded soil, and persistent food shortages. The majority of households rely on rain-fed mixed crop-livestock farming, making agriculture the main economic activity. However, rural livelihoods are extremely vulnerable due to low agricultural output, restricted access to productive resources, and climate variability.

Many households have been motivated to diversify their sources of income through seasonal labor migration due to these socioeconomic and environmental constraints. In quest of temporary work, mostly in construction, agriculture, and other unorganized industries, rural residents especially young adults seasonally relocate to urban areas and agriculturally productive regions. Seasonal

migration revenue is crucial for boosting household income, enhancing food security, and managing frequent livelihood shocks. Sekota Woreda offers a suitable environment for investigating the causes of seasonal labor migration and its impacts on rural household livelihoods because of its high frequency of seasonal labor migration and ongoing livelihood difficulties.

Figure 1: Map of the study area



Source: Own Computation based on recent Ethiopia's Administration Boundaries shape files 2025

2.2 Sampling Procedure

The study participants were chosen using a multistage sampling process. Sekota Woreda was specifically chosen because to its high rate of seasonal labor migration, frequent droughts, and persistent food insecurity. Sekota Woreda accounted for 1,986 (almost 50%) of the 3,985 households who engaged in seasonal migration in 2018, according to statistics from the Wag Himra Zone Disaster Risk Management and Food Security (DRMFS) Office. Two kebeles (Feya and Tiya) with comparatively high seasonal migration prevalence were purposefully chosen from the woreda's 25 kebeles, taking into account their similar socioeconomic traits, migration patterns, and the study's time and financial constraints.

2.3 Sample Size Determination

The total sampling frame comprised 2,174 households from the selected kebeles. The sample size was determined using the Yamane formula cited in (Tepping 1968):

$$n = \frac{N}{1+N(e)^2} \quad \text{Where } n \rightarrow \text{sample size}$$

$N \rightarrow$ Total population

$e \rightarrow$ level of precision

$$n = \frac{N}{1+N(e)^2} = n = \frac{2174}{1+2174(0.07)^2} = 186$$

where n is the required sample size, N is the total number of households (2,174), and e is the acceptable margin of error (0.07). A 93% confidence level and a 7% margin of error were adopted because the study involved human respondents, whose responses may be subject to variation. Based on the formula, the required sample size was 186 households. The sample was allocated proportionally to each selected kebele according to the number of households and included both migrant and non-migrant households.

2.4 Types and Sources of Data

This study made use of both primary and secondary data. To investigate more about the causes and determinants of seasonal labor migration on livelihoods, primary data were gathered directly from key informants, focus group participants, and sampling households. Published and unpublished reports, government documents, books, journal articles, and records from pertinent organizations, such as the Wag Himra Zone Disaster Risk Management and Food Security Office, were the sources of secondary data.

2.5 Methods of Data Collection

Through methodological triangulation, a variety of data gathering techniques were used to improve the validity and dependability of the results. To gather quantitative data, a standardized household questionnaire was given to the heads of the sampled households. Focus groups and key informant interviews with local administration, development agents, and community elders were used to collect qualitative data. Additionally, case narratives were employed to document households' migratory experiences and coping mechanisms, while direct field observation was carried out to evaluate local livelihood conditions.

2.6 Methods of Data Analysis

Both quantitative and qualitative data analysis methods were used in the study. The proper statistical software was used to code, enter, and evaluate quantitative data. The socioeconomic features of households and migratory trends were summarized using descriptive statistics, such as

frequencies, percentages, means, and standard deviations. The factors influencing seasonal labor migration were found using a binary logistic regression model. In order to supplement and interpret the quantitative results, qualitative data from focus groups, key informant interviews, and field observations were examined using thematic content analysis.

2.7 Econometric Analysis

A binary logistic regression model was used to determine the factors that influence seasonal labor migration among rural households. Households were classified as either seasonal migrants or non-migrants, and the dependent variable was defined as a binary outcome. Because the dependent variable is binary and uses a collection of explanatory variables to predict the likelihood that a household will participate in seasonal migration, the logistic regression model was used.

To guarantee the validity and dependability of the regression results, a number of model tests were carried out prior to model estimation. The Variance Inflation Factor (VIF) for continuous variables and contingency coefficients for categorical variables were used to investigate the existence of multicollinearity among explanatory variables. The diagnostic findings verified that the independent variables did not have a significant correlation issue. The Hosmer-Lemeshow test, which contrasts observed and predicted values, was used to evaluate the model's goodness-of-fit. The test's outcome ($p = 0.9415$) shows that the model fits the observed data sufficiently. Furthermore, the likelihood ratio chi-square test was used to assess the model's overall significance, confirming that the explanatory variables collectively had a statistically significant impact on seasonal migration decisions ($p < 0.01$).

The first assumption is that, as x_i increases, $p_i = E(Y = 1/x_i)$ increases/decreases but the value lies between 0 and 1. The second assumption is that, the relationship between p_i and x_i is nonlinear; thus, one can easily use cumulative distribution function (Gujarati Damodar 2004). Despite the lack of support in statistical theory for a preference between the two, the logit model was chosen for this investigation due to its ease of use and interpretability. The logistic distribution function for examining migrants and non-migrants can be defined as

$\ln(\text{odds}) = Zi$ where Zi is given as

$$Zi = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m \quad (1)$$

$$\ln(\text{odds}) = \beta_0 + \beta_i X_i \rightarrow \ln\left(\frac{P_i}{1-P_i}\right) = \ln(e^{Zi}) \rightarrow P_i = \frac{e^{Zi}}{1+e^{Zi}} \rightarrow P_i = \frac{1}{1+e^{-Zi}} \quad (2)$$

$$P_i = \frac{1}{1+e^{-Zi}} \quad (3)$$

P_i is probability of migration and ' X_i ' is a vector factors affecting migration and the betas/ β_m are parameters to be estimated from the model. This equation 2 represents the (cumulative) logistic distribution function (Gujarati Damodar 2004).

And the probability non migrants is given by $1 - P_i = \frac{1}{e^{Zi}} \quad (4)$

The odds are given by $\text{odds} = \frac{P_i}{1-P_i} = \frac{\frac{1}{1+e^{-Zi}}}{\frac{1}{e^{Zi}}} = \frac{e^{Zi}}{1+e^{-Zi}} = e^{Zi} \quad (5)$

Where $Zi = \beta_0 + \sum_{i=1}^m \beta_i X_i + U_i \quad (6)$

Where ' e ' is random error term

To get the marginal effect on probability we have to use the following equations

$$P_i = \Phi(\beta'x) \quad (7)$$

$$\frac{\partial P_i}{\partial x} = \frac{\partial \Phi(u)}{\partial u} * \frac{\partial u}{\partial x} = \beta \phi(\beta'x) \text{ given } \frac{\partial \Phi(u)}{\partial u} = \beta \phi(\beta'x) \text{ \& } \beta'x = u \quad (8)$$

Stata version 11 was used to estimate the logistic regression model using data gathered from 186 sampled households. The model contained thirteen explanatory variables that represented socioeconomic, institutional, demographic, and livelihood aspects. The Productive Safety Net Program (PSNP) membership, fertilizer use, landholding size, access to financial services, agricultural extension services, household food security status, and tropical livestock units (TLU) were some of these variables.

3. Results and discussion

3.1 Socioeconomic Characteristics of Sample Households

The descriptive results in table 1 show significant differences between migrant and non-migrant households in terms of age, land size, livestock ownership, sex, and marital status. The heads of migrant households were younger (37.1 years) than those of non-migrant households (39.2 years), while non-migrant households had greater livelihood assets, such as larger landholdings and higher livestock ownership. There were no appreciable variations between the two groups in terms of household size or adult equivalent. The migratory status of household heads was also highly correlated with their sex and marriage status, indicating that asset-related and demographic factors impact seasonal movement decisions. The results indicate that seasonal migration is more prevalent among younger and resource-poor households, implying that limited access to productive assets such as land and livestock increases reliance on migration to supplement household income.

Table 1. Descriptive Statistics of Sample Households by Migration Status

<i>Variable</i>	<i>Migrant (N=96)</i>		<i>Non- migrant (N=90)</i>		<i>Total (N=186)</i>		<i>t-value</i>
	Mean	SD	Mean	SD	Mean	SD	
<i>Age</i>	37.114	7.146	39.211	8.023	38.129	7.635	2.884***
<i>HH size</i>	5.718	1.526	5.744	1.426	5.731	1.475	0.118
<i>Adult equivalent</i>	1.52	0.89	1.55	0.87	1.53	0.88	0.36
<i>Land size</i>	0.367	0.382	0.666	0.378	0.512	0.407	5.366***
<i>TLU</i>	0.408	0.807	2.187	2.092	1.269	1.799	7.740***
<i>Distance from market</i>	2.822	0.882	2.666	4.11	2.747	2.925	-0.3632
<i>Education</i>	0.779	0.956	0.642	0.965	0.739		0.125

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

Source: Own survey 2025

The results in Table 2 demonstrate that most categorical socioeconomic factors differ considerably between migrant and non-migrant families. With the exception of occupation ($\chi^2 = 1.256$), which indicates similar livelihood activities across the two groups, food security, PSNP involvement, and oxen ownership all showed notable disparities. Compared to non-migrant homes, migrant households had less rates of oxen ownership, and more food insecurity. Because of their comparatively higher degree of socioeconomic fragility, they also participated in the Productive Safety Net Programme (PSNP) at a higher rate. Overall, the results indicate that seasonal migration is more common among households with less productive assets and worse living conditions. According to these results, households with lower productive assets and higher socioeconomic vulnerability are more likely to employ seasonal migration as a coping mechanism. This is in line with other research showing that inadequate food security raises the risk of seasonal migration as households look for other sources of income to maintain their standard of living (Deshingkar and Start 2003, Gautam 2017).

Table 2. Descriptive Statistics for Categorical Variables

<i>Variable</i>	<i>Category</i>	<i>Mig N(%)</i>	<i>Non Mig N(%)</i>	<i>Total N(%)</i>	<i>Chi²</i>
<i>Sex</i>	Male	68 (71)	71 (79)	139 (75)	6.3364**
	Female	28 (29)	19 (21)	47 (25)	
<i>Marital Status</i>	Married	61 (63.5)	71 (79)	132 (71)	5.9777**
	Divorced	16 (16.5)	11 (12)	27 (14.5)	
	Widowed	19 (20)	8 (9)	27 (14.5)	
<i>Occupation</i>	Crop & livestock	68 (71)	58 (64.5)	126 (67.5)	1.256
	Farming only	9 (9.25)	8 (9)	17 (9)	
	Petty trade	13 (13.5)	16 (17.5)	29 (16)	
	Labor	6 (6.25)	8 (9)	14 (7.5)	
<i>Food security</i>	Insecure	74 (77)	55 (61)	129 (69)	15.575**
	Secure	22 (23)	35 (39)	57 (31)	

<i>PSNP</i>	Yes	77 (80)	45 (50)	122 (65.5)	18.7819***
	No	19 (20)	45 (50)	64 (34.5)	
<i>Oxen ownership</i>	Yes	55 (57)	80 (89)	135 (72.5)	23.303***
	No	41 (43)	10 (11)	51 (27.5)	

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

Source: Own survey 2025

Significant variations in institutional characteristics between migrant and non-migrant households are seen in Table 2. Compared to migrant households, non-migrant households had substantially better access to financing, fertilizer, extension services, and enhanced seeds ($p < 0.01$). Migrant households, on the other hand, reported having restricted access to these institutional services, suggesting that insufficient institutional support may decrease agricultural output and increase reliance on seasonal movement as a means of subsistence. In general, improved access to financial resources and agricultural services seems to lower the probability of migration. The results corroborate the idea that institutional support is essential to lowering seasonal migration. Better access to loans, extension services, and agricultural supplies makes it easier for households to maintain agricultural production locally, which lessens the need for them to relocate in pursuit of other sources of income. The result is in line with the findings of (Hampshire and Randall 1999, Zeleke, Asfaw et al. 2008).

3.2 Patterns and Trends of Seasonal Labor Migration

3.2.1 Choices and preferred month of migration

According to Table 3, 59.4% of migrant households said that October to November was their preferred migration season, followed by December to January (18.75%) and February to March (12.50). The availability of daily wage jobs related to sorghum maize, teff and sesame harvesting in neighboring areas like Alamata, Humera, and Metema was the main cause of migration in October and November. A lesser percentage of respondents (9.37%) said they moved to escape being forced to participate in government work programs, while others said they did so because of food shortages back home. In general, seasonal migration was mostly caused by job possibilities during the harvest season.

Table 3 Preferred months and sources of information on destination areas for seasonal labor migration (n = 96).

<i>Preferred Months for Seasonal Migration</i>	<i>Frequency (n=96)</i>	<i>Percent (%)</i>	<i>Sources of Information on Destination Areas</i>	<i>Frequency (n=96)</i>	<i>Percent (%)</i>
<i>October–November</i>	57	59.38	Experienced family members	44	45.83
<i>December–January</i>	18	18.75	Relatives	26	27.08
<i>February–March</i>	12	12.50	Friends	15	15.63
<i>April–May</i>	6	6.25	Brokers/Agents	7	7.29
<i>June–September</i>	3	3.12	Other sources	4	4.17
Total	96	100.00	Total	96	100.00

Source: Field survey result, 2025

3.2.2 Sources of Information on Destination Areas

Migration network theory states that information sharing across friends, family, and relatives is essential to both promoting and maintaining migration. Prior to migration, all migrant households in this study had access to information about their destination. Experienced family members were the primary information source (45.83%), followed by relatives (27.08%), friends (15.63%), Brokers/Agents (7.29%) and other sources (4.17%), as table 3 illustrates. The results show that the family's prior migrants served as the main information source, underscoring the significance of social networks in shaping seasonal travel choices.

3.2.3 The main destination area of seasonal migrant

The socioeconomic conditions in destination areas, employment prospects, and accessible resources all influence migration trends and destination choices. Alamata/Raya (33.5%), Bahir Dar (29%), Mekelle (26%), Dessie (8.5%), and Metema (3%) were the primary destinations of migrant households. As shown in Figure 2, these destinations indicate that migrant households predominantly preferred nearby urban centers.

Seasonal migration first appeared as a coping mechanism against drought, poor rainfall, and food insecurity, according to key informant interviews. But throughout time, migration patterns have evolved. In the past, migrants mostly relocated to agricultural regions like Metema, Humera, and Alamata/Raya for seasonal farm labor, but more recently, migration has turned toward urban areas with a wider variety of job options. Similarly, the goal of migration has changed from being mainly

to alleviate food shortages to increasing revenue, diversifying sources of income, and promoting household welfare. These results imply that households from a variety of socioeconomic backgrounds now frequently employ seasonal migration as a means of subsistence.

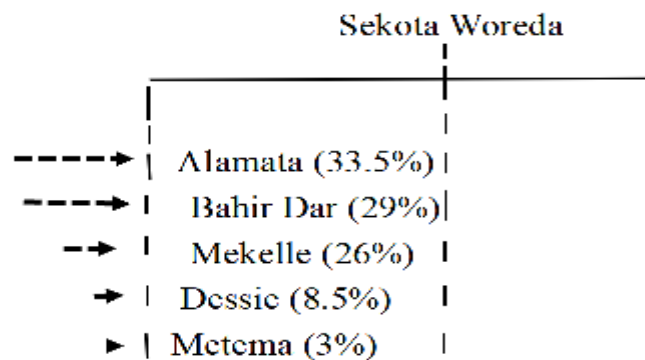
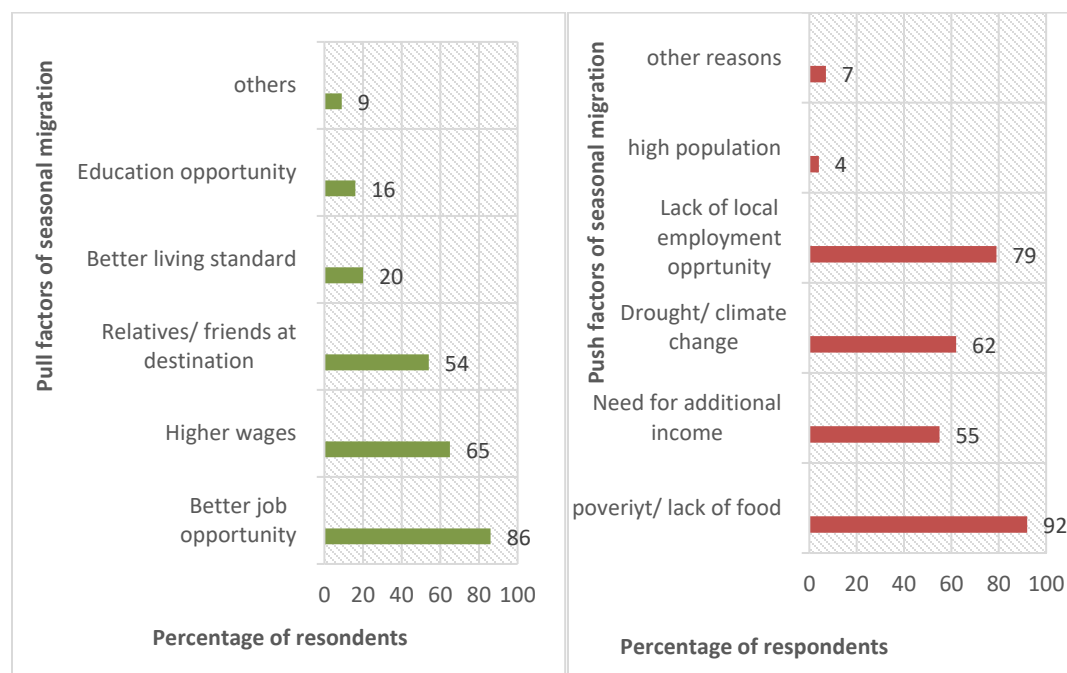


Figure 2. Distribution of destination area of seasonal migrants

3.3 Perceived Causes (Push and Pull Factors) of Seasonal Labor Migration

As shown in Figure 3, the main pull factor for seasonal migration was the search for better employment opportunities, reported by 86% of migrant households. This was followed by higher wages at destination areas (65%) and the presence of relatives or friends (54%). In contrast, only 20% of respondents identified better living standard and 16% educational opportunity as a pull factor, while 9% mentioned other factors. These findings suggest that employment opportunities and expected economic benefits are the primary attractions influencing seasonal migration.

Figure 3. Pull and Push factors of seasonal migration (multiple responses)



The results show that different households have different seasonal migration drivers, and that movement is frequently the consequence of several interrelated causes rather than a single cause. Figure 3 illustrates that 92% of migrant households cited poverty and insufficient means of sustenance food as the main cause of their move. The need for additional income (55%), drought and natural disasters (62%), and unemployment (79%) came next. Just 4% of households mentioned the influence of high population, and another 7% gave other explanations. Overall, the results suggest that seasonal migration is primarily a livelihood strategy adopted in response to economic hardship and environmental stress.

3.4 Livelihood Conditions and Seasonal Labor Migration

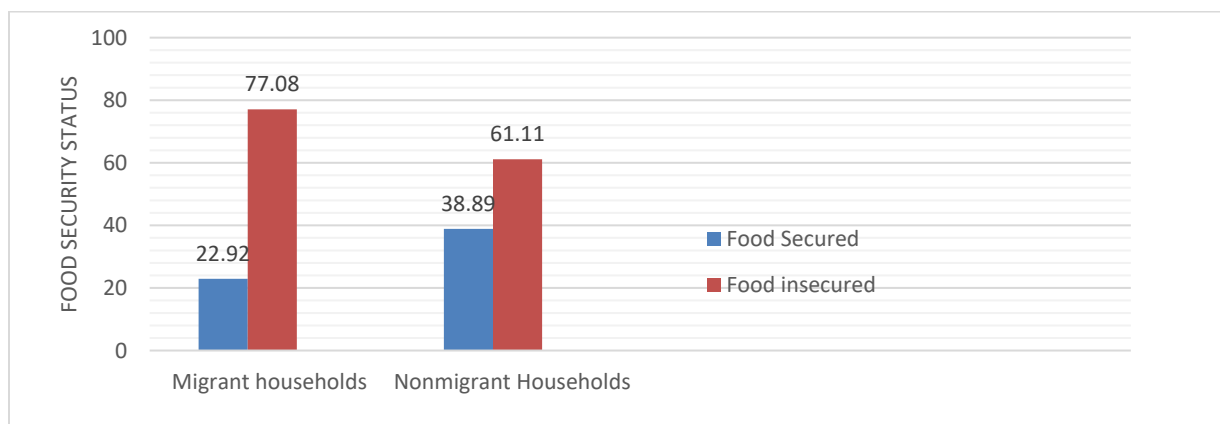
Focus groups and interviews revealed that the loss in agricultural productivity over the previous few decades was the primary cause of seasonal migration. Inadequate seasonal rainfall, deteriorating soil fertility, environmental deterioration, and natural calamities were blamed for this decline, which prompted locals to migrate seasonally as a coping mechanism. Seasonal migration

in the Sekota woreda is mostly caused by insufficient rainfall, rainfall variability, and unequal rainfall distribution, according to experts and discussion participants.

Due to these reasons, rural residents were more susceptible to droughts, natural catastrophes, and environmental extremes. Due to food shortages following the harvest season and a lack of resources to maintain themselves, many residents of the area were forced to migrate. Over 40% of the homes in the study region are unable to generate enough food all year round, according to an annual report (Prabir Das 2020). For the previous twelve years, the number of people receiving regular food help has not changed.

Additionally, over 80% of the population temporarily relied on handouts due to the 2017 drought, and at least 3000 households moved seasonally as a coping strategy. Despite government initiatives and humanitarian assistance, the study area's rural families' vulnerability and food security condition have not improved, suggesting a growing need for food assistance. Thus, the results of the survey and interviews show that the main causes of migration in the study area are extreme poverty and a lack of adequate means of subsistence in the agricultural sector, which are impacted by rainfall variability, uneven rainfall distribution, and other environmental factors. As noted since the famine in the northeast region in the 1970s, the study area is also susceptible to frequent food insecurity difficulties, droughts, and famines in Ethiopia (Gebrehiwot Weldegebrial Gebru 2020).

Figure 1. Food security Status of migrant and non-migrant households



As shown in figure 4, underscoring the connection between food insecurity and seasonal mobility in the research area. Food insecurity was much greater in migrant households (77.08%) compared

to their counter parts non-migrant households (61.11%), indicating that one of the main causes of seasonal labor mobility is poor access to food. This result is in line with other research conducted, which shows that households facing food shortages frequently employ seasonal migration as a livelihood option to increase household food security and supplement income (Asfaw, Tolossa and Zeleke 2010, Gautam 2017).

However, seasonal migration is also influenced by other socioeconomic factors. These include high loan interest rates, a lack of cropland, and restricted access to financial institutions. The households surveyed claimed that the high interest rate (18%) made it impossible for those who borrowed money from the Amhara Credit and Saving Institution to pay it back. A lack of farmland is a big factor in migration, especially for the majority of young people in the district who do not own their own property, according to the focus group discussions.

The results of the interviews also demonstrated that households' migration decisions are significantly influenced by social and cultural attitudes regarding migration as well as the excessive use of resources for social celebrations. The participants observed that while seasonal movement was previously mostly used by the poorest households, it is now a common livelihood option. This shift in perspective on migration is regarded as a crucial livelihood strategy. The rise in seasonal migration in the region is also a result of this change in social and cultural views.

Finally, the absence of infrastructure development in the region such as roads, healthcare facilities, education, and other necessities traps rural communities in a cycle of poverty, with a significant portion of households turning to seasonal migration every year. The focus group participants and key informant contended that the area's infrastructure development is being marginalized, which only makes the need for improved services and job possibilities greater.

3.5 Determinants of seasonal migration

3.5.1 Results

The binary logistic regression results that determine the factors influencing seasonal labor migration among rural households in Sekota Woreda are shown in Table 4. Seasonal migration decisions are jointly explained by the explanatory variables, since the whole model is statistically significant (LR $\chi^2 = 156.56$, $p < 0.001$). With a Pseudo R² of 0.6076, the model indicates that the factors included account for around 60.8% of the variation in seasonal migration status. Seven of the thirteen explanatory variables were shown to have a significant impact on seasonal labor migration. Migration decisions were strongly influenced by factors such as livestock ownership

(TLU), fertilizer use, access to extension services, landholding size, participation in the Productive Safety Net Programme (PSNP), and food security. Seasonal migration was positively impacted by food security ($\beta = 1.643$, $p < 0.05$), suggesting that changes in household food security status considerably affect migration likelihood. Similarly, seasonal migration was positively correlated with PSNP involvement ($\beta = 1.392$, $p < 0.05$).

On the other hand, seasonal migration was significantly impacted negatively by landholding size ($\beta = -2.017$, $p < 0.01$), access to credit services ($\beta = -2.257$, $p < 0.01$), fertilizer use ($\beta = -1.548$, $p < 0.05$), access to extension services ($\beta = -1.836$, $p < 0.01$), and livestock ownership measured in Tropical Livestock Units (TLU) ($\beta = -1.433$, $p < 0.001$). The remaining factors sex, age, improved seed use, market distance, family size, and adult labor availability (man equivalent) were not statistically significant, indicating that they had no discernible impact on the study area's seasonal migratory decisions.

Table 4. Logistic regression estimation for the factors affecting seasonal migration

<i>Logistic regression</i>				<i>Number of obs = 186</i>	
				<i>LR chi2 (13) = 156.56</i>	
				<i>Prob > chi2 = 0.0000</i>	
				<i>Pseudo R2 = 0.6076</i>	
<i>Log likelihood = -50.546263</i>					
<i>Migstatus</i>	Coef.	Std. Err	P> /z/	(95% conf.	X value(dx/dy)
<i>Food security</i>	1.643305	0.8146943	0.044*	0.0465337	0.306
<i>Sex</i>	-0.3174098	0.6566191	0.629	-1.60436	0.747
<i>Age</i>	-0.0200299	0.0369091	0.587	-0.0923705	38.129
<i>Land size</i>	-2.016835	0.7098251	0.004**	-3.408067	0.512
<i>Credit service</i>	-2.257228	0.6255886	0.000***	-3.48336	0.322
<i>Fertilizer</i>	-1.547984	0.729651	0.034*	-2.978073	0.161
<i>Extension service</i>	-1.835801	0.6552021	0.005**	-3.110074	0.548
<i>Improved seed</i>	-0.8441255	0.5699211	0.139	-1.96115	0.435
<i>Market distance</i>	0.1208823	0.0887723	0.173	-0.0531082	2.747
<i>PSNP</i>	1.391573	0.624565	0.026*	0.1674486	0.655
<i>TLU</i>	-1.433434	0.349889	0.000***	-2.119204	1.269
<i>HH size</i>	-0.2324205	0.3397097	0.494	-0.8982393	5.731
<i>Man equivalent</i>	0.6942731	0.7423215	0.35	-0.7606503	2.529
<i>-cons</i>	3.870743	1.76677	0.028	0.4079366	

Note: ***, ** and * significant at 1% , 5% and 10% significant level.

3.5.2 Discussions

Seasonal labor migration was positively and statistically significantly impacted by food security ($p < 0.05$). This result implies a strong correlation between migration preferences and household food security. Seasonal migration is a common livelihood option used by households facing food insecurity in the study region to ensure money for food consumption and manage household consumption during shortages. This result is in line with other research showing that one of the main causes of temporary labor movement in rural Ethiopia and other developing nations is food insecurity. This finding is in line with previous research by (Zelege 2017) who also found a positive and significant relationship between food security and migration.

Seasonal migration was adversely and significantly impacted by landholding size ($p < 0.01$). Because larger farms offer more agricultural output, job prospects, and household income, households with more cultivated land are less likely to send members for seasonal labor migration. On the other hand, households with limited land resources are under more pressure to migrate in order to diversify their sources of income. This result is consistent with research showing that seasonal migration is significantly influenced by land shortage (M. Salim Uddin 2021), (Selamawit Fantahun sertse 2021).

Seasonal migration and credit service accessibility were significantly correlated negatively ($p < 0.001$). Without depending on migration, credit allows households to finance agricultural inputs, start small companies, and get past short-term liquidity problems. As a result, households that have access to formal finance are less likely to look for seasonal work elsewhere. Studies looking at the diversification of rural livelihoods in Ethiopia have shown similar results (Shonchoy 2015, Wondimagegnhu and Zelege 2017).

Seasonal migration was substantially less likely when fertilizer was used ($p < 0.05$). Fertilizer-using households typically have greater crop yields and are more productive, which increases food supply and farm income. The need to look for seasonal work outside the community is lessened when agricultural productivity rises. This finding emphasizes how crucial it is to employ agricultural inputs to lessen the pressure of migration. This study is consistent with a finding in northern Ethiopia (Fentaw and Abegaz 2026).

Seasonal migration was significantly impacted by participation in the Productive Safety Net Program ($p < 0.05$). This could suggest that even with program help, PSNP beneficiaries are still among the most vulnerable households. Beneficiaries may continue to migrate seasonally to augment their income because handouts are frequently insufficient to cover all household

expenses. This result implies that although the PSNP increases household resilience, seasonal migration may still be motivated by economic forces. These results are in line with earlier studies carried out in the Amhara region, which demonstrated that the poorest members of society who receive aid are more likely to migrate than their peers (Wondimagegnhu 2017).

Seasonal migration was significantly impacted negatively by livestock ownership ($p < 0.001$). A significant source of income, food, savings, and household wealth is livestock. Larger livestock holdings provide households with greater financial security and less motivation to go for wage work outside of their communities. Additionally, managing cattle necessitates year-round labor, which limits household members' availability for seasonal migration. The sustainable livelihood framework, which acknowledges livestock as a crucial productive asset that lessens livelihood vulnerability, is in line with this conclusion. As a result, in Ethiopia's rural areas, households with more cattle are more likely to be both economically successful and food secure. This result is in line with earlier research like (Saifullahi Sani Ibrahim 2020).

4. Policy Implications

The results show that the study area's seasonal labor migration patterns have evolved over time. Historically, migrants have relocated to rural areas with high agricultural productivity, like Alamata/Rya, Metema, and Humera. However, due to growing job prospects in the construction and service industries, migration has been moving more and more toward urban areas like Mekelle, Bahir Dar, and Dessie. In addition to decreasing the number of agricultural workers in rural areas, this trend poses problems for urban labor markets, infrastructure, and service delivery.

According to the report, authorities should concentrate on improving rural livelihood possibilities in order to address the underlying causes of seasonal migration. It is crucial to make investments in climate-resilient livelihood options, access to financial services, rural employment development, agricultural production, and extension support. Urban development strategies should simultaneously prepare for the increasing number of seasonal migrants by boosting employment possibilities, enhancing urban amenities, and bolstering labor market management. Therefore, in order to improve sustainable livelihood prospects and lessen migration caused by distress, integrated rural and urban development initiatives are required.

5. Conclusion and Recommendations

5.1 Conclusion

The factors influencing seasonal labor movement and its effects on rural livelihoods in Sekota Woreda, Wag Himra Zone, Ethiopia, were investigated in this study. The results show that rather than having a single cause, seasonal migration is impacted by a number of institutional, environmental, socioeconomic, and demographic factors. Food security status, landholding size, credit access, fertilizer use, extension services, involvement in the Productive Safety Net Program (PSNP), and livestock ownership all have a substantial impact on households' migration decisions, according to the logistic regression results.

Seasonal labor migration is more common among households with few productive assets, weak livelihood possibilities, and insufficient institutional support. Additionally, the study found that migratory destinations were shifting from rural, agriculturally productive areas to urban centers, reflecting shifts in labor demand brought on by the growth of the construction and service industries.

In order to deal with issues like food insecurity, poverty, unemployment, climate variability, and falling agricultural production, seasonal labor migration is a crucial livelihood strategy. Migration has negative social and economic effects, such as labor shortages in agriculture, decreased educational involvement, family separation, and higher exposure to social and occupational risks, even while it increases household income and livelihood diversification. Overall, the results indicate that restricted rural economic prospects and livelihood instability are the main causes of seasonal migration in the study area.

5.2 Recommendations

According to the study's conclusions, improving rural livelihoods is crucial to lowering seasonal labor migration caused by misery. Increasing access to extension services, loans, agricultural inputs, and livestock development should be prioritized in order to increase agricultural output. Increasing the variety of on-farm, off-farm, and non-farm work options can lessen households' reliance on migration as a coping mechanism, especially for young people living in rural areas. Enhancing the ability of local institutions to support community-based development, encouraging climate-resilient agricultural practices and natural resource management, and connecting beneficiaries with sustainable livelihood opportunities are all essential to bolstering the efficacy of the Productive Safety Net Programme (PSNP). When taken as a whole, these initiatives will

strengthen rural livelihoods, increase household resilience, and lessen the need for seasonal labor migration.

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