Household Food Security, Out-migration and Remittance Nexus: Empirical Evidence from Rural Mid-hills of Nepal

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Abstract

This study examines the connection between household-level food security, out-migration, and remittance inflow in the rural landscape of the mid-hills of Nepal. Cross-sectional data were gathered from 387 rural households using purposive random sampling to collect information on migrating and non-migrating households between November and December 2024. The prevalence of household food security was measured using the technical guidance prepared by the World Food Programme' s Consolidated Approach for Reporting Indicators of Food Security (CARI), 2021. An ordered probit regression model was applied to analyze the impact of outmigration and remittance characteristics on the prevalence of household-level food security: food secure, marginally food secure, moderately food insecure, and severely food insecure categories. The outmigration and remittance characteristics are categorized as non- migrant (reference group), migrant- non- remittance, and migrant- remittance receiving household, as the major explanatory variables. The food consumption score suggests that more than 75% of households have acceptable food consumption. More than 90% of households did not adopt food-related coping strategies, indicating food stability. However, a majority (68.73%) of households have spent more than 75% of their total expenditure on food items, suggesting economic vulnerability regarding food security. The ordered probit model indicates that migrant- non-remittance households were less likely to be food secure by 10.10% and more likely to be moderately food insecure by 11.10% compared to non- migrant households. Similarly, migrant- remittance-receiving households were also less likely to be food secure by 15.00% and more likely to be moderately food insecure by 22.0% compared to non- migrant households. The results suggest that migrants- non-remittance households may lose family labor and experience financial instability, struggling more to maintain food security. Likewise, migrant-remittance-receiving households may have small, inconsistent, or poorly managed remittances, spend a larger portion on food items, along with the loss of household labor and reduced agricultural productivity, which could further limit their economic access to food in the rural context of Nepal. Thus, there should be policies regarding the productive use of remittances and secured remittance channels that help investment in the agricultural sector for higher productivity to improve household-level food security parameters.

Keywords: food security, out-migration, remittance, rural landscape

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Introduction

Migration is one of the major factors affecting the shift in population dynamics and the distribution of resources in each territory. It plays a significant role in allocating available resources, affecting all areas of human life (social, economic, demographic, environmental, and political), which becomes very complicated to analyse. Both domestic (internal) and international outmigration have become common phenomena in Nepal. Food insecurity is considered a key driving factor for people to migrate (WFP, 2017). Outmigration has become one of the strategies used by a household to address food insecurity risks and income uncertainties (Sadiddin et al., 2019). Some studies have shown that the impact of remittances is obvious in the rural and resource-poor households and communities of developing countries (Carletto et al., 2011). It has also been suggested that households receiving remittances are more food secure than households that do not receive such remittance income (M. Regmi & Paudel, 2017). However, a recent study in Ghana suggested that most migrants, regardless of receiving remittance, were found to be moderately to severely food insecure (Armah et al., 2025). To address food insecurity at the rural household level, some policies need to be considered, as migration is an increasingly important livelihood strategy and a potential tool to improve household-level food security (Sadiddin et al., 2019). The nexus among rural out-migration, remittance and food security in the Nepalese context, which focuses on the rural landscape, has received less attention from the academic literature. Therefore, this research focuses more on analysing the impact of out-migration on rural households' food security status in the rural landscape of Nepal.

Methodology

A cross-sectional research design was applied to conduct a household survey in two rural municipalities (RMs), Gajuri and Bhisenthapa through a semi structured questionnaire using Kobo Toolbox. A total of 229 migrant households and 158 non-migrant households were interviewed from November–December 2024. The collected data were analysed via STATA (version 18.0). The consolidated approach for reporting indicators of food security (CARI) developed by the World Food Programme (WFP) was used for the calculation of food security indicators (WFP, 2021) of the targeted household. First, we used two different types of households: nonmigrant households and migrant households. Second, among migrant households, we calculate migrants without remittance-receiving households and migrants with remittance-receiving households. We applied an ordered probit model with robust standard errors to estimate the impact of rural out-migration and remittance characteristics on household-level food security status. We use the four ordered levels of food security status indicated by the CARI approach (WFP, 2021) which are discrete but ordinal in nature. Household food security status was coded as 1 for food secure, 2 for marginally food secure, 3 for moderately food insecure, and 4 for severely food insecure. We also categorized the major explanatory variable, the outmigration and remittance characteristics, as nonmigrant (1), migrant-non-remittance (2), and migrant-remittance receiving (3), but nominal, which is the variable of interest. Other factors are considered control variables. The underlying latent regression model is as follows (M. Regmi & Paudel, 2017):

$$HFS_i^* = {}_{\beta}X_i + \varepsilon_i$$

where X_i represents a set of K observable household characteristics, $_{\beta}$ is a vector of regression parameters to be estimated for K different characteristic variables, and ε_i is the stochastic disturbance term. The n sample observations are labelled i=1.., n. HFS_i^* is the ordered categorical variable for the household-level food security status.

Results and Discussion

Food Security Status

The details of household food security status according to the CARI classification is shown in Table 1. Approximately 75% of the households were at least food secure, with 13.7% food-secure households and 61.76% marginally food-secure households. However, one-fourth of the households were food insecure; the percentage of moderately food insecure households was 24.29%, and less than one percent (0.26%) of the households was severely food insecure.

Table 1: Household food security status according to the CARI Classification with Food Expenditure Share.

CARI classification using FES	Frequency	Percent
Food secure	53	13.7
Marginally food secure	239	61.76
Moderately food insecure	94	24.29
Severely food insecure	1	0.26
Total	387	

Source: Field Survey, 2024, and authors' calculations via the CARI approach.

Impact of migration characteristics on food security: Output of ordered probit estimation

After controlling for other variables (Table 2), the migrant/non-remittance receiving households were 10.1% less likely to be food secure than non-migrant households. However, such households were 11.1% more likely to be moderately food insecure. Similarly, migrant-remit-receiving households were also 15% and 7.3% less likely to be food secure and marginally food secure, respectively, than nonmigrant households. However, compared with nonmigrant households, migrant-remitting households were 22% more likely to be moderately food insecure. A study related to foreign remittance, food security, and nutrition in Nepal and Vanauta suggested that an increase in outmigration could negatively impact the agricultural sector, leading to a decline in agricultural output and making it more vulnerable and less attractive as a livelihood option (Craven & Gartaula, 2015). The loss of family labor with a small landholding size, causing a decline in agricultural productivity, and the unskilled migrants, causing inadequate individual income, may lead to considerable food insecurity in rural areas (Thapaliya et al., 2023).

Table 2: Estimates of ordered probit regression

Variables	Coefficients	Marginal Effects			
		Food Secure	Marginally food secure	Moderate food insecure	Severely food insecure
migration_remit_status (migrant-no-remittance)	0.473***	-0.101***	-0.0111	0.111**	0.0011
	(0.182)	(0.0342)	(0.0193)	(0.0465)	(0.0014)
migration_remit_status (migrant_remit-receiving)	0.834***	-0.150***	-0.073***	0.220***	0.0035
	(0.144)	(0.0255)	(0.0257)	(0.0402)	(0.0032)

Other Control Variables: Age, gender, Family type, Schooling year, higher education women, distance to nearby market, distance motorable road, higher caste, HH size, economically active members, land size, access to agri-land, food stock, agriculture production, access to credit, implementation of foreign aid project.

(N=386; Wald chi2(19) = 98.65; Prob > chi2 = 0.0000; Log pseudolikelihood = -302.82077

Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1).

Conclusion

The out-migration of human resources, low agricultural productivity, and a poorly developed agri-market structure in rural areas can be the main causes of rural food insecurity in Nepal. Here, the likelihood of rural food security due to migration trends is low. Since rural families with small farm sizes and limited livestock do not produce enough food to meet their basic needs, they depend on an underdeveloped market and require external sources to cover their essential expenses. Remittance has become the primary external source of income for these rural farming families. However, the flow of remittances is inconsistent due to poorly managed channels, which increases economic vulnerability among rural residents and contributes to food insecurity. Policy options that promote the productive use of remittances through secure channels—encouraging investment in agribusiness or other income-generating activities—should be prioritized to enhance household food security in Nepal's rural areas.

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