Extended Abstract

Title: Rural out-migration and household food security in Ghana's Development zones

Introduction

Food security and human migration are major developmental issues for governments and policy makers globally making them the focus of Sustainable Development Goals. SDG Target 2.1 aims to eradicate hunger and malnutrition while Target 10.7 aims to "facilitate orderly, safe, regular and responsible migration and mobility of people". That migration and food security are obviously linked have recently generated much politically and academic research with migration emerging as an important livelihood strategy to enhance food security (Crush, 2012; Crush & Caesar, 2018). Nonetheless, research has mainly focused on the impact of migrants' remittances on household income and food expenditure in the origin area, with little attention to the relative food security of migrants in their destination areas. The discourse on rural food insecurity has also been dominated by the assumption that rural households are engaged in subsistence farming activities with little capacity to ensure food security (Crush, 2012). Where migration has been considered as a critical food security strategy the discourse has been framed around the impacts of remittances or non-farm work on household income and food security (Gartaula, Niehof, & Visser, 2012).

This study aims to investigate the relationship between rural out-migration and food security of migrants' households in the destination relative to non-migrant households in the places of origin across Ghana's development zones. The study focuses on rural out-migration as it is an essential pathway for economic and social transformation.

Ghana's development zones

The Parliament of the Republic of Ghana by ACT 963 created three development zones for the entire country based on geographical and agroecological characteristics, namely the Northern, Middle Belt and Coastal Development Zones. Each of these development zones was assigned a development authority to spearhead their developmental agenda (http://www.msdi.gov.gh/issues.html).These three development zones reflect the patterns of economic development and resource endowment that have created distinct geographic entities in Ghana (Anarfi, Kwankye, Ababio, & Tiemoko, 2003). The most urbanised and industrialised is the coastal zone which is also a major destination for internal migrants as

well as international migrants mainly from the sub-region. The middle belt is endowed with forest and mineral resources and has the conducive climate for the production of cocoa which is a major foreign exchange earner for Ghana. As a site of rich mineral deposits, the middle belt has historically been a destination for migrants in the mining sector and has recently attracted even foreign nationals who have been engaged in illegal artisanal mining activities commonly referred to as "galamsey" (Hess & Aidoo, 2016). Rural parts of the middle belt have always attracted rural migrants from the northern savanna region as agricultural destinations.

Methodology

Data: the study utilized data from the seventh round of the Ghana Living Standards Survey (GLSS) conducted from October 2016 to October 2017 by the Ghana Statistical Service to assess living conditions and quality of life in Ghana. The nationally representative GLSS collects information on household on household sociodemographic, economic, and health characteristics as well as household welfare including food insecurity. The survey included a supplementary module on migration from which we determined rural out-migrants and their origins.

Sample: This includes all rural households where the head is a non-migrant and households in rural or urban areas where household heads previously lived in rural areas. To be included as migrants, at least heads of households must have lived in the current place of residence for at least one year. All respondents in this study sample had rural origin of birth. Migration status was the principal independent variable examined. Thus, a respondent living in rural communities as at the time of the interview was categorised as a Rural-Rural migrant, whilst living in urban communities as at the time of the survey were considered as Rural-Urban migrants. The rural non -migrants served as the comparison or base group. Household food security was the main dependent variable under investigation. Positive responses to the 8 dichotomous food security questions were summed to give a total food insecurity score. The scores were then categorized into households that were food secure (0 mildly/moderately food insecure and severely food insecure. Based on existing scholarship, household-level sociodemographic variables that served as covariates were the household size, head's sex (Tibesigwa & Visser, 2016), head's age and educational status (Karamba, Quiñones, &

Winters, 2011), whether or not the household is engaged in agriculture and their agro-ecological zones

Data analysis

We ran multinomial logit regressions to assess the effect of household migrant status and food insecurity. Results of the Small-Hsiao test of IIA assumption reveal that the inclusion or exclusion of categories does not affect the relative risks associated with the regressors in the remaining categories (Appendix A).

Results

About a third of migrants are food secure while close to half of migrants have experienced severe food insecurity in their households (Table1). A little over half of the sample are out-migrants with about same proportions for rural-rural and rural-urban migrants. This indicates the unique pattern of rural-rural migration in Ghana. A majority of household heads have attained a minimum of junior high school education and more than three-fifths are mainly engaged in non-agricultural economic activities. About half of rural out-migrant destinations are in the forest-transition agroecological zone. As expected, the least proportion of destinations is the northern savannah agro-ecological zone.

The results from the multinomial logit regression indicate that rural out-migrants from the northern development zone are more likely than their non-migrant counterparts to be mildly food insecure and food secure rather than to be severely food insecure (Table 3). The reverse holds for households whose heads migrated from other rural areas in the Middle Belt and Coastal Development Zones. Households whose heads migrated from rural areas in the Middle Belt are less likely to be food secure than insecure when compared to those whose heads are non-migrant. The differences in the observed relationship between rural out-migration and household food security are largely attributed to the different economic and agroecological characteristics in each development zone

Discussion

Rural out-migrants in Ghana do not constitute a homogeneous group. Rural out-migrants come from different developmental zones with their unique characteristics. Depending on the ecological or developmental zone where rural migrants travel from their subjective food security statuses may vary. Levels of food security in the previous place of residence may have a bearing in the current place of residence. This is not to say that rural out-migrants

from Northern Development Zone (NDZ) of Ghana have the same destinations as those from Middle Belt Development Zone and Coastal Development Zone. However, the main finding is that rural out-migrants from NDZ tend to have better food security than their non-migrant counterparts in the NDZ. Subsistence migration is a livelihood strategy that preserves small-scale agricultural

Conclusions

Rural out-migration is essential for ensuring livelihoods and food security of households and for the economic transformation of Ghana. Ghana has three development zones, each with its unique agro-ecological and economic characteristics that affect food insecurity. Thus, rural out-migrant from each developmental zone will have different implications for food security, considering that ecosystem services and food insecurity levels differ in the three development zones. This paper sought to assess the effect of rural out-migration on food security in the three development zones of Ghana. This is necessary to fill a gap in the migration literature and to deepen our understanding of the migration-food security nexus in Ghana to assist the government and other stakeholders in migration decision-making and policy.

References

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Table 1: Descriptive Statistics

Variable	Mean	Std_Dev
Food Security Status		
Food Secure	0.35	0.365
Mildly Food Insecure	0.169	0.247
Severely Food Insecure	0.479	0.483
Migration Status		
Non-Migrant	0.458	0.498
Rural-to-Rural Migrant	0.263	0.44
Rural-to-Urban Migrant	0.278	0.448
Educational Status		
No Education	0.0038	0.062
Primary	0.207	0.406
JHS	0.47	0.499
SHS	0.179	0.383
Tertiary	0.139	0.347
Age (Years)	42.026	13.031
Household Size	3.96	2.65
Agrarian Status		
Non-Agrarian	0.637	0.481
Agrarian	0.362	0.481
Household Expenditure	11101.73	10854.4
Ecological Zones		
Coastal	0.277	0.447
Forest	0.493	0.499
Savannah	0.229	0.421

Table 2: Multinomial Regression of Rural-Out-Migration and Food Security in Ghana

Variables(base=Food Secure)	Mildly Food Insecure	Severely Food Insecure
Migration Status (base: Non-Migrants)		
Rural-Urban Migration	1.129*	1.174***
	(0.0803)	(0.0728)
Rural-Rural Migration	1.594***	1.671***
	(0.109)	(0.0995)
Educational level (Base: None educ)		
Primary	0.874	0.821
	(0.423)	(0.375)
JHS	0.658	0.558
	(0.317)	(0.254)
SHS	0.567	0.398**
	(0.275)	(0.182)
Tertiary	0.459	0.229***
	(0.223)	(0.106)
Age	0.995**	0.984***
	(0.00230)	(0.00196)
Household Size	1.120***	1.200***
	(0.0148)	(0.0144)
Household head Sex (base: Male)		
Female	1.152**	1.328***
	(0.0776)	(0.0757)
Agrarian Status (base: Non-Agric)	1.321***	1.632***
Agriculture Sector	(0.0895)	(0.0951)
	0.680***	0.410***
Household Income	(0.0313)	(0.0174)
Ecological Zone (Base: Coastal)	0.787***	0.689***
Forest	(0.0536)	(0.0402)
	1.612***	1.408***
Savannah	(0.140)	(0.107)
	1.129*	1.174***
Constant	(0.0803)	(0.0728)
	1.594***	1.671***
Prob > chi2	0.0000	
Pseudo R2	0.0914	
Observations	10,640	

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 3: Multinomial logit regression results of Rural-Out-Migration Status and Household Food Security Status across the Developmental Zones in Ghana.

Variables(base=Food Secure)	**Coastal Devt. zone**		**Middle Belt Devt. Zone**		**Northern Devt. Zone**	
	Mild. FI[1]	Severely FI[2]	Mild. FI	Severely FI	Mild. FI	Severely FI
Migration Status (base: Non-Migrants)						
Rural to Urban Migrants	1.422***	1.513***	1.661***	2.451***	1.134	0.686*
	(0.156)	(0.142)	(0.174)	(0.229)	(0.266)	(0.142)
Rural to Rural Migrants	0.938	1.101	1.390***	1.461***	0.758	0.696*
	(0.100)	(0.0977)	(0.161)	(0.163)	(0.185)	(0.153)
Educational Level (base: No Education)						
Primary	0.327	0.334	0.459	1.669	2.425	3.815**
	(0.248)	(0.263)	(700.1)	(2.141)	(1.727)	(2.490)
JHS	0.232*	0.224*	0.567	1.335	1.905	2.219
	(0.174)	(0.176)	(0.275)	(1.710)	(1.356)	(1.448)
SHS	0.218**	0.156**	0.874	0.851	1.508	1.647
	(0.164)	(0.123)	(0.423)	(1.092)	(1.084)	(1.087)
Tertiary	0.197**	0.102***	0.658	0.399	0.842	0.705
	(0.149)	(0.0810)	(0.317)	(0.514)	(0.607)	(0.469)
Age	0.996	0.985***	0.998	0.987***	0.978***	0.970***
	(0.00371)	(0.00307)	(0.00343)	(0.00313)	(0.00663)	(0.00567)
Household Size	1.107***	1.169***	1.115***	1.222***	1.134***	1.130***
	(0.0226)	(0.0214)	(0.0236)	(0.0237)	(0.0370)	(0.0337)
Sex of Household head (base: Male)						
Female	1.095	1.360***	1.121	1.500***	1.639**	1.139
	(0.114)	(0.116)	(0.112)	(0.134)	(0.366)	(0.217)
Sector Employed (base: Non-Agriculture)						
Agricultural sector	1.162	1.539***	1.334***	1.496***	1.466**	1.896***
	(0.130)	(0.143)	(0.138)	(0.139)	(0.268)	(0.294)
Log (Household Expenditure)	0.622***	0.409***	0.704***	0.422***	0.767**	0.443***
	(0.0462)	(0.0267)	(0.0549)	(0.0307)	(0.0849)	(0.0440)
Ecological Zone (base: Coastal)						
Forest	0.841*	1.024	1.098	0.928	0.831	0.773
	(0.0814)	(0.0822)	(0.175)	(0.134)	(0.389)	(0.349)
Savannah	1.856***	1.189	1.989***	1.316	1.163	1.268
	(0.325)	(0.193)	(0.378)	(0.233)	(0.505)	(0.547)
Constant	111.3***	12,883***	1.15e-05	588.5***	5.877	2.181***
	(118.9)	(12,835)	(0.00808)	(846.7)	(7.513)	(2.446)
Observation	4,491	4,491	4,207	4,207	1,752	1,752

[1]Mildly Food Insecure; [2] Severely Food Insecure; Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Appendix

Appendix A: Small-Hsiao tests of IIA assumption

	inL(full)	inL(omit)	ChiSq	df	P-Value
Food Secure	-1812.713	-1805.65	14.126	14	0.440
Mildly Food Insecure	-2517.535	-2510.093	14.521	14	0.412
Severely Food Insecure	-1884.985	-1875.383	19.204	14	0.157