RURAL OUT-MIGRATION AND HOUSEHOLD LIVELIHOODS IN TABORA REGION, TANZANIA

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ABSTRACT

The migration of labor out of rural areas as a strategy for rural household livelihood and the flow of remittances from migrants to rural households is an increasingly important feature of developing countries. This paper explores ways in which use of rural household livelihoods and migration influences incomes and productivity of land and human capital in rural households over time, using new household survey data from Tabora. The findings suggest that use of components of rural household livelihoods increased productivity. Similarly, a massive increase in migration to the regional urban centres increased per-capita incomes via remittances and also by raising land productivity in migrant-sending households. They do not support the pessimistic view that migration discourages production in migrant-sending economies, nor the view implicit in separable agricultural household models that migration and remittances influence household incomes but not production.

Keywords: Migration, household, rural livelihoods, remittances, Tanzania.

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Introduction

There is a large literature on the social and economic impacts of out-migration in rural areas of origin. Comparing migrant households and non-migrant households regarding agricultural production, use of agricultural technologies, income and consumption and remittances is a common method of examining the influences of migration on rural people's life. Given the consequences of these factors, this line of inquiry has direct implications for the subsequent livelihood outcomes of migration in rural migrant-sending areas. However, few previous studies have addressed such connections. Agricultural practices, incomes and assets, and consumption patterns are all critical elements of rural people's livelihood processes. Livelihood comprises the capabilities, assets (natural, physical, human, financial, and social), and activities required for a means of living (Assan, 2007). The rural livelihoods framework provides a solid base to synthesize the literature on migration and rural livelihoods with the research on the impacts of migration in rural origin areas. In the rural livelihoods framework, migration is considered one of the most important livelihood strategies, while the environment and natural resources are incorporated into the context, capital assets, strategies, and outcomes of livelihoods. The relationship between rural household-level population dynamics and livelihood improvements is a major area of recent population-livelihood research (de Sheerbinin *et al*. 2008). The household is also the primary scale of analysis in the rural livelihoods framework. Therefore, the household is an appropriate level of analysis for synthetic research on migration and rural livelihoods. Rural household livelihoods can be conceptualized as an integrative mediating factor into the migration and livelihood outcomes model.

According to the conceptual framework depicted in Fig. 1, the impacts of rural out-migration on the rural livelihood outcomes are mediated by the intervening household livelihood factors including agricultural production, agricultural technology use, income and consumption, and internal migration and remittances. It is hypothesized that rural migrant and non-migrant households differ significantly with respect to these four livelihood constructs. Such differences are expected to lead to distinct livelihood outcomes in terms of changes in levels of food security, income security, asset accumulation and well-being. This conceptual framework is empirically evaluated in the context of rural-to-urban labor migration in Ilolangulu Division, Western Tabora, a region with emergent rural labor out-migration in Tanzania (NBS 2006). The study draws on data collected through rural household surveys and key informant interviews in

three rural communities of the Millenium Village cluster in western Uyui district. The results confirm the research hypothesis that rural labor-migrant and non-labor-migrant households are significantly different in livelihood activities. The implications of these findings for the subsequent environmental outcomes of rural labor out-migration and natural resource management in rural origin areas are also discussed.

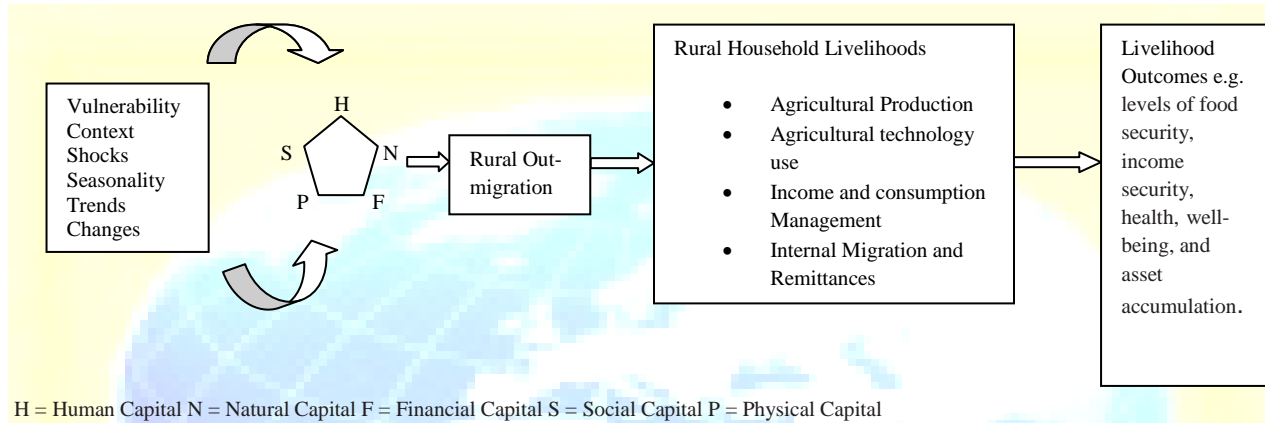H = Human Capital N = Natural Capital F = Financial Capital S = Social Capital P = Physical Capital

Fig 1. A conceptual framework for the impacts of rural out-migration on rural livelihood. A modified version of Carloni (2005)

One of the key areas of recent literature on the impacts of migration on rural livelihoods has focused on the differences between migrant and non-migrant households in agricultural production in rural origin areas. A popular view on the impacts of migration on agriculture is that rural labor out-migration leads to a decline in agricultural cultivation and production. Rural households with labor migrants were found to have lower agricultural productivity than those without migratory workers (Jokisch, 2002. Schmook and Radel, 2008). Nevertheless, an opposite view contends that remittances generated from labor migration increase rural household incomes and enable rural households to make agricultural improvements. Abundant empirical evidence from different regions has shown that the potential negative influences of lost household labor on agricultural production can be compensated by increased access to capital and enhanced agricultural investment (McCarthy *et al*. 2006; Hull 2007).

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Livelihood

Livelihoods are the means people use to support themselves, to survive, and to prosper. In its simplest sense is a means of living. A livelihood comprises the capabilities, assets and activities required for a means of living (Rigg, 2006). Livelihoods are an outcome of how and why people organize to transform the environment to meet their needs through technology, labor, power, knowledge, and social relations. Sustainable livelihood is livelihood that can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and assets both now and in the future without undermining the natural resource base (Carloni and Crowley, 2005).

A livelihood in the context of this paper can therefore be described as consisting of systematic activities or enterprises undertaken by individual/households using their capabilities and exploring available opportunities, locally or externally, to derive material/ financial reward and/ or improved status (Assan, 2007). This definition incorporates variations in space and place and how such a change can influence one's ability and capability.

A number of studies that have examined the influence of migration on rural household agricultural technology use also present opposing perspectives. The pessimistic view argues that labor scarcity resulting from rural out-migration leads to the decay and abandonment of traditional labor-intensive agricultural technologies by migrant households (Deshingkar, 2012), and prevents adoption of innovative agricultural technologies (Dey and Sarkar 2011). By contrast, Ellis, (2000) argues that migration leads to technological improvement in rural areas through investment of remittances in more modern technologies and the stimulating effects of the new ideas and knowledge brought back by labor migrants. Other studies also found that labor-migrant households were more likely than non-labor-migrant households to use new farming technologies to improve agricultural productivity (Mendola 2008).

There is a general consensus that migration and remittances reduce rural poverty and contribute to the improvement of household living standards. Migrant households (especially those receiving remittances) normally have higher levels of income and consumption than non-migrant households (Taylor and Mora 2006; Schmook and Radel, 2008). In terms of consumption patterns, several household survey-based studies showed that migrant households with remittances tended to spend more than non-migrant households on durable goods and productive activities (Zarate-Hoyos 2004; Taylor and Mora 2006). A subset of the research on the impacts

of migration on household income and consumption has also assessed the differences between rural migrant and non-migrant households in asset accumulation (Garip, 2007). Overall, these studies suggest the effects of rural out-migration on household assets differ across places of origin.

Finally, there is a common view that migrants differ significantly from non-migrants in terms of household income and consumption management, (Perz, 2003). However, consistent support for such differences between migrants and non-migrants in consumption management is not always found in empirical research (Maitra and Ray, 2003; Zarate-Hoyos, 2004; Adams, 2005 and Taylor and Mora, 2006). And although it is often claimed that the consumption pattern for received household income among migrants households is statistically different from non-migrants households which do not receive such transfers (Castaldo, 2007), some studies have shown that consumption management of such household income is not particularly associated with categories of households (Cassels *et al*. 2005). Households who receive remittances spend, on average and *ceteris paribus*, a lower share of their expenditure on food and a higher share on consumer durables. In addition, several studies relevant to household income and expenditure in rural areas revealed that rural out-migration led to remittance earnings compensating for lower income from agricultural crops and for lack of non-farm income opportunities within the villages (Thelma, 2010). However, it is interesting that households without migrants had much larger sources of non-farm income than migrant households. The data did not indicate whether non-migrant households develop non-farm livelihood activities because they cannot engage in migration, or whether they do not wish to migrate because they have a satisfactory range of farm and non-farm income sources.

In summary, research on migration and rural livelihoods compares the agricultural production, agricultural technology use, income and consumption, and asset accumulation of migrant and non-migrant households in migrant-sending areas, while research on the livelihood outcomes focuses on the differences between migrants/migrant households and migrants/non-migrant households in resource use in areas of destination. This study contributes to the existing literature by examining all these differences between migrant and non-migrant households in rural areas of origin

Materials and Methods

Study Area

Tabora region is located in mid-western part of Tanzania on the central plateau between latitude 4-7° South and longitude 31-34° East. It covers an area of 76,151 km^2, representing 9% of the land area of Mainland Tanzania. A total of 34,698 km^2 are forest reserve and 17,122 km^2 are game reserve. Tabora Region has a total population of 1,717,908 (NBS, 2002). It has a long, dry season of about 5-6 months with temperatures ranging from a mean minimum of 16.6^{0}C in June to mean maximum of 37.7^{o}C in October. Soils are 80-90% sandy (Ferric acrisol), with low organic carbon ranging between 0.4-0.8%.

Tabora region has a total surface area of 76, 663 km^2 of which 76,151 km^2 (99.3%). The land is divided into different cover and use types such as forest and woodlands, agricultural land, water bodies, grasslands used for grazing, game controlled areas, among others. The largest part of the region is under woodlands of different kinds, followed by wetlands or swamps and then land under cultivation.

Table 1 shows the land use/cover types with their respective size in terms of percentage. The data in Table 1 indicates that the largest area is under woodlands of different kinds, followed by wetlands or swamps and then land under cultivation. The spatial distribution of these land use/cover types is presented in Figure 1.

Table 1. Land use categories and cover types in Tabora Region (grouped)

Major Land Cover Types	Area (ha)	% Total Area
Bushland	432,968	6
Cultivated land	892,502	12
Grassland	201,518	3
Permanent Swamp	146,798	1.6
Seasonally inundated Swamp	1,445,539	19
Plantation Forest	633	0.1
Thicket	94,434	1
Woodland	4,407,791	57
Other, water, urban	20,932	0.3
TOTAL	7,643,115	100

Source: Adapted from IRA (2002)

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Tabora region is characterized by ecological problems such as decreasing land fertility, soil erosion, and deforestation. The combination of ecological stress and high rates of rural-to-urban labor migration makes Tabora region an important study area for assessing the effects of rural out-migration on the rural livelihood outcome.

The study communities were selected through a two-stage process. First, based on the official ecological zoning of Tabora Region (Majule, et al 2011), five major ecological sub-regions were identified as mentioned above. The study area was divided into three sub-regions in terms of social, economic, and ecological characteristics: the urban area, the middle agricultural land corridor, and the grasslands zone (Fig. 2)
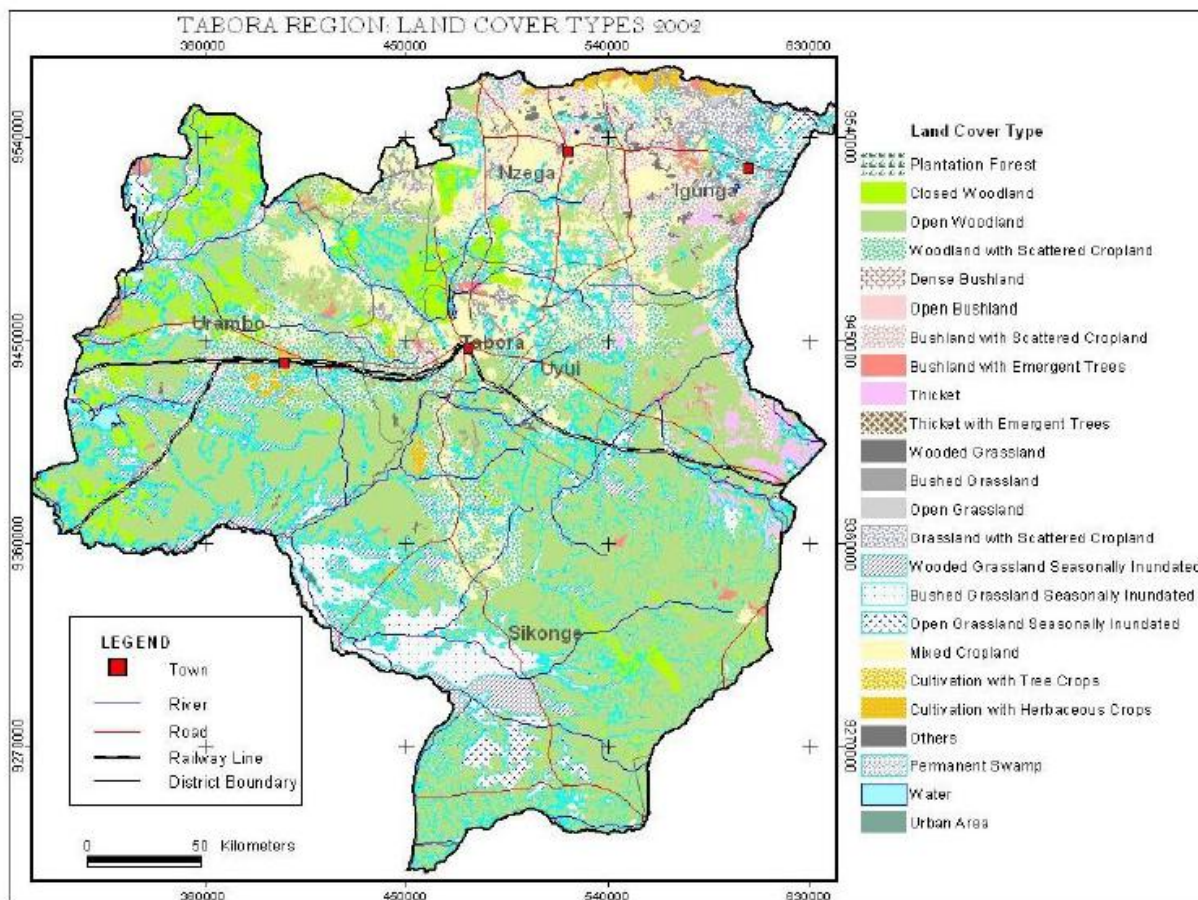

Figure 2. Land use/cover types in Tabora Region

Source: Adapted from IRA (2002)

In the second stage, three villages from one eco-economic zone were purposively selected according to two criteria: (1) high magnitude of rural-to-urban labor migration; and (2)

abundance of natural resources such as farmland and forests. These two criteria magnify the connection between rural labor out-migration and the rural environment, and thus can facilitate understanding how rural-to-urban labor migration affects rural natural resource conservation. In sum, this two-stage selection procedure ensures heterogeneity among the final set of study communities, and helps capture the social, economic, and biophysical diversity across rural Tabora. These three rural communities selected for this study were from the Mbola Villages Cluster (Uyui District) in the wooded grassland eco-economic area. The three village cluster forming the Millennium Villages Project in Uyui were Mbola, Mpenge and Isila. (Figure 3)
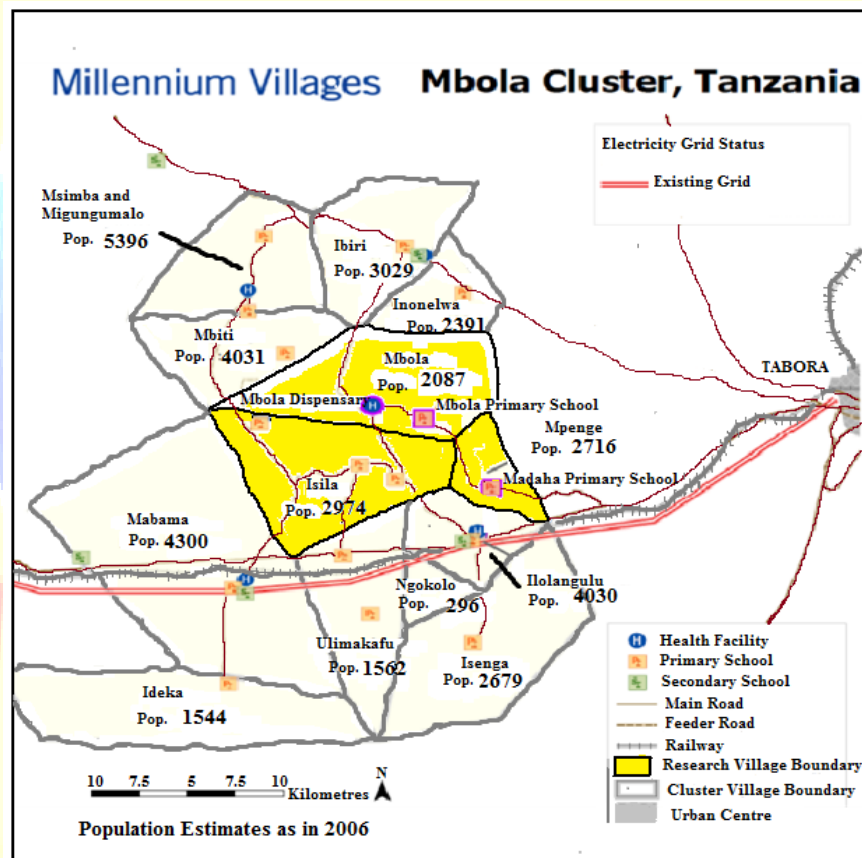

Figure 3 Map showing study sites

Source: Mbola Survey, and MVP 2012

Criteria for selecting study villages

Based on eco-economic zones found in the region, the choice criteria used included landscape characteristics, diversity of livelihood activities, and levels of land degradation.

Description of Mbola Millenium Villages Cluster

Mbola millennium villages have been nominated to represent the Miombo woodland of Eastern, Central and Southern Africa. Mbola village is located in Uyui District, Tabora Region. The Mbola MVP comprises 15 villages over an area of 1,334 km^2, located 36 km from Tabora. Mbola is one of the poorest village areas in Tanzania, with an economic base of subsistence farming, mainly rain-fed agriculture and production of local livestock breeds. The villages host the Miombo woodlands, a unique Africa savannah forest.

The main development challenges in Mbola include the high rate of environmental degradation resulting from poor crop management practices, declining agricultural production and destruction of the Miombo woodlands for fuel wood used in the tobacco industry. Overgrazing and expansion of agricultural land have also contributed to the decline of land productivity.

Mbola, Isila and Mpenge are part of the Mbola Millenium village cluster where heavy development investments have been made thus leading to enhancement of community livelihoods. Subsistence farming is the main economic activity, consisting mainly of rain-fed agriculture and the production of local livestock breeds. The villages represent the maize-mixed farming system in the Miombo woodland savanna agro-ecological zone. The villages have two distinct seasons, a rainy season between November and April and a dry season for the remaining part of the year. In recent years, the rain has become increasingly erratic. The village land holdings range between 1 to more than 15 hectares per household. The main food crops are cassava, sweet potatoes, paddy, fruits and vegetables. The main cash crop is tobacco which is cultivated by 68% of the population (7,777). Beekeeping and rice growing are also important activities in the villages. Unreliable rainfall and poor soil fertility are the major hindrance to poor food production in the area. Low and declining crop yields are posing problems of food insecurity resulting in hunger and malnutrition in most households.

The main development challenges in Mbola village cluster before the millennium initiative included the high rate of environmental degradation resulting from poor crop management practices, declining agricultural production and destruction of the Miombo woodlands for fuel wood used in the tobacco industry. Overgrazing and expansion of agricultural land have also

contributed to the decline of land productivity. In addition, roads are in a poor state, thus limiting easy access to markets. There is a general lack of basic infrastructure for health and education.

At the beginning of the project, development intervention in the Mbola cluster villages had led to tremendous increase in agricultural yields thus enhancing community food security. It was reported during fieldwork that maize production had increased from about 3 bags to 30 bags per ha. The majority of farmers accessed agro-inputs at soft loans so that they could repay the loans as they got incomes from sale of high value crops. Those days are gone. At present, farmers are required to pay for agro-inputs on the spot. This modality has affected some of the farmers who alongside maintaining food security efforts, have not been able to diversify their crops to include high-value crops, such as sunflowers, fruits, and vegetables with the aim of generating a significant income boost for them

Methodology

In each of the three study villages, 50 households were sampled making a total of 150 and all of these household heads were interviewed using an exploratory and evaluative multi-stage research strategy and the respective Uyui district economic baseline studies and village profiles (de Haan and Zoomers 2005 and Ellis 2000, Kitchen and Tate 2000). Out of the 150 household heads, 102 (68%) were migrants. The remaining 48(32%) were non-migrants. The study further sampled and interviewed 170 young native juveniles from the 150 study households out of whom 79(52.6%) were migrants from the three Mbola cluster villages working at three famous market locations in Tabora, Mwanza and Shinyanga urban centres using survey and snowing-balling methods. The remaining 71(47.4%) consisted of non-migrants. The study also identified that within the sampled households the frequency of out-migration is higher amongst adult-juvenile males (53) than adult-juvenile females (15). A comparison of the three study villages shows that the percentage of adult-juvenile male out-migrants (77.9 percent) is higher than females (22.1% percent) in those villages. Overall, the 150 sampled households produced 181 migrants and 119 non-migrants making a total of 300 respondents.

Out-migrated members of the sampled household were subsequently tracked interviewed. Some of the interviews took place in the respective communities as these individuals visited families

whilst the others took place at destination points. Focus group discussion meetings in each of the sampled communities complemented the interviews.

To empirically evaluate the efficacy of the rural out-migration–household livelihoods–livelihood outcomes conceptual model, a household survey was conducted to collect information about rural livelihood activities. The sample households were obtained using a stratified random sampling procedure (Creswell, 2012). Four socio-demographic variables were included in the analysis to account for the effects of basic household characteristics on livelihood activities. The use of these control variables allows for a more accurate evaluation of the differences between migrant households and non-migrant households in rural livelihoods. The variables were: total number of household members, number of household farmers, average age of household farmers, and average educational level of household farmers. The study adopted a case-control study design, in which persons with a specific condition (the cases) and persons without the condition (the controls) are selected to participate in the study. The proportions of cases and controls with certain characteristics are then compared.

Measurement of Study Variables

The survey addressed the four components of rural household livelihoods identified in the conceptual framework: (1) agricultural production; (2) use of agricultural technologies; (3) household income, expenditure, and assets; and (4) internal migrants' remittances. All of these were measured by multiple variables. In addition, a number of socio-demographic characteristics of households were included.

Agricultural production in Mbola communities

Four variables measured the agricultural production practices of Mbola households. Farmland use, the most important aspect of agricultural production, was measured by the average cultivated land per farmer (*mu*) in the year of the survey (2012). Respondents were also asked to indicate whether or not in 2012 their household was engaged in the following areas of agricultural production: (1) tobacco (2) grain crops (3) vegetables; (4) fruits; (5) oil plants; (6)

aquaculture; and (7) livestock keeping. A measure of production diversity (total number of types of agricultural production involved) was created by summing up the dichotomous responses (0 = no, 1 = yes). The other variables included pertaining to the production of major grain crops in 2012 were yield of rice (kg) and yield of corn (kg) per *mu* of farmland.

Use of agricultural technologies

Use of agricultural technologies was measured by three variables: the cost (in Tshs) of chemical inputs, including fertilizers, pesticides, and herbicides, in the year prior to the survey (2012), and two constructed composite variables indicating the levels of use of different types of agricultural technologies. Respondents were asked to identify for the most recent year whether or not their household used 11 different agricultural techniques. The traditional farming technology category includes five: (1) tilling before cultivating crops; (2) applying organic fertilizer as base manure before planting; (3) intercropping; (4) multiple cropping; and (5) fixed crop rotation. The modern farming technology category includes six practices: (1) using a large amount of chemical fertilizer; (2) applying chemical fertilizer according to the agricultural extension office's suggestions; (3) applying pesticide on farmland; (4) applying herbicide on farmland; (5) farming under plastic; (6) irrigating farmland with water pump. Responses (0 = no, 1 = yes) were summed up as two variables: total number of traditional agricultural techniques used and total number of modern agricultural techniques used.

Income and Consumption

Research has shown that household income and expenditure are especially difficult to measure in rural areas of developing countries. To reduce measurement error, the survey focused on the monetary components of rural household incomes and expenses. Household income was measured as annual cash income from both farming and non-farming sources in 2012. Household living expenditures referred to annual monetary spending on regular consumer goods and services in rural areas in 2012, excluding large, one off expenses (e.g., house construction) and the living costs of migrants or student members in urban areas. Per capita annual cash income and living expenses (in T.shs.) were calculated to account for differences in a rural household's

size and composition. In addition, an index variable was included as an indicator of household consumer assets, created according to Filmer and Pritchett (2001) using principle component analysis to derive weights for constructing a linear index of a group of asset variables. The asset indicators in this survey include household ownership of 5 different durable consumer goods (include bicycle, sewing machine, camera, motorcycle, and automobile), building materials and style of the household dwelling, and the household's drinking water sources. For ease of interpretation, the index was rescaled to a range from 0 to 5.

Remittances

It was therefore necessary to investigate the different sources of additional income to the household and also understand the role that remittances play in improving the household economy.

The standardized questionnaire had among others four modules that focus on the following: (i) internal migration and remittances from migrant household members, (iii) return migration and (iv) household use of remittances

Methods of Analysis

The statistical analysis of the rural household survey data included three phases. First, descriptive analyses of the data were used to describe survey sample characteristics and aggregate patterns of household livelihoods in the study area. Next, variations between different household groups regarding livelihood variables and socio-demographic characteristics were explored with a simple bivariate comparison statistic (independent *t*-test). Finally, multivariate discriminant analysis was used to compare the differences between household groups in livelihood activities while controlling for the effects of household socio-demographic characteristics.

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RESULTS AND DISCUSSION

Household socio-demographic characteristics

Four socio-demographic variables were included in the analysis to account for the effects of basic household characteristics on livelihood activities. The use of these control variables allows for a more accurate evaluation of the differences between migrant households and non-migrant households in rural livelihoods. The variables were: household sizes, number of household farmers, mean age of farmers, and mean educational level of farmers. Results of bivariate comparisons are shown in table 2

Table 2. Bivariate comparisons of household groups, given as means of variables

Variables	Two household groups	
	Migrant (N=191)	**Non-migrant (N = 111)**
Socio-demographic characteristics		
Total number of household members	1.1***	5.0***
Number of household farmers	5.6	3.7***
Average age of household farmers	433.7	44.6***
Average educational level of household farmers	42.6	2.9***
Agricultural production		
Size of per farmer cultivated land (*mu*)	*4.34**	*3.24**
Total number of types of agricultural production involved	*0.59*	*0.58*
Yield of rice (kg) per *mu* of land	*0.52*	*0.35*
Yield of maize (kg) per *mu* of land	*0.28*	*0.07*
Use of agricultural technologies		
Expense of farming chemicals per *mu* of land (Tshs)	2.4*	262.6
Household consumer asset index (rescaled to 0-5)	5.6*	4.1
Household income, expenditure, and assets		
Per capita annual cash income (Tshs)	5.56*	2.73[(*)]
Per capita annual cash living expenditure (Tshs)	0.70	0.17
Household consumer asset index (rescaled to 0-5)	1.65	0.98

Internal Migrants' remittances		
Remittances from migrant household members	3.47[(*)]	0.73
Return migration	0.50	0.28
Household use of remittances	0.76	0.08

Source: Mbola Survey, 2012

Notes: (1) ***sig. at the .001 level; **sig. at the .01 level; *sig. at the .05 level; (2) The independent *t*-test was used for the comparison of non-migrant and migrant households.

In sum, looking at the displayed values, migrant households differed significantly from non-migrant households in all the three household socio-demographic characteristics. The *F* value for a variable indicates its statistical significance in the discrimination between groups. On average, non-migrant households had more members and labor force than migrant households. In general, farmers from migrant households tended to be younger and more educated than those of non-migrant households. In addition, these two groups differed significantly in some of the livelihood variables. Notably, non-migrant households cultivated more land than migrant households on a per farmer basis. As expected, migrant households on average enjoyed higher per capita cash income and more consumer assets than non-migrant households.

Multivariate Discriminant Analysis for Migrant and Non-migrant households

Multivariate discriminant analysis was used to compare the differences between household groups in livelihood activities while controlling for the effects of household socio-demographic characteristics. This technique was particularly suitable here because it allowed for the comparison of two or more groups on multiple variables simultaneously. Discriminant analysis is a method for determining, objectively and in quantitative terms, the value of each of a series of variables for discriminating between two or more groups of objects.

Blocks of variables were added to build multiple models to examine interactions among variables measuring different livelihood constructs, and to assess the extent to which different sets of livelihood variables distinguish household groups. A final reduced model was estimated by systematically removing non-significant variables from the full model until all the variables remaining in the model had significant effects.

Results of discriminant analysis of differences between migrant and non-migrant households in livelihood activities in Mbola are presented in Table 3. The F-test helps to determine the effect of adding or deleting a variable from a model. The first model included only the four agricultural production variables. The size of per farmer cultivated land and the yield of rice per *mu* of land

had statistically significant effects in differentiating the two household groups (though only marginally significant for rice production). On average, households with migrants cultivated less farmland on a per farmer basis and had lower rice production for each *mu* of farmland than those without migrant members. In Model 2, variables measuring agricultural technology use were introduced into the discriminant analysis. The size of per farmer cultivated land remained statistically significant in distinguishing between household groups, but the yield of rice per *mu* of land was no longer significant. None of the three technological use indicators had significant effects in the model.

Table 3 Discriminant Analysis of differences between migrant and non-migrant households Given as F values of variables					
Variables	Model 1	Model 2	Model 3	Model 4	Final Model
Socio-demographic characteristics					
Total number of household members				0.47	
Number of household farmers				47.61***	64.70***
Average age of household farmers				9.13**	10.83**
Average educational level of household farmers				2.65(*)	3.01(*)
Agricultural production					
Size of per farmer cultivated land *(mu)*	9.34***	11.22***	9.12*	3.76	
Total number of types of agricultural production involved	0.41	0.54	0.65	0.67	
Yield of maize (kg) per mu of land	1.62	1.41	1.93	3.17(*)	2.33(*)
Yield of rice (kg) per mu of land	0.02	0.10	0.09	1.85	
Use of agricultural technologies					
Expense of farming chemicals per *mu* of land (Tshs)		0.69	0.54	0.88	
Total number of traditional agricultural technologies used		0.04	0.21	0.31	
Total number of modern agricultural technologies used		0.03	0.01	0.17	
Household income, expenditure, and assets					
Per capita annual cash income (Tshs)			5.56*	2.73(*)	5.31*
Per capita annual cash living			0.70		

expenditure (Tshs)			0.98	0.17	
Household consumer asset index				4.19	
Internal Migrants' Remittances					
Remittances from migrant household members			0.73	3.47(*)	3.99*
Return migration			0.50	0.28	
Household use of remittances			0.76	0.08	

***sig. at the .001 level; **sig. at the .01 level; *sig. at the .05 level; (*) marginally sig. at the .1 level   Source: Mbola Survey, 2012

Model 3 added the three income and consumption variables. The size of per farmer cultivated land remained a powerful differentiator between migrant and non-migrant households. The yield of maize per *mu* of land became marginally significant again in the analysis. Variables measuring the use of technologies were still not statistically significant. Of the three newly introduced income and consumption indicators, only per capita annual cash income had a significant effect. Controlling for the effects of other variables in the model, migrant households had higher levels of rural cash income than non-migrant households on a per capita basis. The measures of internal migrants' remittances were introduced in Model 4, which included all the three livelihood variables. All of these variables showed significant effects in the model.

In order to enhance our understanding of the impacts of rural migration on household livelihoods, block discriminant models were also used to analyze differences among the two defined subgroups in the survey sample: migrant households, and non migrant households (Table 3). When the model contained only the four agricultural production variables (Model 1), the size of per farmer cultivated land was statistically significant. Non-migrant households in general cultivated more land than the other group on a per farmer basis.

The final model included five livelihood variables and four household socio-demographic characteristics. Per capita annual cash income and the yield of maize per *mu* of land showed significant effects again in the analysis. As compared with the final reduced model for the multivariate comparison of labor-migrant and non-labor-migrant households, two more livelihood variables (size of per farmer cultivated land and expense of farming chemicals per *mu* of land) became significant in this model.

Extent to which remittances influence livelihood enterprises

An understanding of this relationship is important because it helps to establish how remittances influence the households' income activities and economy as questioned by Hickey and Mohan (2005).

Table 4: Extent to which remittances influence livelihood enterprises

Extent	Migrants households		Non-migrants households		Total Frequency	Total %
	Frequency	*%*	*Frequency*	*%*		
Very large extent	14	7.5	3	2.9	17	6
Large extent	80	44.1	35	29.4	115	38
Small extent	63	34.9	77	64.7	140	47
Very small extent	24	13.5	4	3.0	28	9
Total	181	100.0	119	100.0	300	100.0

Source: Mbola Survey results, 2012

Table 4 shows that the majority (44.1 percent) of the migrant households who receive remittances in Mpenge indicated that their enterprises are influenced to a large extent, compared to 64.7 percent of non-migrant recipients in Mbola and Isila who consider the extent of influence as small.

On the other hand, migration enhances the consumption level of rural migrant households. Key informant interviews revealed that migrant remittances generally improved the standard of living of rural households. One Mpenge resident explained, "*The people who migrate to the city for the purpose of earning a living, they in many cases earn higher income and consequently they help their families back home in terms of food, clothing, and other living conditions*." In the bivariate comparisons involving the two subgroups of households, migrant households on average had significantly higher per capita annual cash living expenditure than non-migrant households. Both the bivariate and multivariate discriminant analyses also showed that migrant households had significantly more consumer assets than non-migrant households.

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Conclusion and Recommendations

In this study, rural household livelihoods were conceptualized as an integrative mediating factor in a conceptual framework of rural migration and the rural livelihood outcomes. Findings based on the Mbola rural household survey data and key informant interviews confirm the research hypothesis that migrant and non-migrant households are significantly different in rural livelihood activities. Results show that migrant households farm less intensively, have higher rural cash income, own more consumer assets than non-migrant households. Moreover, rural migrant households are internally diverse rather than homogenous groups but share many similar livelihood characteristics.

The need to engage in multiple income activities in a rural economy, coupled with variable rainfall, has aggravated the situation in which household heads, youth and juveniles are forced to seek alternative livelihood strategies elsewhere as argued by Bryceson (2004). Migration strategies adopted by the sampled households is mainly selective, and motivated by recent liberalisation policies and associated socio-economic difficulties experienced by migrants and their household.

More importantly for this study, remittances serve as a vital source of capital for livelihoods strategies in sampled communities and rural households in Mbola Village Cluster. This suggests that remittances enhance income diversification and catalyze the expansion and sustainability of diversified enterprises. Remittance earnings compensate for lower income from agricultural productivity in the Uyui villages. Conversely, it could be argued from the empirical data presented in this study that such views could vary with geographical location and agro-ecological zone as it is the case with this study.

The policy implications arising from this study focus to the government of Tanzania to support diversification of livelihoods, which is important to poverty reduction, building resilience and reducing vulnerability. In specific terms, the focus should be on enabling environments, enabling migrants to build up their own livelihoods, and express own identities. Furthermore, the government should provide incentives to farming communities to invest remittances in farms build assets and establish savings/credit groups to reduce the need to borrow money, and provide access to appropriate financial services.

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