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# **Impact of Migrants' Cash Remittances Toward Agricultural Enhancement: Perspective from Small Scale Farmers in Mvomero District, Tanzania**

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## **Abstract**

This study aimed to examine the influence of migrants' remittances on agriculture improvement in rural areas in Mvomero District. It was guided by two objectives. The first sought to examine the contribution of cash remittances in agriculture. A sample size of 124 individuals was recruited to participate in this study. Among those, 97 household heads were randomly selected as the sample size using Nassiuma (2000) sample size formulae, while nine key informants and 18 participants for three focus group discussions were purposefully selected from the selected villages. Descriptive and thematic data analysis techniques were employed. The information was captured using questionnaires, interviews, and focus group discussions and analyzed using SPSS for quantitative data using Quantile analysis, chi-square test, and content analysis for qualitative data. The study found that cash remittances were the dominant form of remittance received by the Mvomero households from the rural-urban migrants, as asserted by 61.7% of the respondents. The study also found that the remittances received were used in various ways that improved agricultural productivity. They were more used for post-harvesting activities (81.3%), paying casual labour and renting tractors for cultivation (63.0), purchasing fertilizer and herbicides (81.6%), land holding or renting (61.7%), as well as purchasing seeds (53.7%) which in the end boosted the households' income. The study concludes that even though rural-to-urban migration was viewed as a threat to agricultural production in rural areas, it was replaced by the remittances sent by the migrants.

**Keywords:** Migrants' Cash Remittances, Agricultural Enhancement, Small Scale Farmers, Rural Development, Mvomero District-Tanzania

## **1. Background information**

Rural-urban migration is a common phenomenon in most developing countries. Rural-urban migration is usually associated with various factors, including low yield in agricultural production, climatic shocks, pest and disease, and land shortages, which in most cases push the most energetic groups, usually the younger generation, to search for better livelihood options in urban centres and sometimes abroad (Bell & Charles-Edwards, 2013). Studies conducted by the United Nations Department of Economic and Social Affairs (2019) and World Bank (2021) revealed that there are approximately 763 million internal migrants, accounting for about 3.5 % of the population of working countries. These migrants maintained a close link with their home areas by sending remittances in the form of cash and non-cash materials.

Most economic theories attempt to explore the persistence of the relationship between rural-urban migration and agricultural productivity. Such theories have emanated from neo-classical models to classical models. The classical model assumes that the individual's decision to migrate is influenced by income differentials among localities, i.e. rural vs urban areas (Dhakal, 2023). Besides, the Economic Labour Migration (NELM) assumes that the individual's intention to overcome the possible risks that emanate from uncertainty risks is a determinant of migration decision (Das *et al.*, 2020). Usually, the two approaches offer very serious contradictions as proof of the contribution of migrants' remittances to rural household farms.

Studies conducted in different parts of the world using NELM theories realized the positive impact of rural-urban migration since they help the households boost income, which in turn outweighed the negative result of labour shortage (Atamanov & Van den Berg, 2012). The studies further accept the role played by the migrants' remittances in compensating for the loss that might occur due to the loss of outputs, which, in one way or another, is triggered by lower family labour availability. Conversely, other studies revealed that the effect of labour loss outweighs the impact of income. Thus, rural-urban migration, according to this strand of literature, leads to either lower farm output, forces household members to switch to less labour-intensive crops, or even sometimes abandon farming altogether (De Brauw, 2010; Qian *et al.*, 2016). Nevertheless, other studies have acknowledged insignificant evidence of change in agricultural investment resulting from migration and remittances, such as those on cattle ranching, production intensification, and technical efficiency (Hossain *et al.*, 2016; Miluka *et al.*, 2010).

There have been mixed findings concerning rural-urban migration and agricultural improvement. Studies conducted by Abebaw (2019) acknowledged the positive role played by the migrants' remittances by investing in herbicides, improved seed varieties, and pesticides. They find that migration and remittances positively and significantly impact the investment in livestock and herbicide use and have an insignificant effect on the adoption of improved seed varieties and fertilizers. Conversely, (Li & Tonts, 2014) acknowledged the negative impact of temporary rural-urban migration and remittances on agriculture investment in China. Also, Castelhana *et al.* (2016) estimate the effects of migration and remittances from other parts of Mexico on investment in farms and livestock and find no evidence of an increase in investment. Mendola (2008) finds that in Bangladesh, domestic migration reduces agriculture investment, while international remittances lead to greater adoption of high-yield varieties.

Böhme (2015) and Chiodi *et al.* (2012) studied the effects of international migration from Mexico and found a positive impact on investment in productive assets. Li and Tonts (2014) report a negative impact of temporary rural-urban migration and remittances on agriculture investment in China. Similarly, Castelhana *et al.* (2016) estimate the effects of migration and remittances from other parts of Mexico on investment in farms and livestock and find no evidence of an increase in investment.

A study conducted in Bangladesh by Mendola (2008) finds that rural-to-urban migration reduces agriculture investment while international remittances lead to greater adoption of high-yield varieties. On the other hand, other studies have failed to find evidence for any significant effect of migration on farm production. For instance, the survey conducted by Quisumbing and McNiven (2020) in the Philippines failed to determine the effect of internal or international migration on agriculture production. Similarly, Gibson *et al.* (2011) found that emigration from Tonga to New Zealand did not change the agricultural structure of the left-behind households.

In the African context, the use of migrant remittances is more limited. Some studies argue that remittances are mainly spent on immediate consumption goods such as food and utilities (Chami, Jahjah & Fullenkamp, 2023; Kitali, 2019). An alternative view in the literature argues that households consider remittances to be a form of transitory income that will be spent more at the margin on human and physical capital investments than on consumption goods (Glytsos, 2002). This forms a base for the current study, which is aimed at

contributing to one of the long-standing debates in the literature concerning the use of rural-urban migrants' remittances by rural households. In particular, the study investigated whether households utilize remittances in a 'productive' manner through investing in agricultural production in the Mvomero district.

Most studies on migration have primarily based on the aspects of migration that are associated with the determinants, effects, coping strategies for those who are left behind, and social impact (Msinde *et al.*, 2017; Kitali, 2017), thus bypassing the contribution of the remittances' effect on agriculture. One of the few studies that attempted to examine the impact of off-farm employment (of which migration is part) on farm input (Katege, 2014) based on descriptive analysis was conducted in less agriculturally favourable semi-arid areas of central Tanzania. Under that parameter, the present study addresses the contribution of the rural-urban migrants' cash remittances to agricultural production, focusing on one of the favourable agro-climatic regions of Tanzania dominated by subsistence farming.

### ***Theoretical Framework***

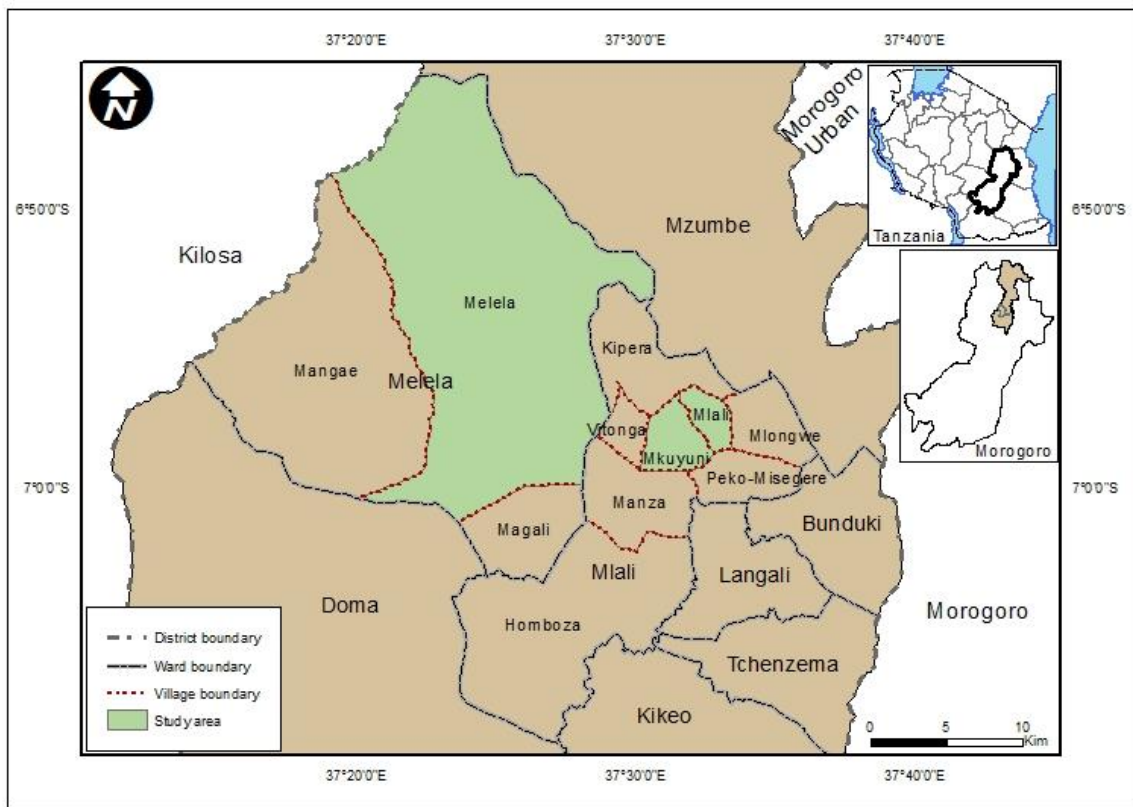
The study uses neo-classical models, suggesting that investment is critical to increasing productivity. Through the context of Mvomero, remittances are considered a key source of capital investment. To capture the strength of the relationship between remittances and agriculture enhancement, it is necessary to gain an understanding of the motive behind migration. Based on the ideas explained by Lucas and Stark (1985), the current study identifies that the main goal of the migrant is to help family members and relatives when they are left behind while trying to meet their interests. This is achieved by sending the money to their homeland so that it can be invested in something that provides a higher return for the entire family in the long run. In this process, the remitter invests the required capital investment in agriculture and introduces the family to improved technology, formally or informally. Finally, this increased per-person yield in the home country by strengthening the family's agricultural productivity. Generally, when a household receives remittance, it is consumed, saved, and/or invested. Based on that theory, when one looks at Mvomero, one sees that remittances are a key source of investment capital for rural households. Thus, the analysis of this study confirmed itself in identifying the determinants of agricultural productivity as suggested by the neoclassical framework, which includes land, labour, and capital as the factors of production. The land is fixed, labour is considered mobile, hence migrating away, and capital is limited. Many studies contend that wherever there is outmigration, it is evident that agriculture output would decrease and vice versa. However, as a migrant starts remitting to

their home area, their family can invest in both human and physical capital as well as technology. Hence, remittances lessen the financial constraint to investment and, as a result, enhance agricultural production. Based on the modal assumption, it is obvious that the argument lies remittances provide the investment for capital accumulation since it is a tractor instead of traditional tools such as ploughs and hoes. Also, remittances enable households to buy improved seeds and fertilizer that can be used to purchase farm implements and thus enhance agriculture production (Chiodi et al., 2012).

## **2. Materials and Methods**

### **2.1 Description of the Study Areas**

This study was conducted in the Mvomero district of the Morogoro region in Tanzania. The area is located between latitudes 05° 80' and 07° 40' S and longitudes 37°20' and 38° 05' E. The district was selected because it is one of the districts that experience bi-modal rainfall patterns, where long rains occur from March to May, and short rains occur from October to November. Having two seasons of rainfall, the district is characterized by two primary agriculture cycles. Coupled with the favourable climatic conditions for agriculture, it was assumed that the migrant's remittances could be more invested in agriculture. In addition, the district was selected over others because it is one of the districts that is not well documented on the issues associated with the impact of the migrants' remittances and agriculture productivity. (Figure 1)



**Figure 1:** Map Showing Study Areas

**Source:** Cartographic Unit, Geography Department, University of Dar es Salaam 2024

## 2.2 Sample and Sampling Procedures

The multistage sampling technique was used to select the sample. Mvomero district has 31 wards, two of which were selected using a table of random numbers. The selected wards represented 5% of the study population, as Boyd *et al.* (1998) suggested, to be enough for sample composition. The systematic random sampling technique was used from the selected wards by assigning all villages an identification number where the fourth number from the left and right was picked and compared with identification. The identification matched with the fourth number in each ward was picked as a sample. The two selected wards were Melela and Mlali. Three villages were selected from the selected wards using a table of random numbers, two in Mlali and one from Melela based on the number of the villages that were present since the Melela ward had three villages and Mlali had eight villages. The selected villages were Melela Mkuyuni and Mlali. The total number of households was counted from the three selected villages to determine the sample size. After counting the total number of households for all

three selected villages, the sample size was obtained based on Nassiuma (2000) sample size formulae were used.

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

Where;

**n** is the sample size,

**N** is the population size (Number of households), and

**e** is the margin error (**e**=0.1).

Given;

**N**=3685, **e**= 0.1, sample size (**n**) =?

$$n = \frac{3686}{1+3686(0.1)^2} = 97$$

Therefore, the total sample size was 97 households

The proportional allocation of sampled households for the field is as shown below;

$$n_h = \frac{N_h}{N} n$$

$n_h$ , Is a proportional sample of each village

$N_h$ , Is the number of households in each village

$N$  is the total number of households in the three study villages

$n$ , is the total sample size.

$$n_h = \frac{1162}{3686} \times 97$$

$n_h = 31$  is the sample size of households in Mkuyuni village.

$$n_h = \frac{1792}{3686} \times 97$$

$n_h = 47$  is the sample size of households in Mlali village.

$$n_h = \frac{732}{3686} \times 97$$

$n_h = 19$  is the sample size of households in Melela village.

Using that formula, a total of 97 households were selected: 31 in Mkuyuni, 47 in Mlali, and Melela villages. Therefore, the study unit involved household heads, of which 97, the study unit consisted of household heads, of which 97 were involved. Apart from the 97 household heads, nine key informants, comprised of village officials, ward leaders, and three experienced elders in each study village, were selected purposefully to represent various groups of respondents involved in the study. Moreover, three focus discussions of six experienced elders in each



village were identified. Therefore, the overall total sample size for the present study was 124 individuals.

### **2.3 Data Collection and Analysis**

Data were collected from the heads of the households using structured questionnaires, focus group discussions, key informant interviews, and observations. The questionnaires were used to obtain information on respondents' demographic characteristics, the type of remittance received, and the amount of cash remittances invested in improving agriculture production. For validity, focus groups and key informant interviews were used to triangulate the information obtained from the questionnaire survey. Data collected through questionnaires were coded and analysed using Statistical Package of Social Science (SPSS) IBM 20. Descriptive statistics such as frequencies and percentages were computed.

Similarly, various relationships were calculated and tested using the chi-square test, factorial analysis, and quanta line. Content analysis was also used to analyse the data obtained through key informant interviews and focus group discussions. In analysing the qualitative data, six thematic steps were followed: familiarisation with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Data from the interviews and focus group discussions are presented straightforwardly, with rich descriptions supported by representative verbatim quotations.

## **3. Results and Discussion**

### **3.1 Demographic characteristics of the respondents**

Understanding the demographic characteristics of the study population is very important in migration studies since it enables us to detect an individual's ability to engage in production activities actively. Such demographic characteristics include age, occupation, and education level (Table 1)

**Table 1: Demographic Characteristics of the Respondents**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentages</b>
<b>Age of H/H:</b>		
18 – 24	17	17.5
25 – 34	23	23.7

35 – 44	13	13.4
45 – 54	15	15.5
55 – 64	16	16.5
65 +	13	13.4
<b>Total</b>	<b>97</b>	<b>100</b>
<b>Sex:</b>		
Female	52	68.4
Male	24	31.6
<b>Total</b>	<b>76</b>	<b>100</b>
<b>Education Level:</b>		
Primary Education	68	70.1
Secondary Education	9	9.3
Non-Educated	20	20.6
<b>Total</b>	<b>97</b>	<b>100</b>
<b>Household Size:</b>		
One	7	7.2
Two	16	16.5
Three	33	34
Four	22	22.7
Five	10	10.3
Six	5	5.2
Seven	3	3.1
<b>Total</b>	<b>97</b>	<b>100</b>

**Source:** Field Survey 2023

The study findings revealed that most heads of households in the three studied villages ranged between 18- 65 years of age. Most (23.7 %) were found in the age category between 25 and 34, followed by 17.5% who were between 1 and – 24 years old. Conversely, 45.4 % of household heads were between 45 and 65+ years of age. This finding revealed that the studied population was within the category of older people who could not engage in the migration process. Moreover, the same age group comprised a group of individuals who returned to their area of origin after retirement.

In terms of sex, the study findings revealed that the majority of the household heads were female (68.4%) while the remaining percentage (31.6%) were females. Generally, the study showed that most of the district's households were female female-headed.

The education level and age influence the decision of the individual to migrate from one area to another. The findings revealed that the majority of household heads (70.1%) had primary education, while a small proportion (9.3%) had not attained formal education. The results showed that due to their level of education, the majority of them could not be absorbed in formal employment. Thus, the only best alternative they had to use was engaging in agricultural activities as their primary livelihood strategy.

Household size is another crucial parameter when dealing with labour force participation. The study was interested in understanding the number of family members in the household, excluding the potential migrant/s. Most of the homes (34.0%) had three members, followed by the household with four members (22.7). Only the smallest proportion (3.4%) of households had seven members. Having a small household size in the study area affects the ability of the heads of households to engage in intensive agriculture without receiving assistance in the form of cash remittances from the migrants.

### 3.2 Reasons for Migration

The study was interested in identifying the reasons that influence the migrants to move out of their areas of origin, see Table 2

**Table 2: Reasons for Migration**

<b>Reasons for Migration</b>	<b>Frequencies</b>	<b>Percentages</b>
Agriculture failure	10	10.3
Business	36	37.1
Employment	30	30.9
Low wages in area of agriculture	2	2.1
Marriage	17	17.5
Other	2	2.1
<b>Total</b>	<b>97</b>	<b>100.0</b>

The findings revealed that household members migrated seeking livelihood alternatives, while low agricultural return and other reasons such as joining relatives represented 2.1 % respectively. Generally, the findings confirm that economic motives influenced the household's members to migrate more than others.

### 3.3 Main Crops Cultivated in the Household Financed by Migrants

The study was further interested in the types of crops cultivated by the rural households that migrants financed. The majority, 32.2% of the respondents, asserted that they grow maize. This was followed by those who cultivated beans

(20.8%), while the smallest percentage (13%) of respondents claimed that they used the migrant's remittances and invested it in paddy cultivations (Table 3).

**Table 3: Crops Cultivated in the Household Financed by Migrants**

<b>Types of crops cultivated</b>	<b>Responses frequency</b>	<b>Per cent</b>
Maize	89	32.2
Tomato	23	8.3
Beans	57	20.8
Vegetable	71	25.7
Rice	36	13
<b>Total</b>	<b>276</b>	<b>100.0</b>

**Source:** Field Survey 2023

### **3.4 Types of Remittances sent by Migrants**

Migrants from the Mvomero district transfer cash and goods to their families to support their livelihood. Under that premise, the majority of households, 61.7%, acknowledged receiving cash remittances from their migrant (Table 4). Only a small proportion, 8.4%, admitted receiving other things, such as household appliances, motorcycles, and educational materials. The findings concurred with the study conducted by Selod and Forhad (2021) suggests that a significant portion of rural to urban migrants send remittances in the form of cash to their area of domicile. Such kinds of remittances usually enable the recipients' household recipients to meet immediate needs, which are not limited to healthcare, education, and household expenses, contributing to poverty reduction as well as economic stability.

**Table 4: Types of Remittances Received by Rural Households**

<b>Types of Migrants remittances</b>	<b>Responses frequency</b>	<b>Percent</b>
Cash remittance (Money)	95	61.7%
Food	17	11.0%
Clothes	29	18.8%
Appliances	13	8.4%
<b>Total</b>	<b>154</b>	<b>100.0</b>

**Source,** Field Survey 2023

### **3.5 The use of Cash remittances in Improving agriculture**

The study findings further revealed that migrant remittances are used in various ways, which improves agriculture production in rural areas in the final analysis. The study revealed that the majority of the household heads asserted that the

migrant's remittances were significant as they enabled them to purchase herbicides (81.6%). This was followed by the contribution of cash remittances, which enabled the household members to buy fertilizers (73.4%), pay tractors (63.0%) as well as use in post-harvesting (81.3%). Conversely, land holding, hiring machines, and land renting were among the agreed uses of remittances to enhance agriculture production. This was supported through Focus group Discussion as one said that:

*My daughter, who lives in Dar es Salaam, sends me some money through her mobile phone to buy fertilizers and seeds and pay wages to the workers who support me in farming activities. This is particularly the case because before he left for Dar es Salaam, he used to support me in farming activities, but in his absence, he sent me money so that I could pay people who work on my farm.*

The findings, at the same time, converge with De Hass's study (2012), which found that migration induced the adoption of intensive cultivation patterns among oasis agriculture households in the Maghreb. Moreover, he observed that in most cases, the remittance-receiving households invested relatively higher amounts in agriculture. A similar observation was revealed by Quinn (2009), who showed that migration and remittances increased the use of high-yield variety seeds, which, in the final analysis, reduced the household risk as well as credit constraints in Mexico. On the other hand, the findings deviate from the study conducted by Anderson (2014) as she revealed that in Ethiopia, most rural households are more prone to use remittances for debt repayment, investing in housing and land; meanwhile, remittances investment in agricultural investments are restricted to rural households since only a small proportion of rural households which is a proximal to six per cent invests in agriculture. The deviation of the present study from the Ethiopian study is influenced by the fact that the climate condition of Mvomero favours agriculture investment, which is a primary source of household livelihood. Generally, one can argue in the study area that the agricultural efficiency and productivity losses from migration are at least less offset by gains from the boost in overall income due to remittance inflows.

Findings from factor analysis indicate that the three factors explain cash remittance for agriculture. Factor one is explained mainly by farm inputs like purchasing herbicides with loading 0.816, purchasing fertilizers 0.734, paying tractors 0.630, and land renting 0.617 in that order (Table 5). The second factor explaining the variation in cash remittance is explained by post-harvesting

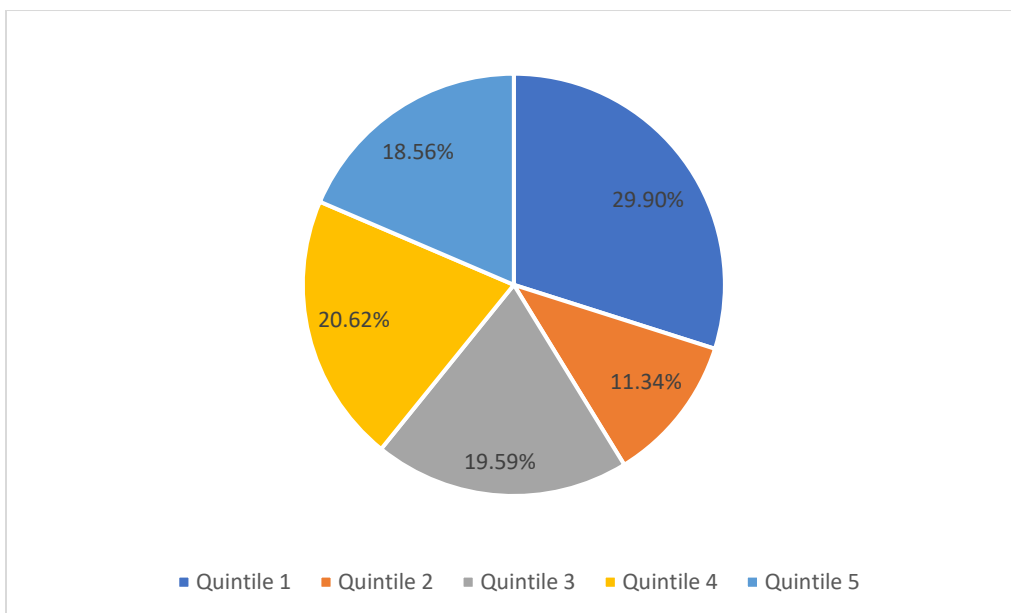
(0.813), labour charges (0.687), and livestock keeping (0.547). In contrast, the third factor is mainly explained by seeds and machine hiring with their respective loading of magnitudes 0.537 and 0.516. Although Tuladhar *et al.* (2014) and Khanal *et al.* (2015) found a negative impact of remittance on agriculture investment, the present study contradicts it as it revealed the positive effect of remittances enhancing agriculture since the rural households were able to employ improved farming equipment and techniques that were fueled in by remittances and thus increased household productivity it was used to purchasing herbicide These findings are consistent with Lucas (1987) and Maharjan and Knerr (2019) as they observed that the households had increased their farm income after received remittances from migrants.

**Table 5: Rotated Factor Loadings**

<b>Variables/Factors</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>
Purchasing herbicide	<b>.816</b>	.224	.313
Purchasing fertilizers	<b>.734</b>	.205	.156
Paying for tractors for cultivation	<b>.630</b>	.371	-.266
Landholding/renting	<b>.617</b>	.136	.022
Used for post-harvesting	.223	<b>.813</b>	.202
Paid casual labours	.192	<b>.687</b>	-.143
Investing in livestock-keeping	.240	<b>.547</b>	.365
Seeds	.276	.057	<b>.537</b>
Hiring machines	.060	-.027	<b>-.516</b>

**Source:** Field Survey 2023

A quintiles analysis was conducted to examine the percentages of remittances invested in agriculture activities. Quantiles 1 to 5 present the 5 quintiles of the amount of remittance invested for agricultural production. Quintile 1 is the lowest, and quintile 5 is the highest. About 29.9% are in the lowest quintile of investing in agricultural activities, with the fourth quintile accounting for 20.62%. Generally, most of them have the lowest use of remittance for investing in agriculture (41.24%) compared to the high use (39.18%). The low use of investment in agriculture was influenced by the fact that some of the household members utilized cash remittances for other uses such as catering for educational activities, consumables, house construction and repairs. Meanwhile, the household that used a larger share of remittances in investing in agriculture activities conforms to the fact that those households are probably wealthier and are more financially stable to the extent that they were able to prioritize more in agriculture investment.



**Figure 1:** Quintiles of the amount of cash remittance used for agricultural activities

Even though cash remittances were used to improve agriculture in the study area, other respondents acknowledged the use of cash remittances to acquire more land. Insisting on this, one respondent from the Melela ward reported; *"Initially, I was cultivating one acre, which I inherited from my parents, two years ago, my daughter, who is working at Dar es Salaam, visited me and added the two acres which you can see with tomatoes now."*

In proving this, the researcher was interested in investigating the difference between the land size used by respondents before receiving the cash remittances and the land size used after receiving the remittances. Thus, paired sample statistics were conducted to see if the remittances had a significant effect on the size of the land used. The study findings revealed that the average land size cultivated after receiving remittance (2.1856) is greater than the average land size before remittance (1.6598), as presented in Table 6.

Thus, the remittances sent facilitate the expansion of the size of the land being cultivated by rural households. When the results were tested, the findings revealed that the size of the land cultivated was statistically significantly larger as it was represented with a significance level of 0.00 at a 5% significance level.

**Table 6: The land size before and after receiving the Cash Remittances**

Variable	Mean	N	Std. Deviation	Std. Error mean	Significance level
The land cultivated before remittance	1.6598	97	.97774	.0992	
Size of land Cultivated after receiving remittance	2.1856	97	1.10236	.11193	.000

The findings in Table 7 indicate that the land size cultivated after receiving remittance is significantly larger than that cultivated before receiving remittance ( $P < 0.05$ ). These findings are statistically significant at a 5% level of significance.

The study was also interested in finding out if rural-urban migration impacts family members. This was aimed at investigating whether the flow of remittances could outweigh the negative impacts that might occur in the community. The findings from the study revealed that the majority of the respondents, 34.9%, said that rural-to-urban migration stimulates the overall increase of the income to the households because the migrants send cash remittances, which is invested in agriculture and hence improves production. This was followed by 31.5% who asserted that rural-to-urban migration improves agriculture production in rural households. Only the smallest proportion of the respondents acknowledged the lack of labour as the effect of rural-to-urban migration. The findings contradict the study conducted by Malekela *et al.* (2019), who observed that rural-to-urban migration hurt rural households as it caused a shortage of labour force, which in turn caused a decline in agriculture production in Tunduru. The deviation in the finding is influenced by the fact that the labour force shortage has been substituted by the flow of remittances in rural households since they can use the remittances to compensate for the labour force shortage. The study further revealed that the amount of remittances invested by the household heads are of low quanta line since the same amount of remittances is deviated to cater for the household's basic needs such as food, shelter, education, and health services.

## 1. Conclusion and Recommendations

The study intended to investigate the Influence of Migrants' Cash Remittances toward Agricultural Improvement in Mvomero District. The study findings revealed that migrants' remittances were used to improve agriculture productivity, such as purchasing herbicides and fertilizers, paying for tractors and land holding/ land renting. Similarly, the study established the positive impact of migration to rural households since the remittances sent by migrants supplement the shortage of labour force experienced in the study area. The study findings



suggest migration can be one of the policy choices for poverty reduction, particularly in areas with meagre incomes to achieve human development, equity, and well-being since it improves agriculture and thus reduces poverty in rural areas. Therefore, migration should be encouraged alongside a consideration as a strategy for poverty reduction in rural Tanzania.

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