

A pair of hands is shown from a top-down perspective, holding a mound of dark, rich soil in the left hand and a large stack of various coins in the right hand. The background is a blurred, dark surface, possibly soil or a table. The image is framed with rounded corners.

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*Full Length Research Paper*

# Determinants of off farm income diversification and its effect on rural household poverty in Gamo Gofa Zone, Southern Ethiopia

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Data from 500 rural farm households were collected using multistage sampling technique from Gamo Gofa Zone, Southern Ethiopia and the determinants of off farm income diversification and its effect on rural poverty were examined with the help of logit and multinomial logit model. The regression result revealed that age, education, access to infrastructure, livestock ownerships, credits uses, and farm income are the main determinants of households' participation in off farm activities. In addition, off farm participation rate was 76% while off farm income accounts for 51% of the total household income in the study areas. The estimation results of the logit model also showed that off farm participation significantly reduces the probability of being poor of rural farm households. The study also determined the poverty line and about 29.8% of the population were found below poverty line. Therefore, to reduce rural poverty, entry barriers to off farm activities (access to finance, market, education and infrastructures) need to be overcome and off farm opportunities (micro and small enterprises) in rural areas have to be expanded by government.

**Key words:** Off farm income, livelihood diversification, rural poverty, multinomial logit, Ethiopia.

## INTRODUCTION

Lives and livelihoods of rural households of developing countries are married with agricultural activities. But, the rapid population growth and a decline in the ratio of agricultural land to population leads to greater vulnerability and lower resilience to poverty and food insecurity in developing economies, like Ethiopia. Therefore, diversification of income sources, assets and occupation is very important for individuals or household in developing countries. Households in Sub-Saharan

Africa are not exception to this phenomenon (Adugna, 2005). Farm households diversify their income sources for at least two motives; pull factors and push factor. The pull factor is diversification undertaken for asset accumulation objectives whereas push factors is diversification undertaken to reduce vulnerability and build resilience to shocks (Abdul-Malek and Usami, 2010).

Diversification driven by pull factors is usually

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associated with a rise in income and accumulation of assets and improves the livelihood of the household whereas the diversification motivated by push factors extracts a household from poverty (Abdul-Hakim and Che-Mat, 2011).

Traditionally, it is believed that rural economy is purely agriculture and off farm sector as a low productivity sector. However, recent years have witnessed a shift away from this position towards recognition of the rural off farm contribution to economic growth, rural development and poverty reduction, promoting growth and welfare by slowing rural urban migration (Lanjouw, 2013).

In rural Africa, evidence indicates that off farm activity accounts 40 to 45% of average household income. Furthermore, off farm activity is positively correlated with income and wealth and hence it is a way out of poverty (Barrett et al., 2006).

Even though agriculture is the main stay of developing economies; it is unable to provide a sufficient means of survival in rural areas due to high population growth, vulnerability to drought and decline in the ratio of agricultural land to population. To alleviate this insufficiency of agriculture, rural households in developing countries use off farm diversification as a survival strategy (Eliss 1998). Furthermore, rural off farm activities; absorb surplus labor in rural areas, help farm-based households spread risks, offer more remunerative activities to supplement or replace agricultural income, offer income potential during the agricultural off-season and provide a means to cope or survive when farming fails (Tesfaye, 2008).

Ethiopia is one of African's largest countries with about 88 million people. It has among the highest dependence on Agriculture of any country in the world. Ethiopia's Agriculture sector is a major contributor to the Ethiopian economy and is central to food security and poverty reduction. Agriculture accounts 44% of GDP, 86% of export and 86% of employment. Nearly 90% of the poor depend on Agriculture for their livelihood (Loening et al., 2009). However, Ethiopian Agriculture is subsistence in nature, land is fragmented, highly degraded and rain fed and unable to absorb the growing population pressure and hence there is a need for diversifying rural income (Demeke, 1997).

Ethiopia's off farm sector is significantly important for rural household. Off farm income account on average for 42% of total income among households that engaged in off farm activities. The majority of off farm enterprises are run part-time, either in parallel with agriculture, or periodically as a substitute for agriculture. Less than 3% of rural households rely exclusively on income from off farm enterprises. Furthermore, off farm activity is often concentrated in the low return sector, particularly for women and food insecure households (Barrette et al., 2001).

According to Haggblade et al. (2009), Reardon (1997) and Ellis (2000) agricultural households use off farm income to diversify risk, minimize seasonal income

fluctuations, and finance agricultural input purchases, particularly landless households depend heavily on off farm income for their survival. Ellis (2000) and Aziz (2011) also pointed out that seasonality of agricultural activities, risk, labor market, credit market, age, gender, marital status, education, land size and livestock ownerships are the main determinants of rural off farm income diversification.

Studies by Siti et al. (2011), Owsu and Abdulaia (2001), Adams (2001), Haggblade et al. (2002), Lanjouw (1999), Reardon (2000), Marsland et al. (2000), Gordon and Chiag (2001), Barrett et al. (2001) found a positive association between off farm income diversification and household welfare indicators across most of rural Africa and hence promoting diversification is equivalent to assisting the poor, reducing vulnerability, building resilience to poverty and food security.

Many of the previous studies in rural Ethiopia (Demeke, 1997; Egziabher, 2001; Weldehana, 2002; Tesfaye, 2008) agreed that the number of poor people in rural areas of Ethiopia exceed the capacity of agriculture to provide sustainable livelihood opportunities. Whilst there is a potential for out-migration, urban centers cannot be assumed to be capable of providing adequate livelihood opportunities for all those unable to make a living in agriculture.

Therefore, even though agriculture is the backbone of Ethiopia's economy, it is no longer provides sufficient employment for the growing rural labour force and unable to reduce rural poverty. Thus the promotion of off farm activities in addition to farm activities is indispensable to alleviate rural poverty (Burge and Kumbi, 2006). The study by Carswell (2002) using the survey data from Southern part of Ethiopia finds that off farm diversification has an important contribution to livelihood. Kumbi (2006) and Adugna (2005) using survey data from Ethiopia show that off farm income reduces income inequality, easily accessible to the poor and improves the welfare of the poor and hence alleviates poverty.

However, in Ethiopia, policy makers by tradition were favoring agriculture as an exclusive means of rural economic development for a long time. This excluded rural off farm activities<sup>1</sup> from much attention, thereby ignoring an important source of livelihood. This might be because the role of the rural off-farm sector is the least understood component of the rural economy, and its role in the broad development process is not well known. Furthermore, there is also a mistaken view that all rural households of Ethiopia are exclusively engage in Agriculture, off farm enterprise are economically unimportant in rural Ethiopia and therefore it is more

<sup>1</sup> According to Demeke (1997), rural off-farm activities thus includes rural agricultural wage employment and any other nonagricultural activities that are used by rural communities to access livelihood. In other words, the rural off farm activities includes all rural economic activity outside of agriculture and agricultural wage Employment (laborers). It includes self-employment (milling, weaving, handicraft, trade in grain and livestock, collecting and selling firewood and selling local food and drinks) and wage employment.

important to support Agriculture than off farm enterprise. In order to avoid such mistaken views and to bring policy focus towards off farm income diversification, there is a need to have an in-depth understanding of the context (socio cultural, economic and policy) in which off farm rural livelihood options are pursued currently, and in which new options can be developed. As to the best of the researcher knowledge, many of the previous empirical study of Ethiopia did not address the impact of off farm income diversification on rural poverty.

Considering the limitation of previous studies and to fill the gap of knowledge on the existing literature on off farm diversification of Ethiopia and using the new survey, this study tried to critically examine and evaluate the effect of off farm diversification on rural poverty and investigate the different patterns of off farm diversification and also identify the basic impediments of off farm diversification in the study areas.

The objective of the present study was to examine the major determinants of household's participation in off farm activities and the effect of off farm income diversification on rural poverty in Gamo Gofa Zone, Southern Ethiopia.

## RESEARCH METHODOLOGY

### Description of the study areas

Gamo- Gofa zone has a total area of 12581.4 km<sup>2</sup> and consists 15 Districts and the general elevation of the zone ranges from 600 to 3300 masl. The topography of the land characterizes an undulating feature that favors for the existence of different climatic zones in the area. The total population of the zone is estimated about 1597767 (2007) with a population density of 80 inhabitants per kilometer square.

The land scarce Chencha District is located at a distance of 540 km away from Addis Ababa, the destination of most migrants of the District. The total population of Chencha District was estimated to be 145,002 in 2014 based on the 1999 population and housing census. Female constituted about 55% of the total population and the residual 45% are male (Chencha District FEDO population issues coordinating and implementing core work process, 2007). The discrepancy between the number of male and female in this particular District attributed to the common phenomenon of male out migration in the area. The total area of Chencha District is 41,553.95 ha which contains 45 rural farmers associations (kebeles) and five rural small towns. About 17% of the total population of the District lives in these five rural small towns while the remaining 83% of the population lives in rural areas.

In terms of landholdings, Chencha District households have possessing mostly in the range between 0.1 and 0.5 ha. The agricultural census survey and Rural Development Office of Chencha District indicated that about 84% of the landholders have land size, equal to or below half a hectare. Chencha District is among the most densely populated District in SNNPR with crude density of 380 persons per kilometer square (Abera, 2006). In addition, regarding the livestock population of the woreda, there are 50754, 5450, 4882 and 209 cattle, sheep, goat and mule, respectively (CSA, 2003).

Regarding the ecological zone of the District, 82% of the total area considered as Dega and the residual 18% is considered as Weyna Dega. About 65% of the total land area is mountainous and 3, 17 and 5% are plateau, slopy and valleys, respectively. From

the total land area of the Woreda, 27,523.05 ha of land are under cultivation of which 24,420.54 ha are covered by annual plants (wheat, barley, potatoes, beans, peas...etc) while about 3,102.51 ha are covered by permanent plants (Enset, Apple ...etc). The annual rainfall of the woreda lies between 900 and 1200 mm and the minimum and maximum temperature records said to vary between 11 and 23 respectively (Belete, 2006).

The total areas of Mirab Abaya District is 110853.37 ha which contains 23 rural kebeles and one small rural town. The total population of the District was estimated to be 95, 351 with male – female ratio of 0.99 in 2014 based on the 1999 population and housing census. The average land holding of the woreda is about 1.05 ha which is higher than the average land holding of Chencha District.

### Sampling and sample size determination

To achieve the objectives and answer research questions stated above, the study used primary data collected from rural farm households in the study area through a structured questionnaire. The total sample size for the study was 500 households which was determined using the sample size determination formula of Yamane Taro (1963) as follow:

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

Where, N is the total households in the two Districts, n is the sample size and  $\alpha$  is the level of significance for the present study and it is fixed at 5%. The total number of households in Chencha District is 18,553 while that of Mirab Abaya is 11,724. Thus, the total household in the two Districts are 30,277 and the above formula gave the following sample size for the study.

$$n = \frac{30,277}{1 + 30,277(0.05)^2} = 395$$

But, to account for the limitation<sup>2</sup> of this sample size determination formula, the researcher increased the current sample size to 500 households.

Thus, information from these 500 households was collected by using multistage sampling technique. In the first stage, two districts will be chosen purposively from Gamo Gofa zone which is one of the 15 Zones of the Southern Nations Nationalities and Peoples Regional State on the basis of the availability of off-farm activities, Agricultural practice and agro-ecological diversity. Chencha District was selected from Dega while Mira Abaya District was chosen from Kola climatic zone.

There are 45 and 23 rural kebeles in Chencha and Mirab Abaya District respectively and in the second stage, 10 peasant associations (kebeles) were selected from the two Districts, 6 kebeles from Chencha District and 4 kebeles from Mirab Abaya District proportionately. But, each sample kebele was selected from each District purposively on the basis of concentration of off-farm activities. Kebeles from both high off farm income diversification and low off farm income diversification were included to make comparison.

In the third stage, sample households were selected proportionately from each 10 kebeles using systematic random sampling technique. Finally, a total of 500 households were selected from the two study areas for the present study. Therefore, the present study used both probability and nonprobability techniques of sampling

<sup>2</sup> The limitation of Yamane Taro sample size determination formula is that, for any number of population, the sample size never exceeds 400 at 5% level of significance.



### Empirical model specification

In accordance with the stated objectives and the research questions raised, and to address them properly and adequately, the researchers specify various econometric models. To answer some of the specific objectives of the present study which are beyond the scope of descriptive analysis, appropriate empirical model is formulated such as logit and multinomial logit models.

To examine the determinants of households' decision to participate in off farm activities (local off farm and migration) in the study areas, multinomial logit model is specified as follow.

Multinomial logit model is a simple extension to the logit model when the dependent variable can take more than two categorical values. A respondent is provided with more than two alternatives and he is expected to choose one. There is no order within the categories of the dependent variable and any of a choice can be the baseline for comparison.

If the first category is the reference category, multinomial logit model can be specified as follow.

$$\ln \left( \frac{\text{Probability of chosen category}}{\text{P(probability of Base Category)}} \right) = \beta_j X_i \quad (1)$$

$$\ln \left( \frac{P(Y_i=M)}{P(Y_i=1)} \right) = Z_i = \beta_0 + \beta_1 AGE + \beta_2 MALE + \beta_3 EDUC + \beta_4 LS + \beta_5 FS + \beta_6 INFR + \beta_7 CREDIT + \beta_8 TLU + \beta_9 INC + \beta_{10} DD \quad (2)$$

Where, *AGE*, *MALE*, *EDUC*, *LS*, *FS*, *INFR*, *CREDIT*, *TLU*, *INC* and *DD* refer to age of household head, dummy for gender, years of schooling, land size, family size, and access to infrastructure, credit use, tropical life units, household annual income and location dummy. The location dummy is defined in such a way that, 1 is given for households from Chenchu and 0 is given for households from Mirab Abaya District. Once, Equation 2 is estimated and the coefficient of the log odds ratio of multinomial logit model is interpreted and the model is tested for individual and overall significance, the odds ratio of multinomial logit model can be estimated as follow.

$$\frac{P(Y_i=M)}{P(Y_i=1)} = e^{Z_i = \beta_i X_i} \quad (3)$$

This model predicts the probability of household's choice between migrations and local off farm<sup>3</sup> diversification relative to the base category (engage only in agriculture).

Finally, the marginal effect after multinomial logit model can be specified as follow.

$$pr(Y = j) = \frac{e^{\beta_j X_i}}{1 + \sum_{j=2}^M e^{\beta_j X_i}} \quad (4)$$

As there are only three categories in this study (only agricultural production, migration<sup>4</sup> and local off farm income diversification), the study determined the following three marginal effects after multinomial logit model.

$$pr(Y = \text{Only agriculture}) = \frac{1}{1 + e^{\beta_1 X_i} + e^{\beta_2 X_i} + e^{\beta_3 X_i}} \quad (5)$$

$$pr(Y = \text{local off farm}) = \frac{e^{\beta_2 X_i}}{1 + e^{\beta_1 X_i} + e^{\beta_2 X_i} + e^{\beta_3 X_i}} \quad (6)$$

<sup>3</sup> If the rural household engaged in local off farm activities or both in local off farm activities and migration, it is included under local off farm income diversification

<sup>4</sup> If the rural household engaged only in migration of at least one household member, it is categorized under migration

$$pr(Y = \text{migration}) = \frac{e^{\beta_3 X_i}}{1 + e^{\beta_1 X_i} + e^{\beta_2 X_i} + e^{\beta_3 X_i}} \quad (7)$$

Equation 5, 6 and 7 determine the probability of choosing one category among the given three alternatives. For instance, Equation 5 predicts the probability of participating only in agricultural production by rural household given the values of explanatory variables. Similarly, Equation 6 estimates the probability of participating in local off farm income diversification given the values of explanatory variables. Finally, Equation 7, estimates the probability of participating in migration of rural households given the values of explanatory variables.

The other objective of this study was to examine the effect of off farm livelihood diversification on rural farm household poverty in the study area. In order to examine the effect of off farm livelihood diversification on rural household poverty, the study used a dichotomous/ binary regression model. That means, a logit regression model was used where the dependent variable (Y) is binary which assumes a value of 1 for poor households and 0 for non-poor households. The right hand side variables include individual characteristics, household characteristics, asset endowments, location characteristics and dummy for off farm diversification<sup>5</sup> and the like.

The very objective of the Logit model is to insure/ guarantee that the predicted probability of the event occurring given the value of explanatory variable remains within the [0, 1] bounds. That means,

$$0 \leq \text{Pr}(Y = 1|X) \leq 1 \quad (8)$$

This requires a nonlinear functional form for the probability. This can be possible if we assume that the dependent or the error term (U<sub>i</sub>) follows some sorts of cumulative distribution functions. One important nonlinear function which is proposed for this is the logistic cumulative distribution function (CDF):

$$\text{Pr}(Y_i = 1|X_i) = P_i = G(\beta_0 + \beta_1 X_i) = G(Z_i) \quad (9)$$

Where G is a function taking on values strictly between 0 and 1. This insures that the predicted probability (P<sub>i</sub>) strictly lies between 0 and 1. For Logit model G(Z<sub>i</sub>) is defined as follows:

$$G(Z_i) = P_i = \frac{\exp(Z_i)}{1 + \exp(Z_i)} = \frac{e^{Z_i}}{1 + e^{Z_i}} = \frac{1}{1 + e^{-Z_i}} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_i)}} = \frac{e^{(\beta_0 + \beta_1 X_i)}}{1 + e^{(\beta_0 + \beta_1 X_i)}} \quad (10)$$

Therefore,

$$P_i = \frac{e^{Z_i}}{1 + e^{Z_i}} \quad (11)$$

Where  $Z_i = \beta_0 + \beta_1 X_i$ .

Thus, in this study, P<sub>i</sub> measures the probability of being poor of rural farm households while, 1-P<sub>i</sub> measures the probability of being non-poor of rural farm households in the study areas.

$$P_i = \frac{e^{Z_i}}{1 + e^{Z_i}} \quad (12)$$

$$1 - P_i = \frac{1}{1 + e^{Z_i}} \quad (13)$$

Taking the ratio of the probability of an event occurring (P<sub>i</sub>) to the probability of an event not happening (1-P<sub>i</sub>) and the resulting ratio is called odds ratio:

<sup>5</sup> Off farm diversification = local off farm diversification + migration

$$\frac{P_i}{1-P_i} = \frac{e^{Z_i}}{1+e^{Z_i}} = e^{Z_i} \quad (14)$$

Take the natural log of the above odds ratio and the resulting equation is called logit.

$$\ln\left(\frac{P_i}{1-P_i}\right) = L_i = Z_i \quad (15)$$

$$L_i = Z_i = \beta_0 + \beta_1 X_i \quad (16)$$

Where,  $L_i$  is called Logit which is linearly related with  $X_i$  and  $X_i$  is explanatory variables. Finally, an empirical model for the determinants of rural poverty which uses the logit model can be specified as:

$$L_i = \beta_0 + \beta_1 OFP + \beta_2 FEMALE + \beta_3 EDUC + \beta_4 LANDSIZ + \beta_5 FS + \beta_6 INFR + \beta_7 TLU + \beta_8 PCI + \beta_9 DD + \beta_{10} AGE + U_i \quad (16)$$

Where,  $L_i$ , OFP, FEMALE, EDUC, LANDSIZ, FS, INFR, TLU, PCI, DD and AGE stands for Logit, Off-farm Participation, dummy for gender, years of schooling, land size in hectare, family size, infrastructure, tropical life unit, per capita income of household, dummy for location and age of household head respectively. Regarding the expected sign of the parameters, off participation, years of schooling, land size, tropical life unit, per capita income, access to infrastructure and experience in farming are expected to affect rural poverty negatively while family size is expected to affect rural poverty positively. The variable of interest in this model is off farm participation (OFP) which is a dummy or dichotomous variable which assumes value of 1 for households participating in local off farm activities or migration or both and zero value for households engaging only in agricultural production. Thus, the very objective of estimating this nonlinear binary regression model is to examine the sign as well as the statistical significance of the coefficient of off farm participation,  $\beta_1$ .

To estimate the above model, a poverty line was determined using consumption as an indicator of wellbeing and following the cost of basic need (CBN) approach and FGT measures of poverty. Depending on this poverty line, the minimum expenditure required for the household to meet the minimum calorie intake (2200 calories) per day per adult equivalent in the study area, the researcher classified the household as poor and non-poor. The researcher also tried to show the incidence, depth and severity of poverty among farm households in the study area using FGT<sup>6</sup> summary measures of poverty.

#### Data types, sources and collection

This study used the data collected from primary sources for the period 2015/2016 production season. To supplement the primary data, secondary data were collected from concerned district offices (Like Woreda Agricultural Office, Zonal Agricultural Office, Central Statistical Authority) and from published and unpublished sources. The data collected for this study is cross-sectional and quantitative in nature. Primary data contained detailed information on households' characteristics, socioeconomic characteristics, demographic characteristics, farm characteristics, inputs utilization, output produced and production problems encountered were collected from 500 selected farm households using structured questionnaires filled by trained data collectors who are good at local language.

<sup>6</sup>  $P_\alpha = \frac{1}{N} \sum_{i=1}^M \left(\frac{Z_i - Y_i}{Z}\right)^\alpha$ , where  $\alpha = 0, 1$  and 2

## RESULTS AND DISCUSSION

The data obtained from primary and secondary sources were analysed using descriptive and econometric methods of data analysis.

### Descriptive data analysis

As can be seen from the following descriptive statistics in Table 1, the mean age of household head in the study area is about 45 years while the mean family size of households is 6.4 which is almost equals the national average family size. The mean monthly off farm income of the rural farm household in the study area is 569.02 Birr<sup>7</sup> and this account for about 51% of the mean annual income of the households. This result is in agreement with the finding of the study conducted by Demeke (1997) in Tigray Regional State and who found that about 59% of the income of rural farm households comes from off farm activities.

This household survey witnessed that, from the total of 500 sample households, 12% are female headed while the residual (88%) stands for male headed households. In addition to this, 59 female headed households (96%) and 321 male headed households (73%) are participating in off farm activities in the study areas and this implies that off farm participation of female headed households is greater than that of male headed households in the study areas.

The average land holding of 0.82 ha of rural farm households in the study areas means that land size is a binding resource in Chench and Mirab Abaya Districts. The average livestock holding of the rural farm households in the study areas is about 2.8 when measured in tropical live units. This low livestock population in the study areas is associated with the scarcity of land resources owned by each households.

Out of 500 rural farm households in the study areas, 379 households (76%) are engaging in off farm activities while 121 households (24%) do not participate in off farm activities. Moreover, out of the total sample households of 500, 149 households (29.8%) are found to be poor (lie below the poverty line) while 351 rural households (70.2%) are found to be non-poor (lie above poverty line). That means, using the cost of basic need (CBN) approaches of measuring poverty, both the general and food poverty lines are determined for the study areas using the household consumption data in the study areas.

The determination of these two poverty lines are done in three steps. First, determining the bundle of food items that provides 2200 calories per day per adult equivalence in the study areas. Second, finding the monetary cost of these food items, which gives the food poverty line in that

<sup>7</sup> One US Dollar = 20 Ethiopian Birr

**Table 1.** Descriptive statistics on sample characteristics of households

Variable	Variable description	Mean	Std. Dev.
AGE	Age of household head (in years)	45.10	10.84
OFI	Monthly off-farm income (in birr)	569.02	856.95
FARM_INCOME	Annual total values of farm income	9897.05	8780.91
FAMSIZ	Family size	6.39	2.56
LANDSIZ	Land size (in hectares)	0.82	0.70
EDUC	Years of schooling (in years)	3.31	3.64
TLU	Tropical life units	2.80	2.02
PCI	Per capita income in birr	2086.59	2922.06
EXPD	Monthly expenditure per adult equivalent	380.91	237.98
<b>Some qualitative variables</b>			
<b>Dummies</b>	<b>Categories</b>	<b>Numbers</b>	<b>Percentages</b>
GENDER	Male	439	0.88
	Female	61	0.12
POVERTY	Poor	149	0.298
	Non-Poor	351	0.702
OFF FARM	Participants	379	0.76
PARTICIPATION	Non-Participants	121	0.24

Source: Own Survey data, 2016

particular areas. Third, by regressing the food expenditure share on the log of the ratio of the total expenditure to food poverty line, the general poverty line in the study areas is determined. Accordingly, the food poverty line in the study areas is 204 Birr per adult equivalence per month which is 2482 Birr per year per adult equivalence. The general poverty line<sup>8</sup>, which constitutes food and non-food expenditures, is also found to be 248.88 Birr per adult equivalence per month.

Thus, using the above two poverty lines, the incidence of food poverty and general poverty in the study areas are 25.2 and 29.8% respectively. But, the food poverty and general poverty gaps in the study areas are determined as 5.87 and 6.88%, respectively. The head count index (HCI), incidence of poverty, measures the proportions of households below the poverty while the poverty gap measures the average deviation of the expenditures of the poor from the poverty line. That means, if the income of the poor increases by 5.87% of the food poverty line, this poor household will move above the food poverty line.

As can be evidenced from Table 2, the mean value of age, family size, adult equivalence and annual off farm income of poor households are greater than that of non-poor households. In other words, the difference between the mean values of age, family size, adult equivalence and annual off farm income of poor and non-poor are statistically different at 1% level of significance. That means, the mean annual off farm income of poor

household (7509.96 Birr) is more than the mean annual off farm income of non-poor household (6537.24 Birr) and the difference is statistically significant.

But, the mean values of tropical life unit, years of schooling, land size and expenditure per adult equivalent per month of poor households are found to be lower than that of non-poor households, as evidenced from Table 2 and also difference is statistically significant except for land size.

As can be presented in Table 3, family size and adult equivalent increase the probability of households' participation in off farm activities. This result is in line with economic theory where family size positively affects the chance of households' participation in off farm activities.

As predicted by economic theories, land size and tropical life unit are negatively related with the probability of participating in off farm activities as can be seen from the table. That means, households with greater land size and number of livestock in rural areas are less likely to engage in off farm income diversification as they may be busy with farm activities.

Years of schooling of household head is found to be positively related with off farm participation and statistically significant. The average consumption expenditure per adult equivalence per year of household's participating in off farm income diversification (4210.92 Birr) is greater than that of household's without off farm income diversification (3744.0 Birr).

The implication is that, rural off farm income diversification plays a paramount importance in reducing poverty or increasing the consumption /welfare of the rural households. Therefore, off farm participation and

<sup>8</sup> General poverty line = (food poverty line) (2- $\alpha$ ), where  $\alpha$  is the constant term obtained from the regression of the share of food expenditure on the log of the ratio of total expenditure to poverty line.

**Table 2.** Sample characteristics of poor and non-poor households.

Variable	Non-poor households (N=349)		Poor households (N=151)		Mean difference	t-value
	Mean	Std. Dev.	Mean	Std. Dev.		
Age	43.87	10.55	47.96	10.99	-4.1	-3.9***
<b>Off-farm income</b>	<b>6537.24</b>	<b>701.56</b>	<b>7509.96</b>	<b>1142.00</b>	<b>-972.72</b>	<b>-2.8***</b>
Family size	5.79	2.24	7.79	2.72	-2.0	-8.5***
Adult equivalent	4.77	1.91	6.69	2.32	-1.92	-9.6***
Land size	0.84	0.71	0.78	0.68	0.06	0.85
Education	3.60	3.77	2.64	3.27	0.95	2.6***
Tropical life unit	2.97	2.07	2.40	1.83	0.57	2.9***
Percapita income	2378.39	3360.79	1405.75	1213.50	799.5	2.5**
Expenditure per adult	5541.48	241.71	2306.04	40.18	269.6	13.57***

Source: Own Survey, 2016. \*\*\*\*, \*\* and \*, 1, 5 and 10% level of significance, respectively.

**Table 3.** Characteristics of off farm participant and non-participant households.

Variable	Off-farm <sup>#</sup> participant (N=379)		Non-participant <sup>&amp;</sup> households (N=121)		Mean difference	t-Value
	Mean	Std. Dev.	Mean	Std. Dev.		
Age	45.23	10.93	44.21	10.00	1.02	0.90
Family size	6.32	2.66	6.6	2.20	-0.28	-1.51**
Adult equivalent	5.24	2.27	5.67	2.04	-0.43	-1.98**
Land size	0.80	0.71	0.87	0.66	-0.07	-0.45
Education	3.39	3.65	3.07	3.65	0.32	1.82**
Tropical life units	2.75	2.10	2.80	1.73	-0.05	-0.02
Per capita income*	2388.84	3203.19	1129.4	1382.1	1259.4	4.15***
Annual per capita expenditure in Birr	4210.92	236.14	3744.0	139.62	466.4	2.1**

\*Annual per capita income. Source: Own survey, 2016. \*\*\*\*, \*\* and \* refer to 1, 5 and 10% level of significance respectively. <sup>#</sup>Off farm participant households= Households who engaged in local off farm activities, migration or both; <sup>&</sup>Non-Participant households= Households who engaged only in agricultural activities.

rural poverty are negatively related in the study areas.

As can be evidenced from the Table 4, the major types of off farm activities in Chencha and Mirab Abaya Districts are cottage industries (weaving and hand Craft), commerce (business), fishing and remittance.

Table 4 shows that about 38, 18 and 11% of sample households in Chencha District are participating in weaving, receiving remittance and trade in livestock and grains respectively. Therefore, weaving is the leading and dominant off farm activities in Chencha District and this is because the area in which this study is undertaken is very known by weaving and, on top of that, Dorze people who are the creator and teachers of weaving are found in this District.

Since this District is also known by male out migration, receiving remittance is a second important sources of off farm income in this area followed by commerce (trade in livestock and grains). Moreover, farming activity in this area is based on rain-fed agriculture. As a result, farmers are disguisedly unemployed during dry seasons.

Therefore, during this period, they look for off farm activities to increase their income. The cumulative effect, that is, being living with Dorze people, greater male outmigration and disguisedly unemployed, lead to a greater participation in off farm activities in this District. About 86% of rural households are participating in off farm activities in this District. But, in Mirab Abaya District, a significant source of off-farm activity is Trade or commerce. According to this study, about 31% of sample households in Mirab Abaya Woreda are participating in trade in grains and livestock. The second dominant sources of off farm activity in this area are fishing and this is due to the fact that this District is bordered from the east by Abaya Lake, one of the seven Rifty Valley lakes in Ethiopia. Thus, cottage industries, commerce, agricultural wage employment, fishing and remittance are the various sources of off farm income in the study areas.

Moreover, the motives for off farm income (local off farm and migration) diversification of rural farm households in the study areas are presented in Table 5.

**Table 4.** The pattern of off farm activities in Chencha and Mirab Abaya districts.

Off farm activities	Chencha district		Mireab-Abaya District	
	Participant households	Percentage	Participant households	Percentage
Weaving	97	38	2	2
Hand crafts	8	3	7	6
Trade in livestock	14	5	20	16
Trade in grains	27	11	18	15
Selling of beverages	6	2	6	5
Farm workers	11	4	5	4
Firewood collection			5	4
Fishing			25	20
Remittance	49	19	3	2
Cobblestones			8	7
More than one activities	45	18	23	19
<b>Total</b>	<b>257</b>	<b>100</b>	<b>122</b>	<b>100</b>

Source: Own Survey, 2016

**Table 5.** Push versus pull factors for off farm income diversification in study areas.

Reasons for participation in off farm activities	Chencha Woreda		Mireab Abaya Woreda	
	Number of households	Percentage	Number of households	Percentage
Limited farm income	187	73	76	62
Good demand for goods	23	9	12	9
Seasonal nature of agricultural labor	6	2	5	4
Large family	10	4	8	7
Proximity to urban area	5	3	13	11
Availability of off farm job opportunities	12	4	1	1
Small land size	14	5	7	6
<b>Total</b>	<b>257</b>	<b>100</b>	<b>122</b>	<b>100</b>

Source: Own Survey, 2016

The table reveals that most rural farm households in the Chencha and Mirab Abaya Districts participated in off farm activities due to push factors (limited farm income). Therefore, the objective of off farm income diversification in the study areas are primarily for removing liquidity constraints, survival and risk reduction strategies and not asset building or accumulation. That means, most off farm participant households are poor and their primary goal of income diversification is to smooth consumption at a period of low agricultural production or to reduce vulnerability to shocks.

Regarding entry barriers to off farm activities in both Chencha and Mirab Abaya Districts, missing credit markets or lack of finance is one factor that impede diversification into off farm activities. About 51 and 40% of non-participant households in Chencha and Mirab Abaya woreda responded that missing credit is the main reason for their non-participation in off farm activities respectively. Moreover, agricultural labor supply and old

age are another factors impeding households participation in off farm activities in the study area.

Hence, government rural development policy has to aim at removing the underlying factors that hinder participation in off farm activities such as credit constraints through the provision of credit and increase the opportunities of off farm activities in rural areas.

#### Estimation of multinomial logit model

As evidenced from Table 6, years of schooling, household income, access to credit and location dummy positively and statistically significantly affect the probability of households' participation in local off farm income diversification in the study areas. That means, better years of schooling, higher household income, better access to credit and being in Chencha District increase the probability of households participation in

**Table 6.** Estimation results of multinomial logit.

Diversification		Coefficient	Std. error	Z	P-value
<b>Only agriculture</b>		<b>Base outcomes</b>			
	AGE	0.0125	0.0133	0.94	0.349
	MALE	0.0099	0.3511	0.03	0.977
	EDUC	0.0823	0.0412	1.99	<b>0.046</b>
	INCOME	0.0001	0.0001	3.66	<b>0.000</b>
	FS	0.0347	0.0344	0.640	0.324
Local off farm activities	LS	0.2995	0.2183	1.37	0.170
	CREDIT	0.3816	0.2615	2.22	<b>0.026</b>
	INFR	-0.2702	0.1552	-1.74	<b>0.082</b>
	TLU	-0.1393	0.0758	-1.84	<b>0.066</b>
	DD	1.7495	0.2775	6.310	<b>0.000</b>
	CONSTANT	-1.2294	0.8376	-1.47	0.142
	AGE	0.00664	0.0172	0.39	0.699
	MALE	1.19268	0.6276	1.90	<b>0.057</b>
	EDUC	0.00042	0.0535	0.01	0.994
	INOME	0.0001	0.0001	4.19	<b>0.000</b>
	FS	0.2722	0.0786	3.46	<b>0.001</b>
Migration	LS	0.1489	0.2975	0.50	0.617
	CREDIT	0.3521	0.3326	1.06	0.290
	INFR	-0.7176	0.4273	-1.68	<b>0.093</b>
	TLU	-0.1413	0.0947	-1.49	0.136
	DD	0.4772	0.4115	1.16	0.246
	CONSTANT	-0.6216	1.3984	-0.44	0.657
Diagnostic tests	Wald $\chi^2$ (20) = 107.32; total observations = 500; Prob> $\chi^2$ = 0.000				
	Pseudo $R^2$ = 0.1528; Multicollinearity: VIF=1.21				

Source: Own Survey, 2016.

local off farm activities.

Table 6 also showed that, tropical life units and distance from all-weather roads negatively and statistically significantly affect the probability of rural households participation in local off farm income diversification. Regarding participation in migration in the study areas, Table 6 revealed that gender, household income and family size positively and statistically significantly affect the probability of out migration by at least one household members. In other words, higher household income, larger family size and being male headed households increase the probability of participation in rural out migration by at least one household members in the study areas.

Theory predicts that gender affects off farm income diversification due to culturally defined roles, social mobility limitations and differential ownership of/access to assets between male and female (Brehanu, 2007).

In this study, it is found that females are more probable to participate in local off farm activities while male households are found to be more likely to participate in migration. This result is in line with the descriptive analysis and the fact that Chencha District is known for

its male out migration in Ethiopia.

As secondary data shows, about 55% of the population in the District are female whereas the residuals, 45% are males. Thus, gender is found statistically significantly affect male household participation in migration at 5% level of significance. Male is 10.61% more likely to participate in out migration than female in the study areas and the opposite is true for the female counterparts.

Age of household head is found to negatively influence household's decision to diversify to local off farm activities, which implies that older households are less likely to participate in local off-farm activities. As it can be seen from Table 7, the likelihood of a rural household's participation in migration is also found to decrease as age of household head increases. The possible reason is that farmers, whose age is relatively younger, leaving other factors constant, could be pushed to engage more in local off-farm activities and migration than agriculture alone. This is because, younger farm households cannot get enough land to support their livelihood compared to the older farm households.

But, at older age, asset accumulation is lower and some productive family members may leave their family

**Table 7.** Marginal effect (probabilities) after multinomial logit model.

Diversification	Marginal effect for base category (Only in agriculture)	Marginal effect for local off farm diversification	Marginal effect for migration
AGE	-0.0004	-0.0020	-0.0016
MALE	-0.0231	-0.0829	0.1061**
EDUC	-0.0097*	0.0178**	-0.0081
INC.	-0.0001**	0.0001**	0.0002**
FS	-0.0303	0.0193**	0.0110**
LS	-0.0392	0.0503	-0.0111
CREDIT	-0.0776**	0.0912**	-0.0136
INFR	0.0501**	0.0121	-0.0622*
TLU	0.0200**	-0.0163	-0.0037
DD	-0.2328**	0.3396**	-0.1068**

Source: Own Survey, 2016.

and this may lead to lower probability of participating in off-farm activities. This result is congruent with previous studies by Destaw (2003) and Mulat (2006).

Years of schooling is one of the most important determinants of off farm earnings, especially in more remunerative salaried and skilled employment in rural Africa (Barrett et al., 2001). Education is critical since the better-paid local jobs require formal schooling, usually the completion of secondary school or beyond. As years of schooling increases, theory predicts that, it is more probable for households to participate in local off farm activities. The result of the present study also showed that households with more years of schooling have greater probability of participating in local off farm activities than engaging only in agriculture. The result is in line with the findings of Galab et al. (2002) and Berhanu (2007).

In line with prior expectation, livestock holding in TLU negatively influence household's choice of local off farm activities and migration at 5% level of significance. That means the farmer with lower livestock holding would be obliged to diversify livelihoods into local off and out migration in order to meet its needs. In this study, the likelihood of participating or engaging only in agriculture increases by 2% as tropical live units (TLU) increases by one unit and this is statistically significant at 5% level of significance as presented in Table 7. This result is in line with the findings of Tesfaye (2003) and Berhanu (2007). Regression results in Table 7 further revealed that, the distance from all-weather road also hinders the opportunities to engage in income diversification and increases the likelihood of staying on farm activities.

As can be seen from the estimation results, the more the distance from all seasons road, the less likely for rural households to participate in out migration and this is statistically significant at 5% level of significant. This finding is in line with that of Babatunde and Qaim (2010).

As economic theory predicts, family size is found to have positive and significant relation to diversification

of livelihood strategies into local off farm activities and migration 10% probability level. The positive correlation between family size and diversification might be due to the relation between larger family size and household labor or corresponding higher demand for food in the household which implies that while an additional member to the household increases the probability of being participated in local off farm activities and out migration in order to meet basic needs to the family.

This means, one extra person in the household increases the likelihood of diversifying in to local off farm activities and migration by 1.9 and 1.1%, respectively. In other words, additional family member decreases the odds to work only on farming as the study areas are agricultural land scarce. Again, this result is in agreement with the finding of Chang and Mishra (2008).

The location dummy in Table 7 stands for the difference in the ecological zones between the two Woredas. There is a difference in the quality and size of land, the amount and distribution of rainfall and population densities between the high lands (Chencha) and lowlands (Abaya). This difference is expected to create difference in the decisions to participate in local off farm activities and migrations. This means, the tendency that the household diversify livelihoods into off farm and migration, increases as we go from high lands to lowlands. But, the probability of diversifying into local off farm activities by households in Chencha Woreda is greater than that of Mirab Abaya Woreda by 34% and statistically significant at 5% level of significance. It is also found that 23% less likely for households in Chencha Ditsrict to engage only in agricultural production. This may be due to the scarcity of agricultural land in Chencha Woreda relatively, with average land size of 0.5 ha. In addition, this difference may be due the fact that, in Chencha Woreda, there is greater availability of off farm activities, weaving, compared to Mirab Abaya Woreda. Thanks to the Dorze people, the creators and teachers of weaving in the Woreda, the probability of

participation in off farm activities is higher in this Woreda. Moreover, even if the relationship is statistically insignificant, households with larger land size are less likely to participate in local off farm activities and migration than their counterpart, as can be seen from the estimation results. As predicted by economic theory, land size and local off farm participation are negatively related. This implies that, it is more probable for households with larger land sizes to stay on farm as more land sizes stimulates farming. This supports the view that off-farm and on-farm activities compete over the limited household resources. It also implies that those households who expect secured agricultural income stay on farm and lower off-farm activities. Lanjouw and Lanjouw (1995) also found out that landholdings per capita are negatively correlated with participation local off farm activities and migration.

As expected, credit use is found to have statistically significant and positive impact on the probability of participating in off farm activities and negative effects on the likelihood of participating in migration and engaging only in agriculture. Households which use credit have 9.12% higher probability of being participated in local off farm activities than households which do not use credit. This more implies that the formal and informal credit facilities that avail for rural farmers are a very important asset in rural livelihoods diversification. The result of the study, therefore, strongly suggest that farmers' access and use of credit would play important role in promoting rural income diversification than agricultural production.

As shown in Table 7, credit uses decreases household's participation on agricultural production and this may be due to the risk averse behaviors of our rural farm households. As agriculture is a risky business, rural households would not use credit for investment in agriculture and rather they use for less risky local off farm activities. This result is in agreement with the finding of Raju (2014).

### Estimation of logit model

To examine the effect of off farm income diversification on rural poverty, a probability model which relates the probability of falling below poverty line ( $Y=1$ ) with off farm participation, household characteristics, farm characteristics, asset holdings of households, public assets (infrastructure), location characteristics is used. That means, a binary logit model is used to examine the effect of participation in off farm activities on rural poverty (probability of being poor) using data collected from 500 households in Chenchu and Mirab Abaya Districts and the regression result is presented in Table 8.

As apparent from Table 8, age of household head, participation in off farm activities, land size, per capita income, years of schooling and tropical life units diminish the probability of being poor in the study areas whereas family size and distance from all season road (infrastructure) positively affect the probability of being below poverty line of households.

As predicted by economic theory, the regression result showed that, participation in off farm activities (livelihood diversification) diminishes the probability of being poor of rural farm households. Thus, participation in off farm activity negatively and statistically significantly affects the rural poverty. Most of rural households depend on agricultural production which is heavily affected by vagaries of nature and this motivates rural farm households to diversify their livelihood strategies and manage any risk associated with low agricultural production. The coefficient of off farm participation (OFF) showed that the probability of being poor of households participating in off farm activities is lower than that of households with no off farm activities by 7.5% and this is also statically significant.

Regarding the age of household head, as the age of household head increases, the probability of being poor of rural farm household significantly decreases as the coefficient of the regression result shows. This implies that, as the age of household head increases, his/her asset holdings increases and the dependency ratio in the family also decreases and this may enable the household to spend more on consumption. The coefficient of female, which a dummy for gender, is negative and this implies that the probability of being poor of female headed households in the study areas is greater than that of male headed households by 7.3%, though it is statistically insignificant. As can be seen from the regression results, resources ownerships (land size and livestock holdings) are the major determinants of rural poverty in the study areas. That means, when the livestock holdings and land size of rural farm household increase, the probability of falling below poverty line decreases significantly.

The average land holding of households in the study areas is 0.82 ha (0.68 ha at Chenchu and 1.055 ha at Mirab Abaya Districts).

Similarly, the average livestock holdings of the rural farm households in the study areas as given by tropical life unit are about 2.97. The lower the average number of livestock in the study areas may be due to the scarcity of land. This implies that, in such land scarce Districts, land ownership is the main determinants of rural poverty. The other household characteristics, family size, negatively and significantly affect the probability of being poor of rural farm households.



**Table 8.** Regression results of the logit model with odds ratio and marginal effect.

Variable	The logit model		Odds ratio		Marginal effect	
	Coefficients	Std. errors	Coefficients	Std. errors	Coefficients	Std. dev.
AGE	-0.0269	0.0120	0.9642	0.0215	-0.0043	0.0019
OPF	-0.0465	0.0290	0.9238	0.0296	-0.0755	0.0473
FEMALE	-0.5137	0.4526	0.5982	0.2708	-0.0733	0.0563
FAMSIZ	0.3715	0.0565	1.4499	0.0819	0.0598	0.0090
INFR	0.2522	0.1323	1.0245	0.1028	0.0406	0.0210
PCI	-0.00002	0.00004	0.9989	0.00004	4.74e-06	0.0001
FARMSIZ	-0.3890	0.2209	0.6777	0.1497	-0.0626	0.0352
EDUC	-0.0792	0.0398	0.9238	0.0367	-0.0127	0.0063
DD	-0.4024	0.2763	0.6686	0.1847	-0.0663	0.0463
TLU	-0.2089	0.0772	0.8114	0.0626	-0.0336	0.0123
CONS.	-3.2351	0.7695	0.0935	0.0302	-0.0663	0.0463

Number of observations = 500; LR  $\chi^2$  (10) =95.94; Pseudo  $R^2$  = 0.1718; Probability  $>\chi^2$  = 0.0000

Source: Own Survey, 2016.

Given the small number of livestock population of the households associated with the scarcity of land resources, an increase in family size may increase the probability of being poor of rural farm households.

As human capital theory predicts, the best investment of all is the one made in people and therefore, greater educational attainment may imply a larger set of employment opportunities and specifically in a rural context a better awareness of the full potential of the new agricultural technology and associated agricultural practices. The coefficient of education in the above binary regression model showed that as years of schooling rises, the probability of being poor of households decreases and statistically significant.

Finally, the coefficient of the locational dummy is negative, implying that the probability of being poor of households in Chench District is lower than that of the probability of being poor of households in Mirab Abaya District, but statistically insignificant.

## CONCLUSIONS AND POLICY IMPLICATIONS

The most dominant and leading off farm activities in the study area are weaving, remittance from migration, trade in grains and livestock, fishing and selling beverages.

As the estimation results of multinomial logit model shows, age of household head, years of schooling of household head, access to infrastructure, livestock ownerships, credits uses, farm income, and locational characteristics are the main determinants of the probability/chance of households' participation in off farm activities in the study areas.

Besides, the off farm participation rate is 76% and off farm income accounts for 51% of the total household income in the study areas and this is in agreement with the study conducted by Demeke (1997) on the Northern part of Ethiopia who found that off farm income accounts for 59% of rural household income.

Regarding the effect of off farm income on rural poverty, the estimation results of the logit model showed that, off farm participation statistically significantly reduces the probability of being poor of rural farm households by 7.5%. The result also revealed that age, education, off farm participation, family size, farm size, tropical life units, public assets (infrastructure) and per capita income are the major determinants of the probability/chance of being poor of rural farm households.

Using the cost of basic need (CBN) approach and the FGT poverty measures, the food poverty and general poverty lines in the study areas are found to be 204.02 Birr and 248.88 Birr per adult equivalence per month respectively and about 29.8% of the population in the study areas lie below poverty line.

## Policy implications

Increasing rural income and reducing rural poverty strongly relies upon the development of off-farm activities, including the development of a local rural micro and small enterprises (MSEs). Therefore, in an economy where there is rapid population growth associated with declining agricultural land to population ratio, rural poverty reduction strategies should aim at the economic transformation of rural areas via the establishment of

micro and small scale enterprises (off farm activities) as they can reduce unemployment and rural poverty. As theory and empirics show, MSEs creates jobs for unskilled, youth, women and disadvantaged groups of the society and can be used as one tool to bring growth and income equality simultaneously. Moreover, micro and small enterprises are assumed to be more of labor intensive and they have been contributing about 64% of employment even in developed countries. Thus, one policy implication of the present study is that entry barriers for disadvantaged households to participate in off-farm activities need to be overcome. This is true whether diversification is due to distress-push or demand-pull. Therefore, to reduce rural poverty, government policies would better aim at increasing access to off-farm activities for all rural households, particularly for households with little human, land and monetary assets (opportunities) and decreasing the constraints that hinders the rural households from participating in off farm activities.

According to the result of the study, the main constraints of participating in off farm activities are lack of finance/credit, rural markets and rural infrastructures. Hence, to overcome this important barrier to enter into more remunerative off-farm activities, massive efforts are required on the part of government to develop rural infrastructure and financial markets. Adequate rural microfinance institutions serving small scale rural investments are important to release the constraints that most rural households face.

The innovative group lending scheme has a paramount important in solving the financial constraints of our poor rural unbanked farm households.

### Conflict of Interests

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# Contribution of remittance to the improvement of rural households' livelihoods: The case of Tehuledere Woreda, Northeastern Ethiopia

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Migration is one among the many livelihood strategies that households employ to diversify their sources of livelihood. Remittances that are channeled by migrants play an important role in improving the living standard of households, and reducing their level of vulnerability. This study discusses the impact of international remittance on the livelihood of the rural poor in Tehuledere Woreda, Northeastern Ethiopia. Qualitative and quantitative data have been generated for the study. The methodology employed structured household surveys, key informant interviews and individual narratives from case studies. Results indicate that households with different demographic and socioeconomic characteristics are beneficiaries of remittances. There has been considerable change to household consumption, asset accumulation and investment among recipients. Therefore, remittances have had profound impact on reducing the vulnerability of culprits of various hazards. Neighboring families and/or friends have also benefited from these remittances during time of need. On the other hand, there is evidence that in certain cases remittance triggers conflict among members of the receiving households. To assure sustainability, some recommendations have been made. First, households of remitters should strive to engage in diversified livelihood activities to reduce their dependency on remittances. Second, the transaction cost of money transferred needs to be reduced. Thirdly, the society needs to develop the culture of savings and investment than mere consumption. Fourthly, there should be efficient and effective access of financial intermediaries that can deliver remittance services to individuals at the right time at a reasonable service fee.

**Key words:** Livelihoods, migration, remittances, vulnerability.

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## INTRODUCTION

Rural households in developing countries earn income from diverse allocation of their assets among various income generating activities (Ellis, 2003). The reasons behind diversification of livelihood activities include diminishing returns from increasing investment in certain activities, lack of or unstable markets to minimize, cope

with and spread risk, to create consumption and labor smoothing, adaptation to income challenges over time (Ellis, 2003).

Migration is one among the many livelihood strategies that opens up access to diversified livelihood opportunities. Migration reduces the level of vulnerability

of households, helps to preserve, form and accumulate capital and minimizes the vulnerability of households to sudden catastrophes and prevents them falling into the low level living conditions what is called 'living on the edge' (Ellis, 2003).

Earnings from remittances can strengthen livelihoods through investment in land or land improvements, purchase of cash inputs to agriculture (Carter, 1997), investment in agricultural implements or machines, education (Francis and Hoddinott, 1993), and in assets permitting local non-farm income to be generated (Dugbazah, 2007).

The rise in remittances and the increased number of migrants are two important discussion points in the arena of development (Albert et al., 2009). International migration is one of the most important factors affecting economic relations between developed and developing countries (Richard et al., 2005). Developing countries receive a considerable amount of the share of global remittances (Mohapatra et al., 2007).

Ethiopia is one of the poorest countries in the world with 27.8% of the population living below the poverty line in 2011/12, and the level of poverty is more severe in rural areas than in the urban (MoFED, 2012). Recently, the flow of remittances in this country is growing and playing fair share in reducing poverty. Remittance flows of Ethiopia have steadily grown from 4 in 1997 to 47 million US dollars in 2003, and reached 172 million US dollars in the 2007 (World Bank, 2008).

Remittance inflows covered 1.3% of gross domestic product (GDP) of Ethiopia in 2009. However, despite its large migrant population, Ethiopia has not fully tapped its potential. The remittance flows to this country is only one-sixth of its potential; covering just eight percent of the nation's budget deficit (World Bank, 2011). If the potential level of remittance were to materialize, it would exceed the level of Official Development Assistance, which reached 3.3 billion US dollar in 2008. Informal remittance flows to the country also appear to be significant and remittance inflow data for Ethiopia vary by source. The major source countries for remittances to Ethiopia in 2008 were the United States, and the Gulf cooperation countries and in 2010, the United States, Israel, Bahrain, Saudi Arabia and Kuwait (World Bank, 2011).

Tehuledere Woreda is found in North East Ethiopia. Agriculture; both crop production and animal rearing, have being adversely affected by many factors, some of which are natural and anthropogenic. The most repeatedly occurring natural hazard is erratic rainfall, and there is also occurrence of pest and diseases. Human

induced problems include shrinking farm size and declining soil fertility; the poor market access for livestock and livestock products, and scarcity of improved technologies also affect the viability of agricultural practices (TWOARD, 2013).

Partly in response to those constraints, the population of the area employs international migration as an alternative livelihood strategy. This study aims at exploring the impact of international remittance on the livelihood of rural households in Tehuledere Woreda, Amhara Region.

This study would contribute to adding insights on the role of remittance inflows to the development of Woreda. The study will also draws some pertinent policy ideas through which the challenges of remittance can be addressed.

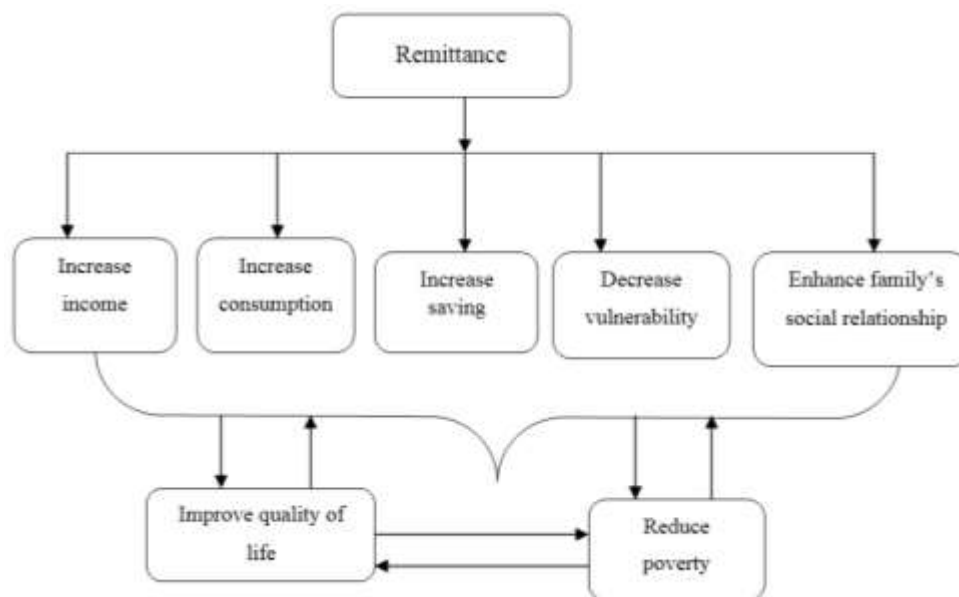
## Review of conceptual and empirical literature

The concept of remittance consists of inter-family transfer, personal investment transfer, collective transfer and social security transfers (IMF, 1993). It refers to a person-to-person flow of money; from the migrant to their families and/or friends and is a transaction initiated by individuals living or working outside their country of birth or origin (OECD, 2006). The type of remittances and the livelihood status of the recipient household determine the sector to where remittance should be spent. Inter-family transfer, which is the central focus of this article, typically has immediate benefits for the individuals in fulfilling daily subsistence (Albert et al., 2009).

The increasing amount of remittance is helping developing countries to lower poverty, to increase saving and investment, to augment and smooth consumption and to improve human capitals (Makhlouf and Mughal, 2011). Remittance plays a great role in reducing rural poverty through financing health and education; in easing of credit constraints for small businesses. It serves as a source of insurance during natural calamities and human-induced shocks and to the improvement of current account sustainability and credit worthiness (Ratha, 2012). Regarding the contribution of migration to livelihood improvements, Rosemary et al. (2008) stated:

*"Globalization and migration are rapidly transforming traditional spheres of human activity. The work of rural families is no longer confined to farming activities, and livelihoods are increasingly being diversified through rural-to-urban and international migration."*

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**Figure 1.** Analytical framework of the study (Source: Modified from Guinigundo, 2007).

Remittance has been an important source of foreign exchange for Ethiopia, and it is larger than the export earning of the country in terms of its foreign exchange generation capacity. A noticeable amount of out migration in Ethiopia started during 1970s following the political unrest and revolution. The type of migration that was dominant during that time was the migration of urban elites and politicians who sought refuge in western countries. However, migration later became an aspiration of urban people mainly for economic reason (Alemayehu et al., 2011).

After the mid1980s, rural peasants also began flocking to the Middle East and the Gulf region in search of jobs and better payment. The total numbers of Ethiopians living abroad vary by source. However, according to the Population and Housing Census of the country conducted in 2007, close to 120 thousand Ethiopians left their country every year and over one million Ethiopians are believed to reside abroad (Aredo, 2005). Remittances have covered 1.3% of the country's GDP over the last 30 years. Between 1977 and 2003, remittance flows have steadily grown from 4 million to 47 million US dollars per year and reached 172 million US dollar in the 2007 (World Bank, 2011).

The National Bank of Ethiopia (2010) shows that the amount of money that Ethiopia received from different parts of the world in 2011 was from North America (483.7 millions of US dollar), Asia and Middle East (355.7), Europe (222.3), Africa (48.5), Australia (35.0), and the rest of the world (202.1). The total amount of money that

was obtained through remittances from different parts of the world during this period was 1,347.3 million of US dollar. However, besides its positive impact, remittance may increase social tension within the household both among those at home and within migrants who are remitting the money (Rodriguez, 2000).

There are certain remittance related studies that are conducted at different levels. International migration and remittance significantly reduce the level, depth, and severity of poverty (Richard et al., 2005, Bichaka and Christian, 2008, Sanjeev et al., 2008). These studies also pointed out that remittance has a direct poverty mitigating effect. It is an extremely important source of foreign exchange for Ethiopia, and improves the living standard of receivers at the micro level (Alemayehu et al., 2011).

Nonetheless, the main focus of most previously done studies was at macro level, and they are mostly inclined towards the urban population and urban poverty. The role of remittances in the reduction of rural poverty is an issue that deserves investigation. In the past, it was not common for the rural households to benefit from international remittances. The current trend of international migration in Tehuledere *Woreda* is different from the past. Recently, most rural households of the *Woreda* are sending member/s of their family abroad particularly towards the Middle East. The objective of this study is to assess the contribution of international remittances for the livelihood improvement of rural households in Tehuledere *Woreda*, Northeast Ethiopia (Figure 1).

**Table 1.** Distribution of samples by the study *Kebele*.

Name of the <i>Kebele</i>	Agro-climates	Total household	Number of remittance receivers	Number of non-remittance receivers	Sample taken from non-remittance receivers	Sample taken from remittance receivers	Total number of samples
Bededo	<i>Dega</i> <sup>1</sup>	1029	199	830	45 (29)	11 (26.2)	56 (28.6)
Qosero	<i>W/Dega</i> <sup>2</sup>	1509	297	1212	66 (43)	17 (40.5)	83 (42.3)
Paso-mile	<i>Kolla</i> <sup>3</sup>	1040	251	789	43 (28)	14 (33.3)	57 (29.1)
Total	-	3578	786	2792	154 (100)	42 (100)	196 (100)

*Dega*<sup>1</sup> - Highland agro-climatic condition; *W/Dega*<sup>2</sup> - Midland agro-climatic condition; *Kolla*<sup>3</sup> - Low land agro-climatic condition

**METHODOLOGY**

**Sampling strategy, data collection and analysis**

The study was conducted in Tehuledere *Woreda*, Northeastern Ethiopia. The following two reasons were used to select this site: The *Woreda* is found in drought and famine prone areas of Northeastern Ethiopia where the considerable proportion of the population lives under chronic food insecurity and recently, international migration as a means of livelihood strategy is highly practiced by members of many households in the study site.

Kothari's (1990) formula (with 0.5 estimated proportion of respondents, 95% confidence interval and 0.07 margin of error) were used to select the 196 sample households that were proportionally distributed for three sample rural *kebeles*<sup>1</sup> selected randomly from the three agro-ecological zones in the *Woreda*. Moreover, samples of remittance recipients and non-recipients were allocated proportionally the households of specific *Kebeles* under study. Then systematic random sampling technique was employed to select remittance receiver and non-receivers households. Accordingly, every 18<sup>th</sup> households (identified by N/n)<sup>2</sup> in all *kebeles* from both remittance receiver and non-receivers were included in the sample as shown in Table 1.

The study employed various data collections techniques

namely household surveys, key informant interviews for general descriptive information, case study narratives to understand processes and direct observations. Some secondary data supplemented the first-hand data. Structured interview was conducted based on the questionnaire designed for the purpose of the study. Most questions of the questionnaire were pre-coded and some open-ended questions such as age of the household head and the migrant, household size, land size and total stock of animals were entered and categorized at the stage of data analysis.

Key informant interviews were also conducted with Administrators and Development Agents of the three selected *kebeles*, and the Vice Administrator of the *Woreda* Agriculture and Rural Development office. Furthermore, case study households were interviewed to assess their livelihood histories and stories. Six remittance receivers who have achieved a relatively better life after remittance and six non-remittance receiver households have narrated about their livelihood situations. In addition, review of some secondary data and observations of some features such as topography of the study area, infrastructure and housing condition have been employed to complement the primary data.

The results of the survey are analyzed using descriptive statistics such as percentage, mean and chi-square. They are illustrated as tables. Chi-square test was employed to draw association between respondent's characteristics in terms of remittance receiver or otherwise. Qualitative information was presented in various forms as interpretation of the observations, direct quotes and in certain cases in the form of case narratives.

**RESULTS AND DISCUSSION**

**Demographic and socio-economic features**

Out of the whole respondents, 42.3% were from *Qosero*, 29.1% from *Paso-mile* and the remaining 21.4% are drawn from *Bededo Kebele*. Some 28.6% of respondents were remittance receivers, and 78.6% are non-receivers. Majorities that is, 75.5% of respondents are males and 24.5% are females. About 69% of the remittance receiver's household heads are males, and the remaining are females. Chi-square test was used to test the association between sex of the household head who were remittance receivers and those who were not, and there was no statistical significant association between the two (Table 2).

Age of the household head was one among the many determinants of migration and remittance due to its impact on the age composition of household members. The larger proportions of respondents (45.9%) were within the age group of 40 followed by those in the age bracket of 27 to 39 years (25%). Similarly, nearly half of household head of remittance receivers are concentrated within the same age group of 40 to 52 (47.6%). However, no association between age of household head and being remittance receiver

<sup>1</sup> Lowest administrative unit in Ethiopia

<sup>2</sup> 'N' is population size where as 'n' is sample size taken from the population.

**Table 2.** Distribution of Kebele respondents and Chi-Square Test by sex, age category, and family size.

Variable	Remittance receivers		Non-remittance receivers		Overall total		Chi-square test		Correlation	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	Chi-square	Significance	R	Significance
<b>Kebele</b>										
Bededo	11	26.2	45	29.2	56	28.6				
Qosero	17	40.5	66	42.9	83	42.3	-	-	-	-
Paso-mile	14	33.3	43	27.9	57	29.1				
Total	42	100.0	154	100.0	196	100.0				
<b>Sex</b>										
Male	29	69.0	119	77.3	148	75.5				
Female	13	31.0	35	22.7	48	24.5	1.205	0.272	-	-
Total	42	100.0	154	100.0	196	100.0				
<b>Age category</b>										
27-39	9	21.4	40	26.0	49	25.0				
40-52	20	47.6	70	45.5	90	45.9				
53-65	9	21.4	29	18.8	38	19.4	0.428	0.935	-	-
>66	4	9.5	15	9.7	19	9.7				
Total	42	100.0	154	100.0	196	100.0				
<b>Family size of respondents</b>										
≤3	0	0	14	9.1	14	7.1				
4-6	26	61.9	108	70.1	134	68.4				
7-9	15	35.7	30	19.5	45	23.0	8.185	0.042	0.225	0.001
≥10	1	2.4	2	1.3	3	1.5				
Total	42	100.0	154	100.0	196	100.0				
<b>Dependent family members of respondents</b>										
<2	41	97.6	128	83.1	169	86.2				
3-4	1	2.4	24	15.6	25	12.8				
>5	0	0	2	1.3	2	1.0	5.861	0.053	-	-
Total	42	100.0	154	100.0	196	100.0				
<b>Independent family members of respondents</b>										
1-3	15	35.7	94	61.0	109	55.6				
4-6	23	54.8	60	39.0	83	42.3				
7-9	4	9.5	0	0	4	2.0	20.42	0.000	0.314	0.000
Total	42	100.0	154	100.0	196	100.0				

Source: Kerime and Degefa (2014).

was found. The number of family size within a given household has its implication and impact for remittance through its effect on migration. It will have impact on the number and availability of adult family members that can migrate and remit to the family left behind.

The great majority (68.4%) of the respondents had 4 to 6 family members, the proportions of households with family members below 3 and more than 10 are small in both remittance receiver and non-receiver respondents. However, no association was found between family size and households being remittance receiver or not (Table 2). Qualitative data revealed that, the availability of family members capable of involving in migration is a good determinant for households to benefit from remittances.

*“...the main determinant of households to be benefited from remittance is the existence of family member/s whose age and sex permitted to be demanded by people in destination countries. Those remittance non-receivers are households who do not have a daughter whose age is above 18, whose daughters have a good job and/or restricted from migration with certain medical problem. Household head that do not have daughters to send them abroad are sending their wives (if their age is within 20 and 30s). Recently, it is common to see a father with his children performing domestic work due to migration of wives that left their husband and children behind. Therefore, the migration of married females is becoming a common experience for many households who do not have able daughters to migrate.”* (A poor non-remittance receiver in Qosero)

Generally, the results of both quantitative and qualitative data have revealed that the composition of family members in terms of age and sex determine whether a household has remittance income source or not.

### **Education level of respondents**

Majority of household heads both from remittance receivers and non-receivers are formally uneducated. The low literacy levels of respondents was generally expected given the context where the research has been conducted, being rural households. Based on key informants, the coverage of schools and educational facilities were very limited in the rural areas. Therefore, it should not mislead us to a conclusion that households with no or limited education are the more beneficiary of remittance. No association between education level of household heads and being remittance receiver or not was found.

Not only was the education level of the head of the household but also the level of education of remitters was generally low. The maximum achievement of education

for remitters is high school grades. Out of the total 42 remittance receiver respondents, 14.3, 4.8, 42.9 and 38.1% of their remitters are unable to read and write, primary first cycle (1 to 4), primary second cycle (5 to 8) and high school, respectively in terms of their education.

This is partly due to limited requirement of high academic qualifications in the destination of migrants and unskilled sectors that they are employed in. All remitters employed as a housemaid in their destination. It is claimed that to read and write may be enough for them to accomplish their tasks.

### **Socioeconomic characteristics of the respondents**

The households in *Tehuledere, Northeast Ethiopia*, at all levels of economic status will engage in migration of certain family members. Previously, the main constraint to migration was lack of initial capital for travel. But recently, it has become common to cover this cost either through borrowing from families and/or friends or from brokers. This trend eases the financial constraint of migration for poor households. Recently, many poor households are benefiting from remittance. But in most cases, households who are very rich do not prefer to employ migration as a livelihood strategy due to its certain risks and uncertainties. So, if the household has sufficient resources and means of livelihood, sending certain family members abroad and worrying about them day and night is not commendable.

The source of capital for migration may reflect the economic status of the respondents. The source of finance for 52.4% of respondents was own asset either from saving, sale of livestock or others. The cost of migration for 31% of migrants was covered by borrowing from family and/or friends. Informal financial institutions also cover the cost of migration for 7.1% of migrants and brokers and earlier migrants together cover the cost of 9.6% of migrants. Households who can cover the initial cost of migration and those who cannot engage in migration of certain family member/s are beneficiary of remittance.

Respondents were also asked about their total stock of animals and their corresponding estimated market value. Majority of sample households have less than four livestock. In rural areas, livestock are important assets that have a direct relationship with economic status of households. Therefore, it was assumed that it will have association with being remittance receiver or non-receiver. But association that exists between them was statistically insignificant.

Land is the most important natural capital for rural population. The amount of land for a given household has implication and impact for its economic status. Therefore, there was a room for respondents to tell the size of land



**Table 3.** Land size of respondents by the *Kebeles*.

Variable	Kebele of respondents	Land size in timad* and percentage (%) of respondents				Total	Chi-square test	
		<3	3.5-5.5	6-8.5	>9		Chi-square	Significance
Non-remittance receivers	Bededo	60.0	28.9	6.7	4.4	100.0	6.037	0.110
	Paso-mile	65.1	32.6	2.3	0.0	100.0		
	Qosero	59.1	33.3	4.5	3.0	100.0		
	Total	61.0	31.8	4.5	2.6	100.0		
Remittance receivers	Bededo	63.6	36.4	0.0	0.0	100.0		
	Paso-mile	85.7	14.3	0.0	0.0	100.0		
	Qosero	23.5	41.2	35.3	0.0	100.0		
	Total	54.8	31.0	14.3	0.0	100.0		

Source: Kerime and Degefa (2014).

\*Timad - is a local measurement of land equivalent to 0.25 hectare.

that the household holds. But no association between the amount of land for a household and remittances being received was found (Table 3). This might be due to the fact that those who hold sufficient land are less likely to involve in sending family members abroad. The other explanation could be that unlike other forms of assets, land purchase is prohibited under Ethiopian policy.

The amount of production for a given household also implies the economic level of households. The amount of household's production can feed family members throughout the year or only for certain months. Households in both categories engage in migration of certain family members and are beneficiary of remittances. Most respondent's produce crop but cannot feed its members throughout the year, and no association between the amount of production and households being remittance receiver was found.

### Some characteristics of remitters

The sex of remitters is totally female. Therefore, the migration of females in the *Woreda* is becoming a common experience. The maximum achievement of education of remitters is high school. Their age is mainly concentrated between 19 and 28 (81%). Saudi Arabia was the most common place with 55% of remitters followed by Kuwait (19%) and United Arab Emirates (16.7%). A few numbers of remaining remitters were from countries such as Qatar, Oman and France. As far as the respondents' relationship with their remitters is concerned, 76.2% of the remitters were the daughters of the household heads, 16.7% their wives, 4.8% their sisters and 2.4% of remitters were their granddaughters.

Most parts of migrants were students (one third) and unemployed (one third) before their migration followed by

**Table 4.** Types of occupation of the remitters before migration.

Previous work	Frequency	Percentage (%)
Student	14	33.3
Farmer	5	11.9
Housewife	9	21.4
Unemployed	14	33.3
Total	42	100.0

Source: Kerime and Degefa (2014).

house wives (21.4%) and farmers (11.9%) (Table 4). It was also learnt that teachers in elementary school have involved in migration. Elementary school teachers were leaving their job and migrated out either legally or illegally due to dissatisfaction with their work and income.

Recently, remittance is becoming important source of income for many households. All remitters have been migrated after 2008 such that 59.5% of the remitters migrated in 2012 and 2013 while 28.5% did so during 2008, 2011 and 2013/14. Therefore, mass migration of females towards the Middle East is a very recently phenomenon as a livelihood strategy. The findings show that there has been an increasing trend of migration in 20013/14. Based on Administrator of the *Woreda*, there was reduction of migration of females in 2013/14. Certain countries like Saudi Arabia and Kuwait have recently stopped recruiting house maid workers from Ethiopia, and there is a temporary ban as a result of certain disagreements between the workers and the employers. This condition created a fear both for both the migrant and their families.

Pure altruism and pure self interest covers a considerable proportion behind the motivation of migration. The migrants send money for their family's

**Table 5.** Motivation of migration.

Motivation of migration	Frequency	Percentage
Intention to help the family left behind	18	42.9
To generate his/her own income	18	42.9
Migration of near friends or relatives	6	14.3
Total	42	100.0

Source: Kerime and Degefa (2014).

welfare and for themselves (for the purpose of saving) (Table 5). Migrants may send a certain proportion of their income for their family and save the remaining for themselves. This enables migrants to assist their families left behind as well as to save certain proportion of income for their future use. At the initial stage, the family will cover the cost of migration and later the migrant will remit the family during times of problems. This is an implicit family agreement.

## Economic and social impacts of remittance

### *Economic impact of remittance*

Remittance plays a great role in reducing rural poverty through financing health and education, ease of credit constraint for small business that serves as a source of insurance during natural calamities and human-induced shocks, improvement of current account sustainability and creditworthiness in the world (Ratha, 2012). Even if the amount of remittances that the poor receive is low in absolute term, it makes a substantial change in the relative livelihood of poor households (Ellis, 2003). The result of this study also revealed a similar finding.

Migration in the studied area was employed by the decision of the migrant family and the migrants themselves. Taking into account the livelihood context and trend of the study area, nearly a half (49%) of the total respondents including both remittance receivers and non-receivers agreed that migration is appropriate livelihood strategy. From a total 42 remittance receiver households, 59.5% agreed on the appropriateness of migration. But the remaining 40.5% sampled remittance receivers had disagreed on its appropriateness while they had migrant family members. The chi-square result for perception of household head towards migrations indicates that there is no statistically significant association with households being remittance receiver or not. The whole sample respondents of remittance receivers have reported that the household had remitted by the migrant at different periods either regularly at every two to six months interval (83.3%) or on irregular

basis (16.7%).

Remittances covered 10 to 25% of the income of most parts of respondents (54.8%), followed by 25 to 40% for 28.6% of respondents and for 7.1% of sample remittance receivers it generated their 40 to 55% of income. Remittance covered more than 55% of income for the remaining 9.5% of sample remittance receiver respondents. Therefore, remittance covers a considerable proportion of income for the receivers. About 85.7% of respondents indicated that household heads are those who the administrator of the remittances is the household head and 11.9% of the controllers were made up of remitters themselves.

Remittance increased the purchasing power of receivers. However, in some cases it has negative impact in triggering income inequality. It was also the source of tension between those remittance receivers and non-receivers. Remittance receivers were asked about the expenditure area of remittance and they had the opportunity to choose up to six items on which they expend. These expenditures are grouped into "consumption" and "asset accumulation/investment". Which expenditure categories should constitute consumption versus asset accumulation is debatable, particularly when it comes to assets such as housing. However, for this presentation, the researchers have grouped them under the category of consumption using the following expenditures patterns: expenditure on consumption goods in general and debt payments. Asset accumulations comprise construction or repair of housing, start/expand a business, education and health expenses.

The future and immediate benefit of remittance varies according to different types of remittances. Inter-family transfers typically have immediate benefits for the individuals in fulfilling daily subsistence (Albert et al., 2009). The most common expenditure area of remittance is consumption goods (42.9%) followed by construction of new houses and repairing of the existing ones. Health and education expenses also had their proportional parts in the remittance package (Table 6).

Consumption and asset accumulation/investment cover 47.7 and 52.3% respectively (Table 7). The crucial impact

**Table 6.** Household's primary expenditure area of remittance income.

Expenditure	Frequency	Percentage (%)
Consumption goods	18	42.9
School fees	4	9.5
Health service	8	19.0
House construction and repair	9	21.4
Debt repayment	2	4.8
Trading	1	2.4
Total	42	100.0

Source: Kerime and Degefa (2014).

**Table 7.** Spheres of life that remittance has brought increment for the receivers.

What has been increased due to remittance?	Frequency	Percentage
Family's income and asset	12	28.6
Family's consumption	20	47.6
Family's saving ability	4	9.5
Family's social status	6	14.3
Total	42	100.0

Source: Kerime and Degefa (2014).

of remittance at the household level is its contribution in the investment of human capital such as education, health and better nutrition. Remittance is used for whatever purpose (consumption or investment), and it produces positive impact on the economy of a receiving community (Pant, 2008 cited in UN, 2011). Similarly, the household survey result indicated that, remittance have brought an increment in the amount of consumption, income and asset, saving ability, social status and capital of receivers. Thus, remittances have brought about sizeable increment in different spheres of life for the receiving household (Table 7).

Taking into consideration the earlier mentioned economic and other benefits obtained from remittance, 62% of respondents perceive that remittance has improved their livelihood situation through the ways documented. The remaining 38% of remittance receivers assumed that it did not bring a substantial change in the livelihood of their household. According to an elderly non-remittance receiver in Qosero Kebele:

*"A family which has a daughter abroad is equivalent to a family which has which lactating cows. The household who has a remitter outside of the country will be benefited from multiple items as a family who has lactating cow is benefited from milk, cheese, butter, yoghurt, etc." In addition, the family is considered as lucky.*

Respondents were asked about the sphere of life that

has been improved due to remittances. They were asked to rank their choices based on order of importance. Responses presented in Table 8 are the primary areas that remittances have brought improvements among others.

The results obtained from one of the remittance receiver case study household head witnesses the change that remittance has brought in the family. *Taytu*- a 50 years old woman and head of the household made the following point:

*"We did not have income source out of agricultural activities. Even the income earned form agriculture is meager. Therefore, the family has agreed to send a family member abroad. We made one of my daughters who were grade 10 to discontinue her education and to migrate in 2011. After three months, she had repaid the initial cost of migration. After a year, she took her younger sister. Currently, the household has better income than in the past days. Now, income obtained from remittance coupled with agricultural activity makes the life of the household by far better than in the past days."*

We also investigated how non-remittance receivers perceive the difference that exists between the receivers and non-receivers. There is a difference between these two groups according to the response given by 68% of non-remittance receiver respondents. Some 22% of the

**Table 8.** Ways that remittance improves the livelihood of receivers.

Improvement areas	Frequency	Percentage (%)
The family can meet its basic need	4	13.3
The family can pay for health care services	4	13.3
The family can pay education fees for the children	5	17
The family can repair or construct new house	17	56.3
Total	30	100

Source: Kerime and Degefa (2014).

**Table 9.** Perception of non-receivers of remittances.

Perception	Frequency	Percentage (%)
Myself and my family members are in a better position than the receivers	47	30.5
There is nothing that can create a difference	47	30.5
Myself and my families are in a lower status than the receivers	33	21.4
Myself and my families are easily prone to shocks	7	4.5
It takes too long for my families to recover from shocks if it occurs	20	13.0
Total	154	100.0

Source: Kerime and Degefa (2014).

sampled non-receivers did not know whether there was a difference between receivers and non-receivers. Some 10% of non-receiver said there was no any difference that could be observed. In addition, non-remittance receiver respondents were given the chance to compare their families with those who have remittances source of income (Table 9). Concerning the sustainability of the impact of remittance, a Development Agent of *Paso-mile* had put:

*“When most people think about the sustainability of remittance, they consider not the sustainability of the impact that it has brought but the flow of remittance itself. Of course, since most migrants are contract workers in the destination country, they will return back within a given time after the end of the contract and the flow of remittance will end. But most impacts of remittance such as the construction of houses, expenditure on health and education, etc are sustainable. These expenditure areas of remittance determine the future destiny of the family.”*

According to the Vice Administrator of the Tehuledere *Woreda* Agricultural and Rural Development, recently the level of poverty and food insecurity in the *Woreda* is not as serious as what it has been before. Recent migration of females and their remittance flow has its own role in reducing the number of food insecure households in the *Woreda*. Due to remittance the income of many households had been improved. Receivers had got the

chance to construct and repair houses and they had got better capacity to purchase grain for household consumption (Table 10).

### Social impact of remittance

Remittance has lot of social impacts. The migrants are benefiting the community other than their immediate families through remittance as the 39.8% the respondents witnessed. On the other hand, some 34.2% of the respondents indicated that the migrants had not been benefiting other members of the community apart from their own families. The remaining 26% did not know whether migrants are benefiting other members of the community or not. From the total sample of remittance receivers, 28.6% of respondents thought that migrants were benefiting other members of the community. However, 40.5% of respondents replied that remittance is not benefiting member of the community beyond their families. Remittance is improving the receiving household's relation with families and surrounding societies. Remittance improves family and social relation for 52.4% of remittance receiver respondents but for 47.6% of remittance receivers there is no change in social relation of the family as brought about by remittance (Table 11).

Remittance creates increased social tension within the household both among those at home and within migrants who were remitting to the household (Rodriguez, 2000;

**Table 10.** Comparison of a remittance receiver and a non-receiver case study households.

Non-remittance receiver	Remittance receiver
Both the husband and the wife are productive	The husband is economically inactive due to certain leg impairments
The household is still under poor wellbeing	The household wellbeing situation is getting better these days
The family mostly live in debilitated housing	The family has constructed new house with 40 sheets of corrugated iron
The family is highly vulnerable to various shocks	The family feels secured and resilient
The family cannot afford purchasing grain	The family cannot afford purchasing grain with income from remittance
The family have little opportunity of recovering from shocks	Remittance will serve the family as insurance during shocks

Source: Kerime and Degefa (2014).

**Table 11.** Social impact of remittance on recipient households.

Impact	Frequency	Percentage (%)
The family got an opportunity to help families and surrounding societies	11	50.0
The family got an opportunity to participate in different social affairs	6	27.3
The family was able to provide loans for the needy	5	22.7
Total	22	100.0

Source: Kerime and Degefa (2014).

Erhijakpor et al., 2010). Likewise, qualitative results indicated that remittance causes problems sometimes and tension within the family especially on the regulator of the sent money and between the remitter and the family. In some cases even it results into murder incidences among members of the household. A remittance non-receiver case study household in *Bededo* expresses:

*“...I know two sisters by the names Lubaba and Leyla in Kebele 05 who have been migrated after they have married and subsequently both of them have divorced due to remittance related cases.”*

Likewise, administrator of *Qosero*, one of the key informants, indicated that remittance may create social problems as presented in the following case.

*“...Remittance sometimes triggered social problems. I know an old man from a Kebele called ‘Weldelulo’ who has been slaughtered by his son as a result of dispute over who should control the money. In some other cases, it is a source of dispute within a family between the husband and wife, adults and the elderly and the husband and the family’s of the remitter if the remitter is married female.”*

#### **Remittance reducing vulnerability of receiver households**

Remittance tends to increase during economic or social

crises and shocks like drought, conflict, crop failure, etc. in the homeland of the migrant. This unique nature of remittance helps the receiving communities to smooth their consumption pattern and stabilizes the economy of the recipient households (World Bank, 2005; Ratha and Mohapatra, 2007). Remittance minimizes the vulnerability of households through smoothing consumption patterns (Dugbazah, 2007). The finding of this study also showed similar result.

The fluctuation of remittance with regard to occurrence of shocks was investigated. The result has shown that 43% of receivers were remitted for special occasions and during the occurrence of shocks. But remittance for the remaining 57% of sample remittance receiver households did not increase during shocks and times of problems. Similarly, the amount of remittance had increased during crises and special needs for 36% of remittance receiver respondents. It was not the amount of money that increases during social and economic crises but the frequency of receiving money. However, whether migration increased in absolute term, in its frequency or remain the same, it had reduced the impact of different shocks and crises as underlined by 72% of remittance receiver households. This indeed allows us to conclude that remittance is serving as insurance mechanism for the receivers.

Some 62% of remittance receiver respondents replied that remittance had assisted the receivers to recover from shocks (Table 12). It reduced the fear about future occurrence of shocks and hazards for nearly 45% of remittance receivers. This indicated that, remittance had

**Table 12.** Impact of remittance on resilience and fear of occurrence of shocks.

Does remittance help the household to recover from shocks?	Frequency	Percentage (%)	Does remittance reduce the fear of household about future occurrences of shocks and hazards?	Frequency	Percentage (%)
Yes	26	61.9	Yes	19	45.2
No	16	38.1	No	23	54.8
Total	42	100.0	Total	42	100.0

Source: Kerime and Degefa (2014).

**Table 13.** Comparison of remittance non-receiver and receivers based on the perception of non-recivers.

Response	Frequency	Percentage (%)
You and your families are in a better standard of living than the receivers	13	30.5
There is nothing that can create a difference	13	30.5
You and your families are in a lower standard of living than the receivers	9	21.4
You and your families are easily prone to shocks	2	4.5
It takes too long for you and your families to recover from shocks	5	13
Total	42	100

Source: Kerime and Degefa (2014).

a role in enhancing the resilience capacity of the receivers together with reducing the fear about the future occurrence of shocks and hazards. Some 13% of respondents had perceived that it takes them too long to recover from shocks while 4.5% of respondents are easily prone to shocks than the receivers (Table 13). This consolidates the fact that remittance has its role in lowering the vulnerability level and increasing the resilience capacity of respondents. The following two case studies clearly compare the living standard of two remittance receiver and non-receiver households found in *Qosero*.

**CONCLUSION**

The demographic and socio-economic characteristics of respondents were described. The Chi-Square Statistical test of association was computed to check which characteristics have association with being remittance receiver or not. Among other variables, the association of family size and availability of able family members to migrate was found significant.

Migrant families have been benefiting from remittances sent at different periods of time either regularly or on irregular basis. Remittances cover important proportion of income. The most common areas that remittances have brought change are consumption goods, house construction and maintenance, health and education.

Remittances have extended social impact beyond its receivers. They have improved the social relations of certain receivers through assistances given for families and those in neighborhoods societies, participation of the receivers in different social affairs and provision of loans for the needy. But besides its positive socio-economic impacts, remittances have triggered conflict within the household members. This conflict has emanated from the controller of the sent money.

Remittance receivers have been remitted for special occasions and the amount or frequency of remittance has been increased during crisis and shocks. Therefore, remittances are serving as an insurance mechanism for the receivers. Remittance reduces the vulnerability level of respondents, households at various socio-economic status engages in migration and are beneficiary of remittances which have important positive socio-economic impacts.

**RECOMMENDATIONS**

The following have been suggested as a means of improving the effectiveness of remittances:

1. Engagement of remittance receiver households in diversified livelihood strategies besides is important. Most migrants of the *Woreda* are contract workers. So, they will return back when the contractual agreement ends. As

a result, remittance will not be a sustained financial income source.

2. The price of remittance transactions are better to be reduced to increase flows of remittance. Increasing the volume and formality of remittance is important, and in order to do so, governments should think about how to eliminate or considerably reduce remittance taxes which provide disincentives for sending money from abroad and deter the use of formal channels

3. Increase a culture of savings and investment in addition to consumption must also be adopted in order with right policies

4. Improved the access of financial intermediaries that can deliver remittance services. It must help to improve financial flows.

### Conflict of interests

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# Constraints to growth of micro and small-scale enterprises in Ghana: A case of street food enterprises

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The aim of the paper was to identify the factors that constrain growth of street food enterprises in Ghana. The study achieved this by using panel data from two surveys to estimate the effect of constraints that are self-reported by street food vendors from Kumasi and Tamale metropolises of Ghana on growth of their businesses. Results of the study found inadequate managerial skills and financial constraints to negatively affect the gross margin ratio between the baseline and follow-up periods. In addition, vendors who reported complex regulatory and banking procedure as a constraint experienced a decrease in the rate of growth of their businesses with respect to average daily sales per person. The study recommends that policy interventions aimed at improving the street food sector should aim at addressing managerial constraints or financial constraints or both. Specific policies to address these constraints are presented.

**Key words:** Constraints, growth, micro and small-scale enterprises (MSEs), street food enterprises, Ghana

## INTRODUCTION

Street food vending and street foods<sup>1</sup> play important roles in the economic development and the lives of most people (especially urban dwellers) in Ghana and other developing countries. Firstly, street foods serve as an important source of affordable and relatively nutritious meal (Otoo et al., 2011; Tomlins et al., 2002). Osei Mensah et al. (2013) in a study on street food consumption in the Kumasi metropolis of Ghana found that it is not limited to low income earners. Street foods also serve as a major source of income and livelihood for a large share of urban dwellers, especially women (Otoo et al., 2011; Narumol, 2006; Jimu, 2004; Tomlins et al.,

2002). Tomlins et al. (2002), in a study in Accra-Ghana found street food sector to employ over 60, 000 people and has an estimated annual turnover of over US\$ 100 million resulting in profit of about US\$ 24 million. Thirdly, the sector also promotes local agribusiness industries by absorbing locally grown and processed crops and raw materials. In this way, raw material producers who ordinarily would have had problems with marketing of their produce have readily available marketing outlets.

On the other hand, street foods may serve as a major source of food-borne diseases and poisoning, with potentially huge health implications to the country (Rheinlander et al., 2008; Mensah et al., 2002). A study by Maxwell et al. (2000) established a positive correlation between consumption of street foods and the prevalence of gastrointestinal infections. Other studies in Ghana have also found street foods as a major source of zoonotic diseases (King, 2000) and heavy metal, residues of

<sup>1</sup> Following FAO's definition, this study operationally defines street food as any ready-to-eat food (excluding beverages, as well as semi-processed and unprocessed food items that are used as ingredients in the preparation of other foods) prepared and/or sold by vendors and hawkers, especially in streets and other similar public places. Enterprises included in the study have employee size (excluding the owner) ranging between 1 and 41.



pesticides and chemicals used for spraying crops, especially vegetables, on the field (Tomlins, 2002). These food quality and safety concerns have several ramifications on street food enterprises, consumers and expenditure on public health. Vendors who fall sick because they harbour some form of enteric bacteria directly lose man-hours and indirectly lose customers if vendors' absence from business persists. This in turn implies revenue loss to local assemblies.

Despite all the above listed importance of street foods and their ability to serve as a viable engine/tool for economic growth, the street food sector, like many other informal sectors, is constrained by several factors. These factors may include (but not limited to) limited knowledge and skills in business management (Bruhn et al., 2012; Berge et al., 2011; Mano et al., 2011) and inadequate supply of skilled workers (Quader and Abdullah, 2008; Ishengoma and Kappel, 2006; Kayanula and Quartey, 2000).

Other factors include limited access to credit and high cost of borrowing (Martey et al., 2013; Abor and Biekpe, 2006), high cost of production (Martey et al., 2013; Ishengoma and Kappel, 2008; Skinner, 2005), lack of access to legal vending premises (Martey et al., 2013; Bowen et al., 2009), regulatory barriers from city authorities, poor organization and lack of collective action among vendors, etc. These factors either individually or in concert with others work to affect operations of street food enterprises and subsequently performance and growth.

However, little is known about the extent to which these constraints actually hinder the growth of street food enterprises in Ghana. Most constraint studies on SMEs in Ghana (for example, Tomlins et al., 2002; Kayanula and Quartey, 2000) have not linked owners'/managers' perceived and subjectively reported constraints to growth of these firms. Those that establish this link (for example, Otoo et al., 2012 in Ghana and Ishengoma and Kappel (2008) in Uganda) used owners'/managers' *perception of growth* since these studies employed cross-sectional data. It is therefore possible for either highly optimistic or pessimistic assessment by few owners (based on their perception) to skew mean constraints towards a particular direction and subsequently lead to a conclusion that is not really a true representation of the broader picture in that sector.

This study addresses these gaps by first identifying the factors that are perceived by vendors to constrain growth of street food enterprises in Ghana. Following that the study utilizes panel data from two rounds of survey to assess how growth (measured percentage change in gross margin ratio, percentage change in number of customers served and percentage change in average daily sales per person) is significantly limited by identified business constraints. This study is important because knowing which factors really hinder growth of SMEs will inform the choice of appropriate policy measure to address them. It also contributes to the literature on

constraints to micro, small and medium scale enterprises (MSMEs) especially in informal sector of the developing countries' economies.

## METHODOLOGY

### Sampling and data collection process

Multi-stage sampling procedure employing a combination of stratified, simple random, purposive and quota sampling was used to select two hundred and sixty-three (263) street food enterprises were selected from two cities of Ghana, Kumasi and Tamale, due to the large number of urban poor. Apart from the presence of large urban poor, Kumasi and Tamale were selected due to the socio-cultural as well as economic differences between the two cities. While Kumasi is the second largest city, relatively developed and an economically active city throughout the year, Tamale still remains relatively under-developed with high incidence of poverty and perennial migration of some of its active labour force to the South of Ghana, especially during the non-farming season. These differences may affect the type of foods sold, characteristics of street food vendors, business constraints and their effect on performance. These micro-enterprises dealt in four different foods, namely; *'check-check'*<sup>2</sup> (*fried/jollof rice*) and *fufu*<sup>3</sup> (*in Kumasi*), *waakye*<sup>4</sup> and *tuo zaafi*<sup>5</sup> (*in Tamale*) based on their predominance in the selected study areas. Stratification was first based on the two cities and subsequently on the selected food types in each city.

Data collection was principally in four phases; stakeholder discussions, reconnaissance survey (with structured interview guide) and baseline and follow-up surveys (using structured questionnaires). Stakeholder discussion with major players was organized during the launch of the Ghana Street Food project. This discussion aimed at identifying the major business-related constraints to street food vending in Ghana and also suggest possible interventions that can help address the constraints that we will identify. Outcome of the stakeholder discussion was analysed, reviewed and subjected to criticisms by panel members and other participant of the project launch. Outcome of these discussions (not reported here due to space) largely informed the design of data collection instrument for reconnaissance survey, especially regarding the business practices and constraints. Key constraints identified by the stakeholder discussions are lack of technical know-how and ignorance on the part of the food vendors, bureaucratic nature of business formalization/registration, lack of business management skills. Others include poor banking and saving culture among vendors, frequent eviction/ejection of vendors from their premises, lack of credit and absence of collection action among vendors due to limited cooperation.

Reconnaissance survey was also conducted using the outcome of the stakeholder discussions as a basis. This process among other things was to obtain information about vendors' business constraints, vending experience and history, reasons behind the choice street food vending business, employee size, source of business capital and source of business capital. Based on the

<sup>2</sup> Check-check is a food vending outlet that serves mostly fried rice and jollof rice. Fried rice is prepared by steaming boiled rice, vegetables and spices together. Jollof on the other hand is prepared by boiling rice together with tomato sauce/stew.

<sup>3</sup> Fufu is a staple starchy food prepared by pounding boiled cassava and plantain together in a mortar and pestle, while continuously turning it with the hand. Fufu can also be prepared from boiled cocoyam or yam. Fufu is usually served and eaten with soup.

<sup>4</sup> Waakye is prepared by boiling rice and beans together. It is usually served with a hot sauce, spaghetti, gari and vegetable salad.

<sup>5</sup> Tuo zaafi is a maize or millet dough and cassava dough dumplings prepared and served with green leafy vegetable soup.

**Table 1.** Unit of analysis for a typical (daily) production cycle.

Food type	Main raw material	Quantity of raw material used (kg)	Unit of analysis (kg)
Check check	Rice	10	10
	Cassava	136	
Fufu	Plantain	24	160
	Rice	10	
Waakye	Beans	2.4	12.4
	Maize	9.6	
Tuo zaafi (TZ)	Cassava	4.8	14.4

Source: Author (2015).

constraints identified from the stakeholder discussions, reconnaissance survey and review of relevant literature, a research instrument which includes twenty-three (23) MSE constraints was designed and used as the basis for assessing the binding constraints to street food micro-enterprises during the main survey. First round of data collection took place between May and June of 2013 with the follow-up survey taking place between May and June of 2014.

Primary data comprising demographic characteristics of vendors, business characteristics, and business performance measures and vendors' self-reported business constraints were obtained from owners/managers of sampled street food enterprises. Due to the fact that record keeping was generally not practised by the respondents, it was not possible to capture performance measures from their books. The study therefore used self-reported data obtained directly from vendors, following the recommendation by De Mel et al. (2009) that "simply asking profits provides a more accurate measure of profit than detailed questions on revenues and expenses" to obtained data on sales and profits. These data were compared with those obtained through step-by-step cost revenue analysis and the sales and profit figures in the former process case were found to be more correlated than in the latter where there were a lot of negatives (signifying losses for a typical vending day).

Although, Liedholm and Mead (1999) posit that employee number represents an objective, easy to capture and easy to apply measure of growth, qualitative evidence during field survey reveal that a change in employee number may be less indicative of growth, although we theoretically agree to this assertion. This is because while some vendors may intentionally refuse to increase the workforce to deal with operational and cost inefficiencies others prefer to remain legislatively unnoticed, moderate or small. In view of all the aforementioned reasons, the study adopted gross margin ratio, average number of customers served per day and average daily sales per customer (ratio of total sales to number of customers served) as measures of growth and captured data with caution. In order to reduce the variability in performance measures, several measures were taken. Nominal figures from the second round of data collection (follow-up surveys) were adjusted for inflation using the average food consumer price index (CPI) for Ashanti and Northern regions of Ghana over the study period.

### Data analysis

Descriptive statistics comprising arithmetic means and standard

deviations, as well as percentages and frequency tables were used in describing the socio-economic characteristics of street food vendors as well as the characteristics of the vending enterprises in the total sample. For each of the 23 factors that were identified through stakeholder discussions and reconnaissance survey as being possible constraints to business growth, vendors were asked to rank the extent to which they agree to the factors are being constraints to business growth. This ranking was done by using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). For the purpose of analysis, these rankings were recoded. Factors with scores above 3 were considered to be constraints and assigned a value of 1 or 0 if the score is 3 or below.

Also, factor analysis was employed to isolate the underlying (common) factors that explain the correlations among the identified potential constraints as well as to determine the extent to which each original constraint depends on each of the common factors. The result of the factor analysis also aimed at grouping the identified potential constraints into related groups so as to reduce the number of dimensions (constraints) that entered the OLS regression models. The scores of the isolated common factors were obtained by computing the average score of the individual original factors that depend on that isolated common factor.

Computation of the three measures of growth was based a typical daily production. The units of analyses presented in Table 1 for the different food types are based on the major ingredient or material used in the production process. Daily estimates were obtained for items or raw materials that were procured and used over several days. The following formulae were used in computing the gross margin ratio and average sales respectively from Table 1:

$$\text{Gross Margin (GH\text{¢})} = \text{Total Revenue (Sales)} - \text{Total Operating/Variable Costs}$$

$$\text{Gross Margin Ratio (\%)} = \frac{\text{Gross Margin (GH\text{¢})}}{\text{Total Revenue (Sales)}} * 100\%$$

$$\text{Average sales per customer (GH\text{¢})} = \frac{\text{Total Revenue (Sales)}}{\text{Number of customers served daily}}$$

Three separate Ordinary Least Square (OLS) regressions were modelled to estimate the effects business constraints and vendor/business characteristics on each of the measures of firms' growth (percentage changes in firms' gross margin ratio, number of customers served daily and average sales), between the baseline and follow-up.

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**Table 2.** Definition of variables used for OLS estimations.

Variable	Definition of variables
<b>Dependent variables</b>	
<i>Growth in gross margin ratio</i>	Percentage change in daily gross margin ratio (%) between baseline and follow-up
<i>Growth in Number of Customers served daily</i>	Percentage change in number of customers served (%) between baseline and follow-up
<i>Growth in average sales per person</i>	Percentage change in daily average sales (%) between baseline and follow-up
<b>Independent variable</b>	
<i>IMS</i>	<i>Inadequate managerial skills:</i> Mean score for <i>IMS</i> (sum of individual constraints divide by number of constraints loading on <i>IMS</i> )
<i>FC</i>	<i>Financial constraints:</i> Mean score for <i>FC</i> (sum of individual constraints divide by number of constraints loading on <i>FC</i> )
<i>PSUS</i>	<i>Poor supply of utility services:</i> Mean score for <i>PSUS</i> (sum of individual constraints divide by number of constraints loading on <i>PSUS</i> )
<i>Thft</i>	<i>Theft by employees:</i> Mean score for <i>Thft</i> (sum of individual constraints divide by number of constraints loading on <i>Thft</i> )
<i>Ccrm</i>	<i>Complex customer relations:</i> Mean score for <i>Ccrm</i> (sum of individual constraints divide by number of constraints loading on <i>Ccrm</i> )
<i>Comp</i>	<i>High competition:</i> Mean score for <i>Comp</i> (sum of individual constraints divide by number of constraints loading on <i>Comp</i> )
<i>CRBP</i>	<i>Complex regulatory and banking procedure:</i> Mean score for <i>CRBP</i> (sum of individual constraints divide by number of constraints loading on <i>CRBP</i> )
<i>Edu</i>	Education / Years of formal education
<i>City</i>	City business is located (Kumasi = 1, Tamale = 0)
<i>Size</i>	Size of business: Total number of workforce (owner/manager plus other hired and non-hired/family employees)
<i>Exp</i>	Experience of vendor / Number of years the vendor has been in street food business

$$y_i = \beta_0 + \beta_1 IMS + \beta_2 FC + \beta_3 PSUS + \beta_4 Thft + \beta_5 Ccrm + \beta_6 Comp + \beta_7 CRBP + \beta_8 Sex + \beta_9 Edu + \beta_{10} Exp + \beta_{11} City + \beta_{12} Size + e_i$$

Where  $y_i$  continuous dependent variables (percentage changes in firms' gross margin ratio, number of customers served and average sales per customer) explained and defined in Table 2. Also, the definition of business constraints; *IMS*, *FC*, *PSUS*, *Thft*, *LP*, *Ccrm*, *Comp*, and *CRBP* as well as vendor and enterprise characteristics are explained in Table 2 where  $e_i$  represents the error term.

## RESULTS AND DISCUSSION

### Descriptive characteristics of respondents

The found that majority of vendors in the total sample (238 representing 90.49%) were female. In Tamale, all vendors, except one, were females. This corroborates the findings of other studies

(Mensah et al., 2002; FAO, 2009; Otoo et al., 2011) which concluded that street food vending is largely dominated by women. An interesting observation is that 23 out of 25 male respondents were in the sale of *check-check* (*fried rice/jollof rice*). A typical food vendor is young and married with an average of almost six years of formal education with about 98 (representing 37.3%) having no formal education at all. Also, a typical street food enterprise has a total workforce of 5 (with a range between 1 and 41) and has been in operation for 9 years (with the most experienced vendor being in business for 45 years).

In financial terms, it was found that a typical vendor daily sales revenue of approximately, gross margin of almost GH¢ 83 and a gross

margin ratio of almost 18%. The study of found that vendors from Kumasi had higher daily sales revenue and gross margin ((approximately GH¢ 401 (US\$ 108) and GH¢ 103 US\$ 28) respectively)) relative to vendors from Tamale ((approximately GH¢ 308 US\$ 83) and GH¢ 70 US\$ 19) respectively)). However, the gross margin ratio of the latter is higher than that of the former. Several factors may account for this. Vendors operating in Tamale may either be more cost effective and hence able to retain more of their sales revenue as profit or the price of food may be higher in Tamale than Kumasi where competition among street food vendors is very high. This latter point is corroborated by the relatively higher average sales per customer in

**Table 3.** Vendors' perceived constraints to growth of street food enterprises in Ghana.

Business constraints	Mean score of pooled sample (n = 263)	Mean constraint by city		Mean constraints by food type			
		Kumasi (n = 110)	Tamale (n = 153)	Fufu vendors (n = 53)	Check-check vendors (n = 56)	Waakye vendors (n = 86)	TZ vendors (n = 68)
High cost of production ( <i>HCP</i> )	3.70 <sup>1</sup>	3.72 <sup>2</sup>	3.68 <sup>2</sup>	3.79 <sup>1</sup>	3.63 <sup>5</sup>	3.67 <sup>2</sup>	3.69 <sup>2</sup>
Lack of access to credit ( <i>LC</i> )	3.50 <sup>2</sup>	3.37 <sup>4</sup>	3.59 <sup>3</sup>	3.04 <sup>5</sup>	3.73 <sup>4</sup>	3.58 <sup>3</sup>	3.56 <sup>3</sup>
Input price variability ( <i>PI</i> )	3.46 <sup>3</sup>	3.08 <sup>5</sup>	3.73 <sup>1</sup>	3.34 <sup>3</sup>	2.86 <sup>1</sup>	3.72 <sup>1</sup>	3.72 <sup>1</sup>
Inadequate knowledge in business management ( <i>LBizK</i> )	3.34 <sup>4</sup>	3.78 <sup>1</sup>	3.03 <sup>4</sup>	3.75 <sup>2</sup>	3.79 <sup>2</sup>	3.12 <sup>4</sup>	2.94
Lack of access to reliable power ( <i>LP</i> )	3.14 <sup>5</sup>	3.55 <sup>3</sup>	2.84	3.34 <sup>3</sup>	3.75 <sup>3</sup>	2.62	3.13 <sup>5</sup>
Competition from other vendors and formal restaurants ( <i>Comp</i> )	2.87	2.83	2.90 <sup>5</sup>	2.83	2.84	2.99 <sup>5</sup>	2.76
Inconsistent and unreliable supply of raw materials ( <i>IS</i> )	2.84	2.82	2.86	3.10 <sup>4</sup>	2.63	2.91	2.76
High/excessive demands from customers ( <i>C-D</i> )	2.70	2.43	2.90 <sup>5</sup>	2.60	2.32	2.99 <sup>5</sup>	2.75
Inadequate/lack of skilled workers ( <i>LSW</i> )	2.63	2.75	2.55	3.10 <sup>4</sup>	2.46	2.50	2.59
Lack of access to water ( <i>LW</i> )	2.57	2.13	2.89	2.09	2.16	2.66	3.16 <sup>4</sup>
Lack of access to skills training programmes ( <i>LTP</i> )	2.54	2.53	2.55	2.51	2.57	2.50	2.59
High tax rates ( <i>HT</i> )	2.29	2.64	2.05	2.40	2.88	2.19	1.87
Limited access to improved technology ( <i>LT</i> )	2.22	2.71	1.94	2.77	2.68	2.09	1.74
Complex loan acquisition procedure ( <i>CLP</i> )	2.40	2.10	2.32	1.98	2.18	2.37	2.24
Numerous personal/family problems ( <i>FP</i> )	2.15	2.06	2.21	2.23	1.91	2.23	2.18
Weak bargaining power due to lack cooperation of vendors ( <i>WB</i> )	2.12	2.45	1.88	2.55	2.39	1.84	1.91
Lack of access to safe and legal working place ( <i>LSP</i> )	2.10	2.36	1.91	2.13	2.55	1.93	1.91
Harassment/Extortion by Local Government Authorities ( <i>Ha</i> )	2.01	2.33	1.78	2.19	2.46	1.57	2.04
Lack of proper storage equipment (fridge and freezer) ( <i>LSE</i> )	1.90	2.10	1.75	2.34	1.89	1.76	1.74
Customers not willing to pay appropriate price ( <i>LPrice</i> )	1.82	2.29	1.48	2.28	2.30	1.58	1.35
Theft by Employees ( <i>ET</i> )	1.78	2.27	1.43	2.42	2.13	1.41	1.49
Bureaucratic nature of certification process ( <i>CB</i> )	1.65	2.25	1.22	2.64	1.89	1.26	1.18
Lack of access to good roads ( <i>LR</i> )	1.30	1.44	2.21	1.38	1.91	1.28	1.10

Source: Estimated from field data, 2013. ; Ranking scale: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree).

Tamale.

### Self-reported constraints to operations of street food enterprises

Table 3 presents the mean score for the 23 potential constraints that were identified through literature and the reconnaissance survey.

According to Table 3, only 5 out of the 23 constraints were considered by the pooled sample to be binding to the growth of street food enterprises. High cost of production was ranked (by the pooled sample) as being the most binding of all the constraints with a mean score of 3.70. The high cost of production results from high cost of raw materials and other inputs, and the multiplicity of taxes imposed on vendors. This

result is consistent with findings of Martey et al. (2013) in their study of constraints to small scale enterprises in Accra Metropolitan area of Ghana. Similarly, Association of Ghana Industries (AGI) in its report for the 4<sup>th</sup> quarter of 2012 also found high cost of raw materials as one of the top four constraints militating against the growth of Ghanaian enterprises (AGI, 2012). Lack of access to credit, input price variability, inadequate

knowledge in business management, and lack of access to reliable electricity supply were ranked as the second, third, fourth and fifth most critical constraints respectively. A joint study by US government and Government of Ghana as well as AGI (2012) and Abor and Biekpe (2006) in their study of constraints to Ghanaian firms have both reported limited access to credit as constraining the growth SMEs in Ghana.

The result on input price variability is consistent with earlier works by (Martey et al., 2013; Quader and Abdullah, 2008; Skinner, 2005). Input price variability makes planning of business operations difficult. A picture reflective of this concern is captured in the following complaint by a waakye vendor from Tamale: "*you are no longer sure of which figures to put on your budget for input purchase when going to the market. They keep increasing the prices of raw materials almost every day. It makes it even difficult for us to plan and even price our food appropriately*".

Lack/limited access to reliable electricity power for business operations was considered the fourth most binding constraint. This is especially so for check-check vendors whose peak business time is at night. Most respondents who vend at night indicated that poor supply of power by the national grid has a negative impact on their customer base as well their own security. Other vendors who aimed at maintaining their customer base through the provision of alternative power sources such as generators, rechargeable lamps did so at an extra cost arising from purchase of power generators and cost of fuelling.

Beyond these five constraints which were unanimously agreed by all categories of vendors to be binding, inconsistent and unreliable supply of raw materials, inadequate/lack of skilled workers also had mean constraint indices beyond 3 for *fufu* whilst the index for lack of access to water was also binding for vendors of *tuo zaafi*.

## Results of factor analysis

In order to be certain that factor analysis is an appropriate tool for handling the data from a sample of 263 owners/managers of street food enterprises, the Kaiser-Mayer Olkin (KMO) test was used to determine the extent to which the variation in the constraints are explained by the common factors. The communality of the performance index ranges between 0 (indicating that the common factors explain none of the variance) and 1 (indicating all the variance is explained by the common factors). Generally, a KMO score of between 0.5 and 1.0 is considered acceptable (Malhotra, 2007). Thus, a KMO value of 0.744 is a good indication of sample adequacy and a confirmation of the appropriateness of factor analysis. Also, the communalities for the potential constraints ranged between 0.525 and 0.721 with an

average of 0.60. This implies that on the average 60% of the variation in each constraint can be explained by the common factors.

Using a promax oblique method of rotation, the factor loadings in Table 4 were obtained. According to Quader and Abdullah (2008), promax rotation allows correlation among the factors thus helping to achieve a simple and realistic structure. According to the results of the rotation, factor 1 has high and positive loadings for constraints such as lack of access to skills training programmes, inadequate/lack of skilled workers, limited access to improved technology, lack of knowledge on business management, inconsistent and unreliable supply of raw materials and weak bargaining power due to lack of cooperation of vendors. All these constraints are related to limited competence of owners/managers and employees to make good decisions based on sound managerial principles. Factor 1 is therefore labelled '*inadequate managerial skills*'.

High cost of production, constant fluctuations/change in input prices, lack of credit (start-up and expansion), and high tax rates loaded high on factor 2. Factor 2 is therefore labelled '*financial constraints*'. Again, these findings are consistent with the outcome of binding constraints identified above and other studies like Martey et al. (2013) and Abor and Biekpe (2006) that focused on constraints to SME growth in Ghana. These constraints increase the cost of business operations, affect the planning process of these vendors and subsequently reduce the profit of these enterprises. Factor 3 loaded high on only one constraint, *theft by employees*. Factor 3 is therefore labelled same. Interactions with owners/managers of street food enterprises revealed that a major problem they face is theft and diversion of money and other resources by their workers.

Factor 4 on the other hand has high positive loadings/correlation on/with lack of access to water and lack of access to reliable power (electricity). These two constraints greatly affect the smooth operations of the businesses of vendors and assurance of food safety. In cases where vendors experience acute shortage in the supply of water, observing the required hygiene is compromised in an attempt to economize the limited water available. Unreliable power (electricity) affects night operations of vendors. Factor 4 is captioned '*poor supply of utility services*'. Customers not willing to pay appropriate price, and high/excessive demands from customers also loaded high on factor 5. The factor is accordingly labelled '*complex customer relations*'. Most vendors assert they have difficulties passing on the high cost of production to consumers/customers since doing so will lead to loss of customers. Competition from other street food vendors and formal restaurants as well as lack of storage equipment such as fridge and freezers were also considered important constraints and loaded high on factor 6 (*high competition and lack of storage equipment*). Bureaucratic nature of (health) certification

**Table 4.** Results of factor analysis.

Factor		1	2	3	4	5	6	7	8	
<b>Eigenvalue</b>		3.546	2.471	1.860	1.321	1.310	1.150	1.086	1.066	
<b>% of Variance</b>	<b>Mean score of factors</b>	15.418	10.744	8.085	5.741	5.697	5.001	4.720	4.635	
<b>Cumulative %</b>		15.418	26.162	34.247	39.988	45.685	50.686	55.407	60.042	
<b>Potential constraints</b>	<b>Communalities</b>									
Lack of access to skills training programmes		0.691	<b>0.805</b>	-0.070	0.006	0.127	0.196	0.003	0.061	0.077
Inadequate/lack of skilled workers		0.645	<b>0.753</b>	-0.199	0.049	-0.009	0.135	0.237	0.118	0.157
Limited access to improved technology	Inadequate Managerial Skills ( <b>2.62</b> )	0.620	<b>0.744</b>	0.076	0.218	0.038	0.321	0.176	-0.024	0.029
Lack of knowledge on business management		0.567	<b>0.641</b>	-0.071	0.328	0.208	0.015	0.221	0.332	0.110
Weak bargaining power due to lack of cooperation of vendors		0.563	<b>0.509</b>	-0.007	0.074	0.345	0.090	-0.017	-0.155	0.393
Inconsistent and unreliable supply of raw materials		0.615	<b>0.747</b>	-0.114	-0.011	-0.296	-0.067	0.036	-0.111	0.153
High cost of production		0.550	-0.007	<b>0.694</b>	0.156	-0.240	-0.034	-0.077	-0.078	-0.028
Constant fluctuations/change in input prices	Financial constraints ( <b>3.24</b> )	0.593	-0.034	<b>0.646</b>	0.167	0.088	0.026	0.038	0.155	-0.167
High tax rates		0.538	0.383	<b>0.630</b>	-0.042	0.306	0.199	0.066	0.168	-0.127
Lack of credit (start-up and expansion)		0.569	-0.001	<b>0.551</b>	-0.234	0.010	-0.244	0.342	-0.170	0.286
Lack of access to water	Poor Supply of Utility Services ( <b>2.85</b> )	0.550	-0.272	0.058	-0.196	<b>0.587</b>	0.088	-0.199	0.192	0.155
Lack of access to reliable power		0.554	0.072	0.071	0.360	<b>0.608</b>	0.037	0.310	0.048	-0.040
Theft by employees	Theft by employees ( <b>1.78</b> )	0.537	0.017	0.037	<b>0.709</b>	0.013	0.047	0.097	0.050	0.029
Customers not willing to pay appropriate price	Complex Customer Relations ( <b>2.26</b> )	0.525	0.027	0.174	0.457	0.171	<b>0.540</b>	-0.074	0.192	0.071
High/excessive demands from customers		0.632	0.429	-0.097	0.014	0.434	<b>0.582</b>	-0.036	0.133	0.002
Numerous personal/family problems		0.578	0.075	0.374	0.230	-0.471	-0.023	0.269	-0.116	0.205
Lack of proper storage equipment (fridge and freezer)	High Competition ( <b>2.38</b> )	0.721	0.214	-0.134	0.313	0.174	0.477	<b>0.529</b>	-0.005	-0.061
Competition from other vendors and formal restaurants		0.560	0.159	-0.009	0.033	-0.021	-0.053	<b>0.831</b>	0.054	0.088
Complex loan acquisition procedure		0.542	0.221	0.024	0.146	-0.008	0.147	0.054	<b>0.751</b>	0.085
Bureaucratic nature of certification process	Complex Regulatory and Banking Procedure ( <b>1.99</b> )	0.601	0.172	-0.035	-0.007	0.021	0.253	-0.017	<b>0.788</b>	0.030
Lack of access to safe and legal working place		0.554	0.093	0.083	0.472	0.102	-0.039	0.181	<b>0.681</b>	0.084
Harassment/Extortion by Local Government Authorities		0.655	0.078	-0.032	0.075	-0.023	0.086	0.062	<b>0.775</b>	0.096
Lack of access to good roads		0.697	0.309	0.224	-0.189	-0.444	-0.177	0.167	0.075	0.485

Ranking scale: (1=strongly disagree, 2=disagree, 3=neutral, 4 = agree and 5=strongly agree).

process, lack of access to safe and legal working place, and harassment/extortion by local government authorities have high loadings on factor 7. The seventh factor is therefore named ‘*complex regulatory/banking system*’. Factor 8 has low loadings on all the constraints and can

therefore be concluded as not explaining any of the constraints.

Based on the results of the factor analysis, the seven isolated common factors were used as explanatory variable in the three OLS regressions in Table 5.

**Estimation of effects of business constraints on growth**

Table 5 reports results of OLS regression to estimate whether identified constraints limit growth of street food enterprises. It shows the coefficients

**Table 5.** OLS estimates of effects of business constraints on firm growth.

Independent variables	Change in gross margin ratio (%)		Change in number of customers served (%)		Change in daily sales per person (%)	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
<b>Inadequate managerial skills</b>	-6.75*	(3.77)	-6.05	(23.93)	-0.02	(0.52)
<b>Financial constraints</b>	-6.55**	(3.28)	-2.82	(20.86)	-0.20	(0.45)
Poor supply of utility services	3.85	(3.03)	12.94	19.28)	0.86**	(0.42)
Theft by employees	2.95	(3.15)	-4.57	(19.99)	-0.13	(0.43)
Complex customer relations	0.13	(3.45)	-14.50	(21.92)	0.06	(0.47)
High Competition	0.87	(3.29)	3.68	(20.87)	-0.40	(0.45)
Complex regulatory and banking procedure	-4.91	(3.43)	20.84	(21.78)	-0.81*	(0.47)
Education (years of formal education)	0.18	(0.35)	0.59	(2.20)	0.07	(0.05)
Location of business (Kumasi =1)	-0.05	(3.87)	-131.28***	(24.69)	-2.01***	(0.53)
Size (total workforce)	-0.15	(0.32)	-5.12**	(2.02)	0.11**	(0.04)
Experience (years involved in food vending)	-0.004	(0.24)	-0.35	(1.55)	0.007	(0.33)
Constant	21.92	6.08	-65.65*	38.62	0.67	0.83
Observations		263		263		263
F (11, ....251)		1.10		5.76		2.57
Prob > F		0.3617		0.0000		0.0042
R <sup>2</sup>		0.0460		0.2014		0.1013
Adj R <sup>2</sup>		0.0042		0.1664		0.0619

\*p<0.1, \*\*<0.05, \*\*\*<0.001.

(β<sub>i</sub>) and the standard errors of each of the three indicators of firm growth; percentage change in gross margin ratio, percentage change in number of customers served daily and percentage change in average sales per customer.

In terms of the effect of business constraints on growth of gross margin ratio and average daily sales per customer, the study's hypotheses on inadequate managerial skills and financial constraints were both confirmed as shown in Table 5. Street food vendors who reported experiencing constraints related to managerial inadequacies such as lack of skilled workers, lack of knowledge in business management and unreliable supply of raw materials experienced a

reduction in growth rate (in terms of gross margin ratio) of about 6.8 and 6.6% points respectively between the baseline and follow-up periods.

This result is consistent with other studies that found lack of managerial capital as a critical constraint to performance and growth of SMEs. For instance, a study by Bruhn et al. (2012) among SMEs in Mexico found out that human capital had a first order effect on firm performance and that addressing this limitation positively impacted the sales and profit by 80 and 120% respectively. Similarly, Mano et al. (2011) found basic skills in business management to be critical to small entrepreneurs operating in an industrial cluster of Suame Magazine in Ghana. In addition,

managers with less experience have their enterprises facing *difficulties with solvency* and may also experience *higher expenditure to revenue ratio* (Hall, 2000) due to less efficient combination of production resources. These, in the long run, affect the firm's ability to remain profitable and viable.

With regards to effects of financial constraints on growth of firms, column 2 of Table 5 shows that reporting financial related constraints at baseline limited the growth of firms' gross margin ratio and average daily sales per customer by about 6.2 and 7.3% points respectively during the follow-up period at a 10% significance level. Some earlier studies in Ghana have also found financial-

related constraints as limiting the performance of micro, small and medium scale firms. For instance, Martey et al. (2013) in their study of constraints to performance of small scale enterprises in the Accra-Ghana reported limited access to credit, high cost of borrowing and unstable input prices as critical factors militating against the performance of the sector. Other studies such as (AGI, 2012; Abor and Biekpe, 2006) have both reported findings that corroborate the negative effect of financial constraints on firm performance in Ghana. These factors either individually or in concert with others affect operational and expansionary activities of the business. For instance, limited access to credit may affect the firm's ability to undertake long-term investment in the business, whereas high input price variability makes business planning, costing and pricing difficult. These in turn may affect the firm's ability to generate more sales as well as attract premium customers who will be willing to pay premium prices.

The study also found that vendors operating in Kumasi experienced a significant reduction in the growth of their customer base as well as the daily sales per person. Also, employing an additional person in the business decreases the daily number of customers served by about 5.1%.

## CONCLUSION AND RECOMMENDATIONS

Analysis of business constraints based on vendors' self-reported perceived constraints to business growth found high cost of production, lack of access to credit, input price variability, inadequate knowledge in business management, and limited access to electricity power as five top constraints in the pooled sample. These rankings were similar across the two study areas and the type of food sold. Grouping the 23 identified potential constraints based on the degree of commonality resulted in 7 different factors with inadequate managerial skills and financial constraints ranking first and second most critical constraints respectively. Results of OLS estimation of the effects of constraints on business growth found inadequate managerial skills and financial constraints to negatively affect the gross margin ratio between the baseline and follow-up periods. In addition, vendors who reported complex regulatory and banking procedure as a constraint experience a decrease in the rate of growth of their businesses with respect to average daily sales per person.

Based on the self-reported constraints to growth of street food enterprises in Ghana and econometric analysis of constraints to growth, the study concluded that policy interventions aimed at improving the street food sector should aim at addressing managerial constraints or financial constraints or both. Specific interventions may include period training business management, group formation and management as well

as training on requirements for credit acquisition. In order to deal with problems of high cost of production and input price variability, vendors should be encouraged to consider bulk procurement of raw materials that are less perishable. Other measures to deal with these problems may include entering into agreements with trusted suppliers so that payment of items may be procured on credit or price negotiated to control the level of variability. Future studies may consider increasing the sample size for a specific food and also track results over a longer period of time.

## Conflict of Interests

The authors have not declared any conflict of interest.

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A pair of hands is shown from a top-down perspective, holding a mound of dark, rich soil in the left hand and a stack of various coins in the right hand. A small green seedling with two leaves is growing out of the soil in the left hand. The background is a blurred, dark surface, possibly more soil. The entire image is framed with rounded corners.

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