

# The Effect of Remittance on Household Home Ownership (The Case of KebriDehar City in Korahe Zone, Ethiopia)

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**Abstract:-** This study attempts to examine the effect of remittance on home ownership in KebriDehar City in Korahe Zone, Ethiopia. In order to attain stated objective the study employed of cross-sectional household survey data collected from 100 sample households. Both descriptive statistics and binary logit regression model were employed to analyze and discuss the collected data. Consequently, the descriptive result indicates that from total 65% household's home owner and 49% remittance receiver. The result of the logistic regression model revealed that remittance has positive and noteworthy effect on the probability of being home owner. The empirical results generally suggest that the effect of the determinants corresponds to theory. Therefore, better quality of institutions and city administrations required which boost investment in house can result in effective utilize of remittance and maximize household's welfare.

**Keywords:-** Remittances; HomeOwnership; KebriDehar City

## I. INTRODUCTION

Remittances, defined as financial inflow originating from the cross-border movement of citizens of a country, are the transfer of money and goods sent by migrant workers to their motherland. [10] point out that 442 billion dollars of remittance flows to low and middle income countries (LMICs) in 2016. Furthermore, developing countries are mostly from Asia, Latin America, Eastern Europe and Africa inflow of remittance has been increase by 0.8 percent over the past year. Indeed, the developing countries received remittance is about tripled higher than the official development assistance.

For the last three decades there has been a significant inflow of international remittances from United States of America, Europe, Middle East and Australia to Ethiopia. In Ethiopia for instance, in the period of 2000-2012, experienced a significant increments in broad remittances from US\$ 53 in 2000 to US\$625 in 2012 [9]. Among this KebriDehar city is one largest remittance inflow in the country. However, in many conditions there are lack of household level data and empirical investigation on the relation between remittances and their effect, and henceforth

on their real and potential effect to household welfare in KebriDehar city, specifically on homeownership. Therefore, this study devoted to investigated if remittance has any significant effect on the home ownership status of households in KebriDehar city by considering major household level determinate variables. The intention of this study, therefore, focuses on analyzing the effect of remittance on household home ownership in the KebriDehar city.

The rest of the paper is sectioned as follows. Part two briefly reviews the literature on the household welfare effect of remittance on remittances-recipient households. Part three discusses the sources of data and rigorously describes the variables of interest. In part four the empirical model has been specified and estimation results are analyzed. In this part, the necessary relation between remittances and family homeownership is drawn. Finally in part five, conclusion and policy recommendations are forwarded based on the finding.

## II. LITERATURE REVIEW

Remittance is an important financial flow in order to accumulate both productive assets (house, land, oxen, donkey...) and consumer assets (furniture, TVs, an/mobile phones, radios, refrigerators and bicycles). Remittances are consider as to further enable migrants' households to build their assets, both liquid (cash) and fixed (property), by improving access to financial services and investment opportunities [4, 7]

Study reveals that remittance inflows are related with an increased accumulation of assets in firm equipment, greater tiers of self-employment and accelerated small-business investments in migrant-sending areas. [1] examines the impact of internal migration and remittances on assets in the rural Philippines employing longitudinal data and an instrumental variable approach. The finding indicates that housing, consumer durables and non-land assets positively affected by remittances.

Remittances have a positive impact on housing investment to the poor households of developing countries by increasing family assets and overall quality of life. According to [5], 45 percent households in Ethiopia are

spends 10 percent of their remittance received for housing/land. [8], inflows of remittance have a statistically significant and positive effect on the accumulation of more consumer assets in all of its specification. In contrast, remittance has insignificant impact on the accumulation of extra productive assets. In fact, there even find a negative effect on household owning productive asset in the last specification. This due to the fact that household to finance the migration cost of one of its members necessary to selling livestock or other household assets. If the cost incurred sending household member to abroad not enough compensate by remittance sent by a migrant household member abroad, remittance diminishing accumulation of productive asset. This study, therefore, contributes to the literature by examining the effect of remittance on household home ownership in KebriDehar city.

### III. DATA AND METHODOLOGY

#### 3.1. Description of Study Area

The study area is located in KebriDehar city. KebriDehar city is found in the eastern part of Ethiopia known as the Ogaden, Korahe Zone of the Somali Region. This city has a latitude and longitude of 6°44'N 44°16'E /6.733°N 44.267°E and an elevation of 493 meters above sea level. Based on figures from the Central Statistical Agency in 2010, KebriDehar has an estimated total population of 100,191 of whom 51,327 are men and 48,864 are women. Currently, the officially reported total population of this town is 285,000 of whom 152,768 were men and 132,232 women. The two largest ethnic groups reported in this town were the Somali (89.02%), and the Amhara (2.58%); all other ethnic groups made up 8.4% of the population.

#### 3.2. Data type and source

In order to gather relevant information on remittance and house ownership in KebriDehar city, both primary and secondary sources of data used. Primary data collected through interviews and structured questionnaires. The structured questionnaires will pose to a total of 100 randomly sample household heads in KebriDehar city, and data on demographic characteristics (age, sex, marital status, and family size), were collected. In addition to structured questionnaires, qualitative data was collected from key participants within the city through interview. Unpublished materials and published documents such as previous reports, and checklists of facts and figures used as secondary sources.

#### 3.3. Sample Size and sampling Techniques

There are three principles commonly used to determine the appropriate sample size, in addition to the objective of the study and population size of the district: precision level, confidence or risk level, and the degree of variability in the attributes being measured [6]. The level of precision, sometimes called sampling error, is the interval in which the true value of the population is estimated to be. This interval is mostly expressed in percentage points, (e.g.,  $\pm 5$ ,  $\pm 7$ , and  $\pm 10$  percent).

The confidence level is based on ideas encompassed under the Central Limit Theorem. The key idea encompassed in the Central Limit Theorem is that when a population is repeatedly sampled, the average value of the attribute obtained by those samples is equal to the true population value. Furthermore, the values obtained by these samples are distributed normally about the true value, with some samples having a higher value and some obtaining a lower score than the true population value.

The third criterion, the degree of variability in the attributes being measured refers to the distribution of attributes in the population. The more heterogeneous a population, the larger the sample size required to obtain a given level of precision. The less variable (more homogeneous) a population are, the smaller the sample size have. Taking into account that there are tradeoffs between cost and accuracy in every research, to determine samples was employed a simplified formula provided by [11].

The formula is written as: 
$$n = \frac{N}{1 + N(e^2)}$$

Where  $n$  is the sample size,  $N$  is the total households (85,000 household heads) within the selected ten Kebeles of the city administration, and  $e$  is the level of precision set at 7%.

#### 3.4. Sampling size determination

Even though there are various ways to determine the size of the sample, due to their simplicity, cost effectiveness for large populations and maximize unbiased both published tables and simplified formula, which provide the sample size for a given set of criteria, are used. Note two things during using published tables: First, these sample sizes indicates the number of respondents, and not necessarily, the number of planned interviews, which is often increased to offset for non-response. Second, the sample sizes presume that the attributes being measured are distributed normally or nearly so. If this assumption cannot be met, then the whole population may require to be surveyed.

**Table 1** □ Sample size for ±3%, ±5%, ±7% and ±10% Precision Levels Where Confidence Level is 95% and P= 0.05.

Size of population	Sample Size (n) for Precision(e) of:			
	±3%	±5%	±7%	±10%
500	A	81	67	51
600	a	96	78	56
700	a	110	86	61
2000	714	333	185	95
...	...	...	...	...
10,000	1000	385	200	99
50,000	1,087	397	204	100
100,000	1,099	398	204	100
>100,000	1,111	400	204	100

a = Assumption of normal population is house owner (Yamane, 1967). The entire population should be sampled.

Therefore, 85,000 total households of the city from 12 Kebeles in the district at 95% of confidence interval with ±7% level of precision (e) the sample size as shown above from the table (3.1) is 204 sample populations. In the case of formulas, [11] provides a simplified formula to calculate sample sizes. This formula was used to calculate the sample sizes.

The formula is written as 
$$n = \frac{N}{1+N(e^2)}$$

Where n is the sample size, N is the population size, and e is the level of precision.

According to officials, there are 285,000 total populations in KebriDehar city. Among them in the case of this study, 85,000 households from the 12 Kebeles are considered. Using the above-simplified formula at 95% of confidence interval with 85,000 total populations (N) considered under the study. The sample size (n) at 7% level of precision (e) can be calculated as follows:

$$n = \frac{85,000}{1+85,000(0.07^2)} = \frac{85,000}{1+416.5} = \frac{85,000}{417.5} = 203.59 \approx 204$$

Therefore, in this study among the total 10 Kebeles of 85,000 households of KebriDehar city 204 samples will be drawn. However, for various reasons such as time, cost and energy, the sample size was reduced to 100 by using the probability proportional to size (PPS). Accordingly, the adjusted sample size of the respondents from the five Kebeles can be computed as: 
$$n = \frac{N \cdot n^*}{N}$$

Where n the sample size to be taken is, n \* stands for the estimated sample size and N represents the total number of population in the study. Hence, 
$$n = \frac{85,000 \cdot 100}{85,000} = 100$$

**3.5. Method of Data Analysis**

This section of the study focused on modeling the main determinants of home ownership status in KebriDehar city. The study was used cross-sectional quantitative and qualitative data to incorporate the socioeconomic behaviors of the respondents. The collected data from respondent through structured questionnaire were manipulated,

processed and analyzed by using MS-Excel and STATA software.

**3.5.1. Binary logit model:**

To estimate the effect of remittance on home ownership in area of study a binary response logit model was specified. The binary logit specification is developed to analyze qualitative data showing two possible outcomes, which in this case are being in home own and not being in home own. The selection of the logit model is due to the fact that ordinary least squares relevant on a continuous dependent variable while in the case of our dependent homeownership variable takes on only two values: 1 for being home owner and 0 otherwise.

The maximum likelihood estimation techniques used to estimate the logit model. The MLE gives optimal properties in estimation: sufficiency, asymptotically efficient, and consistent. As result, statistically strong results emanates from the logit regression [3]. Probability of being in homeownership is follow cumulative distribution as function of the explanatory variables. Therefore, the equation written as follow:

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \dots + \beta_k X_{ik} + \epsilon_i \dots \dots \dots (3.1)$$

Where,  
 Y= probability of being home own or not home own  
 α = Intercept (constant) term  
 β<sub>k</sub> = slope coefficient of the explanatory variables.  
 X<sub>k</sub> = Explanatory variable.  
 ε = error term.

$$P(\text{event}) = \frac{e^{\beta_0 + \beta_1 X_1}}{1 + e^{\beta_0 + \beta_1 X_1}} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1)}} \dots \dots \dots (3.2)$$

Where, β<sub>0</sub> and β<sub>1</sub> are coefficients to be estimated from data, X<sub>1</sub> is the explanatory variable and e is the base of the natural logarithm.

The extension form of the model (more than one explanatory variables) written as follow ;

$$P(\text{event}) = \frac{e^{z_i}}{1 + e^{z_i}} = \frac{1}{1 + e^{-z_i}} \dots \dots \dots (3.3)$$

Our study was deals about the probability of being a family owns a house or does not own a house and this expression for estimation purposes, we write as follows:

1<sup>st</sup>The probability of owning a house is just  $p_i$

$$\Pr(Y=1/x) = \Pr(Y=1) = \frac{e^{z_i}}{1+e^{z_i}} = \frac{1}{1+e^{-z_i}} \dots \dots \dots (3.4)$$

$$Z_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k + \varepsilon \dots \dots \dots (3.5)$$

Note: The error term  $\varepsilon$  also follows cumulative logistic distribution.

2<sup>nd</sup>the probability of not owning a house is just  $(1-p_i)$  i.e.

$$1 - \Pr(y=1/x) = \frac{e^{-z_i}}{1+e^{-z_i}} \dots \dots \dots (3.6)$$

Therefore, by dividing equation (3.4) by equation (3.5) we can get the odds-ratio in favor of a household being own house, which is written as below equation 3.7:

$$\frac{\frac{1}{1+e^{-z_i}}}{\frac{e^{-z_i}}{1+e^{-z_i}}} = \frac{1}{e^{-z_i}} = e^{z_i} \dots \dots \dots (3.7)$$

Equation 3.7 implies that the probability of a household will be own home relative to the probability that it will not be own home.

When we write odd-ratio in the form of natural logarithm will obtain logit model see as below.

$$Li = \log \left[ \frac{P(Y=1)}{1-P(Y=1)} \right] = \log(e^{z_i}) = Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon_i \dots (3.9)$$

Based on equation 3.9, we construct the logit model for probability of a household being home own and its determinants.

$$Y_i = \beta_0 + \beta_1 Ageh + \beta_2 Sexh + \beta_3 Eduh + \beta_4 Fsz + \beta_5 Nfi + \beta_6 Pho + \beta_7 Rem + \varepsilon_i \dots \dots \dots (3.10)$$

Therefore  $Y_i=1$  if household is home owner and  $=0$  if household is not homeowner,  $\beta_i$  is regression parameters,  $\varepsilon_i$  is the error term and the explanatory variables defined in table 3.2 below. Maximum likelihood technique was employed to estimate the regression.

**Table 2:** Expected signs of explanatory variables.

No	Variables	Variable type and Measurement	Expected Sign
1	Sex of the household head (Shh)	Dummy (take 1 if head is Male, 0 if head is Female)	+
2	Education level of the household head (Ehh)	Continuous (measured by year)	+
3	Age of the household head (Aghh)	Continuous	+
4	Family size (Fsz)	Continuous	+
5	Net family income (Nfi)	Continuous	+
6	Parental home ownership (Pho)	Dummy (Take 1 if parents of an individual own home, 0= otherwise)	+
7	Remittance (Rem)	Dummy (take 1 if household receive remittance, 0= otherwise)	+

**IV. RESULT AND DISCUSSIONS**

This section deals about the results of descriptive statistics and binary logistic regression results of the effect of remittance on homeownership. Sections 4.1 and 4.2 discuss about both descriptive statistical result and regression result of the logit model respectively.

**4.1. Descriptive analysis**

In the study a total of 100 household were interviewed concerning homeownership and effect of remittance that lead to home own.

**Remittance and home owner:** The table 3 below shows that almost half of the household were received remittance 49 (49%) and the remaining 51 (51%) were not a remittance source as sampled from this study. Regarding to home owner the table also indicates that more than half of the household 65 (65%) were home owner and the rest 35% were not. From both statistics we expect that remittance might have significant contribution on home ownership.

**Table 3:** Remittance and home owner

No	Status	Frequency	Percent (%)
1	Home owner & Remittance receiver	65 & 49	65% & 49%
2	Not home owner and not remittance receiver	35 & 51	35% & 51%
Total		100	100%

Accordingly as shown in the following table 4, the educational level household head had average of 2.36 educations in year where the maximum being 9 and the minimum only 0 year. The mean Age of the household head was 42.32 in which 78 was the maximum age of the head and 21 was the minimum. The households had average of 3123.9 values of the net income in birr where the maximum being 4000 and the minimum 2060 birr. The lowest and highest numbers of family member were 2 and 9 respectively in which the mean size was 11.95 members.

**Table 4:** Descriptive Statistics of the continuous Variables

Variables	Mean	Standard Deviation	Min.	Max.
Education level of the household head	2.36	3.211469	0	9
Age of the household head	42.32	17.04769	21	78
Family size	11.95	3.854356	2	19
Net family income	3123.9	469.7429	2060	4000

**4.2. Econometric analysis**

To identify the effect of remittance on homeownership in the area of study dependent variable i.e. probability of being in home owner was regressed against remittance corresponding with other independent variables. The regression result below table 5 indicates that the logit model enabled to predict 53% of the responses correctly. P-values related the Chi-Square with 7 degrees of freedom is 0.0000 which indicates that the model as a whole is statistically significant and the model fit the data well.

**Table 5:** Logistic Regression Result.

Prob. of being homeowner	Coefficient	Std. Err.	z	P> z
Age of the household head	0.0766982	0.0297514	2.58	0.010**
Sex of the household head	1.684929	0.4732483	3.56	0.000***
Education level of the household head	0.0939266	0.1001686	0.94	0.348
Family size	0.3787336	0.1543135	2.45	0.014**
Net family income	0.0029087	0.000914	3.18	0.001**
Parental home ownership	-0.2998869	0.8697695	-0.34	0.730
Remittance	1.607248	0.5459831	2.94	0.003**
_cons	-15.33336	4.887833	-3.14	0.002**
Number of obs =100		Prob>chi2 = 0.0000		
Log likelihood=-29.863833		Pseudo R <sup>2</sup> = 0.5387		
LR chi2 (7) = 69.76				

NB: \*significant at 1%, \*\*significant at 5% and \*\*\*significant at 10%.Source: Survey result using STATA, 2019.

The logistic regression coefficients give the change in the log odds of being homeowner for a one unit increase in the explanatory variable. The remittance coefficient (1.0607248) implies that remittance receiver the log odds of being home owner increase by 1.060728 than not remittance receiver. On other word remittance is positively related to the probability of being home owner and the coefficient was statistically significant at 5% level of significance.

Out of 7 explanatory variables, 5 variables such as household head age, household head sex, family size, net family income and remittance have a significant effect on

homeownership of the household at the significance level at 1%, 5% and 10%.

Due to the non-linear function, the effect of explanatory variable on the response variable (which is called marginal effect) is not straightforward but it depends on the value of the explanatory variables[3]. Therefore, marginal effects indicated effect of a unit change in an explanatory variable on the probability that response variable occurs.

The marginal effects for dummy variables show how  $P(Y=1)$  is predicted to change as  $X_k$  changes from 0 to 1 assume all other  $X_s$  constant. While for continuous explanatory variables, the marginal affect measures the non-discrete rate of change, i.e. measures change in the probability of being in home owner with a unit change in explanatory variables in instantaneous manner. Thus, in

contrast to linear regression case, it is not simply state the estimated coefficient as the effect of the explanatory variable on the probability of being home owner. However, it is possible to compute the marginal effects at some interesting values of the significant independent variables. As we present in below table 6.

Prob. of being homeowner	Coef.	Std. Err.	z	P> z
Age of the household head	0.0072176	0.024152	2.99	0.003**
Sex of the household head*	0.1585575	0.325256	4.87	0.000***
Education level of the household head	0.0888388	0.0091871	0.96	0.336
Family size	0.0356401	0.0127782	2.79	0.005**
Net family income	0.0002737	0.000658	4.16	0.000***
Parental home ownership*	-0.0282204	0.0814531	-0.35	0.729
Remittance*	0.1512475	0.0413653	3.66	0.000***

**Table 6:** Marginal effects regression result

(\*)  $dy/dx$  is for discrete change of dummy variable from 0 to 1. NB: \*\*\*significant at 1%, and \*\*significant at less than 5%.

Source: Survey result from STATA, 2019.

Accordingly as shown in the above table 6 the marginal effect regression result sated that remittance is significant and positive effect on the probability of the household to be home owner. This implies that holding other variables at their mean value; movement from remittance receiver to no remittance receiver the probability of a household being homeowner rise by 15%. The relevant conclusion for this finding was remittances enable migrants’ families to construct their assets, both liquid (cash) and fixed (property), improving access to financial services and investment opportunities [4,7]

The remaining variables such as age of the household head, sex of the household head, family size, net family income and have a significant positive effect on the probability of homeowner of the household at the significance level at 1% and 5%.

## V. CONCLUSION AND POLICY RECOMMENDATIONS

### 5.1. Conclusion

This paper was examined the effect of remittance on home ownership in the study area. The study used 100 sample households and data was collected from five Kebeles. To attain the stated objectives of the study we used both descriptive and econometric model analysis i.e. binary logit model. The study indicates that 65% and 49% of the interviewed household were home owner and remittance receiver respectively. The binary logit regression result indicates the coefficient of remittance is 1.60 and 0.15 in marginal effect regression result. Coefficient 1.60 interpreted as the remittance receiver the log odds of being home owner increase by 1.06 than not remittance receiver. Coefficient 0.15 explained as holding all othervariables at

their mean value; movement from remittance receiver to no remittance receiver the probability of a household being homeowner increase by 15%. To sum up the finding shows that remittance has positive and significant effect on the probability of being home owner. The results are somehow consistent with the findings of[5], and[8]. Out of 7 explanatory variables, 5 variables such as age of the household head, sex of the household head, family size, net family income and remittance have a significant and positive effect on homeownership of the household at the significance level at 1%, 5% and 10%. The empirical results generally suggest that the effect of the determinants corresponds to theory.

### 5.2. Policy Recommendations

Based on the finding of this study, the following policy recommendations are forwarded.

- We recommend that better quality of institutions and city administrations required which boost investment in house can result in effective utilize of remittance and maximize household’s welfare.
- Promoting infrastructure, reducing uncertainty and creating favorable environment for making investments productive could all help foster a more productive use of remittances.

An important issue that untouched in this paper is the effect of remittance on investment in business activity which involving in the study area. We assure that this is an important research topic that we plan to tackle in the near future.

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