

## Accounting for Remittances in the Informal Sector Labour Market in a Developing Economy: A Micro-Level Evidence on *Kayayoo* Migrants in Kumasi, Ghana

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**Abstract:** The study explores the determinants of informal sector migrant remittances to households in the northern territories of Ghana using data on *Kayayoo* workers drawn from the Kumasi Metropolis in Ghana from July-September 2009. The Tobit model is used to undertake the estimation of the remittance function. The majority of *Kayayoo* migrants are found to retain close links with family ties back home with 72% remitting some amount of money in the 12 months preceding the survey date. The substantive findings of the study are that the monthly earnings in the *Kayayoo* market exert predictable effects on migrant remittances and the remitting behaviour of the internal *Kayayoo* migrant with regards to time spent in Kumasi suggests an inverse U-shaped relationship which is more consistent with what is obtained in the migration remittance literature.

**Key words:** Informal sector, *Kayayoo*, labour market, migrants, remittance function, remittance decay

### INTRODUCTION

In their attempt to explaining the migration flows from northern Ghana to the southern part, economists have always argued on (Todaro, 1976) pull and push factors as compelling northerners to migrate to the south in search of wage labour. Other experts also postulated that overpopulation on a limited land resource base in northern Ghana continues to making it prudent for the northerners' migration to the south. This act serves as an escape-valve for a survival system (Nabila, 1974). Songsore and Denkabe (1995) also asserts that the colonial policy of turning northern Ghana labour force into a reserve to serve the interest of southern cocoa farmers and the mining sector served as historical antecedent of the northern to southern Ghana migration without focusing on the increasing feminisation of northern Ghanaian migrants.

In the very recent times, empirical migration works in Ghana, have shifted attention to the increasing feminisation of migrant labour (Abdul-Korah, 2006). All these empirical studies being vital to the understanding of the phenomenon of north-south migration in Ghana however, have ignored the issue of internal migrant remittances and the role it affects the internal migrant decision on migration. Although there have been a growing literature on the increasing significance of migrant remittance to the Ghanaian economy in recent times (Litchfield and Waddington, 2003; Quartey and Blankson, 2004; Adams, 2006; Adams *et al.*, 2008), these studies however have focused on the external migrants remittances. Empirical works on internal migrant remittances especially in the informal sector are yet to get

research attention. The objective of this study is to correct this anomaly by estimating the *Kayayoo*s operating in the Kumasi informal sector labour market remittance function and hence contribute to the issue of internal migrant remittances and how it affects their decision on migration.

*Kayayoo*s who are mostly females from northern Ghana territories of the Northern region, Upper East region and Upper West region operate in the informal sector labour market who see self employment as the only way to acquire minimum assets for either better marriage prospects or greater economic stability (Agarwal, 1994). Remittances play a major role in the sustenance of many Ghanaian households and internal informal sector migrant remittance play an important role in the prevention of poor households falling further into absolute poverty. This study therefore attempts to bridge the gap by estimating the internal migrant remittances function using micro-level data of *Kayayoo* migrants operating in the Kumasi informal sector labour market. The internal *Kayayoo* migrants' remittances from Kumasi back to relatives and friends in any of the three northern regions of Ghana is defined for the purpose of this study to only include cash to maintain at least a basic living standard and to cement the bond of friendship.

According to (Becker, 1974) seminal study on social interactions, the family is characterised as an income-equalising institution and private remittances are motivated by altruism. (Stark, 1991) also argued that migrant remittances are the outcomes of an inherent family's contractual agreement. The major theoretical models economists have suggested explaining the motives fundamental to migrants remittance behaviour are altruism, exchange and insurance. Using data based on

Mexican migrants in the USA, (Amuedo-Dorantes and Pozo, 2006) postulated that migrants are likely to behave as risk averse economic agents and purchase insurance in the face of economic uncertainty and that remittances can be considered as a payment to insure against risky income outcomes in the destination region or country. (Becker, 1974) model the utility of a remitter to be derived from the consumption level of the recipients back home, and he postulated that this explain the motives of migrants remittances. (Aggarwal and Horowitz, 2002), using data for Guyana, also opined that the level of migrant remittances is highly influenced by altruistic motives. (Cox, 1987) however models a scenario where migrant private transfers represent payments for services rendered to him or her back home. Cox opined that an increase in the remitter's income correlates positively with a higher probability of remittances back home transfers as well as the migrant remitter is ready to pay more for the services provided by the recipient back home. Recent studies by (Quinn, 2005) also proposed another model of remittance conduct whereby remittances are treated as both a consumption transfer to households back home and also as an alternative savings in the home country. This model predicts that the migrant's remittance/saving behaviour is affected by the relative rate of return on savings. He asserted that that an improved access to savings and investment mechanisms for recipient households in the home country might induce increase remittance inflows from migrants.

## MATERIALS AND METHODS

**Data:** A unique survey comprising 209 *Kayayoo* migrants in Kumasi was conducted by the author. The time spent by the *Kayayoo* migrant in Kumasi and her remittance behaviour is of particular importance to this study so also is her coinsurance behaviour and the remittance decay hypothesis. The survey was conducted from July to September 2009 in the Kumasi Metropolis of Ghana. The *Kayayoo* migrants were interviewed of their migration history, demographic characteristics, region of origin, remitting and savings behaviour and marital status. The problem associated with a survey of this type in a developing country concerns the representative nature of the sample. It has always been difficult gathering reliable estimates on the number of *Kayayoo*s residing and operating in the Kumasi metropolis as they hardly had residential addresses. The Kumasi Metropolitan Assembly (KMA) was however handicapped in providing reliable estimates regarding the number of *Kayayoo* migrants in Kumasi to the author. The key informant sampling methodology was adopted using members of the migrant *Kayayoo*s who are fluent in Twi to elicit extensive useable array of information from the respondents. 12 respondents

were excluded as there could not provide appropriate responses. The sample mean age is 21.7 years and the average *Kayayoo* has spent up to the date of interview, 14.5 months operating in the Kumasi informal sector labour market.

**Empirical model:** The empirical model estimated in this study is guided by some theoretical considerations that characterised the informal sector labour market in Ghana. Hence, a very general model of *Kayayoo* migrant remittances for this study is expressed as follows:

$$RM = f(MOTEARN, GENDER, NOTHREG, UPEAST, UPWEST, AGE, AGE2, MARRIED, PRIMARY, TIMESPENT, TIMESPENT2, SUSU, CHILD)$$

where *MOTEARN* is the *Kayayoo* donor's monthly earnings in Ghana cedis, *GENDER* captures the sexual characteristic of the individual *Kayayoo* donor, *NOTHREG* captures whether the migrant *Kayayoo* is from the Northern region, *UPEAST*, captures whether the migrant *Kayayoo* is from the Upper East region, *UPWEST* captures whether the migrant *Kayayoo* is from the Upper West region, *AGE* is the migrant *Kayayoo*'s age, *MARRIED* captures the marital status of the migrant, *PRIMARY* captures whether the *Kayayoo* migrant has primary education, *SUSU* captures whether the individual *Kayayoo* migrant saves money by the *susu* system and *CHILD* captures whether the individual *Kayayoo* migrant has a child. The dependent variable to be used in this study (*RM*) is estimated annual gross *Kayayoo* remittance.

The age effect would be expected to enter as a quadratic term as well as the time spent in the Kumasi informal sector *Kayayoo* labour market. The time spent may provide an indication of the relevance of the Remittance Decay Hypothesis (RDH) as reported in (Brown, 1997) to a sample of Pacific Island remitters. The level of *Kayayoo* migrant's education is taken as an indication of household investment requiring a future payback in terms of higher remittances. In the case of the *Kayayoo* labour market, the highest education acquired is up to the primary level and the robustness of this variable is not expected. The marital status and the dependent child variables provide controls to ensure that intra-generational transfer effect are captured. The inclusion of the *Susu* variable is to capture the effect of permanent income as influencing the remittance *Kayayoo* migrant. The expectations are that:

$$\frac{\partial RM}{\partial MOTEARN} > 0, \frac{\partial RM}{\partial GENDER} < 0, \frac{\partial RM}{\partial NOTHREG} > 0, \frac{\partial RM}{\partial UPEAST} > 0, \frac{\partial RM}{\partial UPWEST} > 0, \frac{\partial RM}{\partial AGE} > 0, \frac{\partial RM}{\partial AGE2} < 0, \frac{\partial RM}{\partial MARRIED} < 0, \frac{\partial RM}{\partial PRIMARY} > 0, \frac{\partial RM}{\partial TIMESPENT} > 0, \frac{\partial RM}{\partial TIMESPENT2} < 0, \frac{\partial RM}{\partial SUSU} < 0, \frac{\partial RM}{\partial CHILD} > 0.$$

Table 1: Description of variables

Variable	Description	Mean
Amount	Total value of money <i>Kayayoo</i> migrant sent back to relatives in the 12-month period prior to the survey interview date	53.72792
Gender	=1 if <i>Kayayoo</i> is male; = 0 if female.	0.3451777
Motearn	The total monthly informal sector market earnings for the last month in GH cedis.	53.7533
Nothreg	=1 if <i>Kayayoo</i> comes from the northern region; = 0 otherwise.	0.7208122
Upeast	=1 if <i>Kayayoo</i> comes from the Upper East region; = 0 otherwise.	0.2639594
Upwest	=1 if <i>Kayayoo</i> comes from the Upper West region; = 0 otherwise.	0.2335025
Age	The age of the <i>Kayayoo</i> respondent expressed in years	21.6599 476.736
Age2	Age squared	
Married	=1 if <i>Kayayoo</i> is married; = 0 otherwise.	0.1218274
Primary	=1 if <i>Kayayoo</i> has primary education; 0 otherwise.	0.4873096
Timespent	The total time spent in the Kumasi <i>Kayayoo</i> market expressed in months	14.54315
Timespent2	Timespent squared	236.502
Susu	=1 if <i>Kayayoo</i> is involved in the susu operation; = 0 otherwise.	0.6497462
Child	=1 if <i>Kayayoo</i> has a child; = 0, otherwise.	0.6091371

**Empirical variables:** The key dependent variable is the amount expressed in Ghanaian cedis and is defined as the total value of money a *Kayayoo* migrant sent back home to relatives in the 12-month period prior to the interview date. A variety of explanatory variables are used and these are now described in turn in Table 1.

**Characteristics of individual *Kayayoo* migrants:** A set of individual characteristics capturing the *Kayayoo* migrant's age, gender and marital status are included in the regression analysis. The primary education variable is also included to inform on the theory of contractual arrangement (Lucas and Stark, 1985). It is expected that a positive relationship between the amount of remittances and the primary school education as the *Kayayoo* migrant's primary education have seen the importance of education and will want to help in household investment to ensure that family members back home are now offered the needed education. The effect is however not however expected to be robust.

**Regional-level characteristics:** Variables relating to the regional and geographic characteristics of the *Kayayoo* migrants at the destination are also included in.

the analysis. The set include dummy variable for whether the migrant comes from the Northern, Upper East, Upper West, Ashanti, regions or otherwise. In addition, variables representing the age and the age squared of migrants are also included.

**Duration of stay at the destination:** In an attempt to examine the relevance of the remittance decay hypothesis for *Kayayoo* migrants, variables for the time spent at the destination and the time spent squared are included. The *Susu* is designed to capture among other things, whether there is any financial mechanism that captures the informal sector employees notably, the *Kayayoo* labour market. A negative relationship between the *Susu* variable and the level of remittances is anticipated, as *Kayayoo* migrants who are engaged in the *Susu* operations will see it as a form of insurance to continue to stay on in their place of current abode.

**Methodology:** Because the sample comprises both remitters and nonremitters, using the Ordinary Least Squares (OLS) regression analysis in estimating the determinants of *Kayayoo* remittances may become problematic due to a restriction on the values taken by the regressand. If the *Kayayoo* migrants do not remit, there is no data on their remittance levels, although there exists data on the regressors. The use of linear OLS in this context will clearly result in bias and inconsistent estimates. The nature of the censored regression nature could be overcome by the use of the Tobit model (Tobin, 1958). Banerjee (1984) work first drew attention to the censoring of remittances in the migration literature. The Tobit model overcomes the censoring problem by modelling the remittances as a single equation estimated by using data on both the remitting and non remitting *Kayayoo* migrants. The maximum likelihood estimation of this model yields parameter estimates that are consistent, but in the context of modelling remittance behaviour, has the disadvantage that a given determinant is restricted to having the same sign effect on both the decision and the level of the transfer, (Liu and Reilly, 2004; Markova and Reilly, 2007).

From the foregoing, the remittance equation is specified as:

$$RM_i^* = x_i' \beta + u_i \tag{1}$$

where  $RM_i^*$  is a partial latent dependent variable that captures the  $i^{th}$  *Kayayoo* individual's propensity to remit, is a vector of remittance determining variables for individual *Kayayoo*  $i$ ,  $\beta$  is a vector of fixed unknown coefficients to be estimated, and  $u_i \sim N(0, \sigma_2)$ . Thus:

$$RM_i = RM_i^* \text{ if } x_i'\beta + u_i > 0 \quad (2)$$

and

$$RM_i = 0 \text{ if } x_i'\beta + u_i \leq 0 \quad (3)$$

where  $RM_i$  represents the actual amount remitted home by the  $i^{\text{th}}$  *Kayayoo* individual, and  $RM_i$  is either positive ( $RM_i > 0$ ), or zero ( $RM_i = 0$ ).

The log-likelihood function (L) may be expressed as:

$$L = \sum_{i=1}^n \left[ \text{Remit}_i \times \ln \frac{\phi\left(\frac{y_i - X_i'\beta}{\sigma}\right)}{\sigma} + (1 - \text{Remit}_i) \times \ln \left[ 1 - \Phi\left[\frac{X_i'\beta}{\sigma}\right] \right] \right] \quad (4)$$

where;  $\text{Remit}_i = 1$  if the individual remits and 0 otherwise, and  $\Phi(\cdot)$  and  $\phi(\cdot)$  denote the Cumulative Distribution Function (CDF) and Probability Density Function (PDF) operators, respectively. The parameter values for the  $\beta$  vector and the ancillary parameter ( $\sigma$ ) are chosen to maximise L using the Newton-Raphson non-linear iterative method (Liu and Reilly, 2004; Markova and Reilly, 2007).

## RESULTS AND DISCUSSION

The Tobit estimates for the remittance equation reported in Table 2 were obtained using the STATA (version 10) statistical software package. The goodness-of-fit measure is satisfactory by the standards of cross-sectional models. Most of the reported effects are all not

Table 2: Tobit model maximum likelihood estimates for *kayayoo* remittance functions

Variable	Marginal	Effects S.E
Gender	- 0.0881743	0.7754138
Motearn	0.9904886*	0.0206529
Nothreg	- 0.4636075	0.8499342
Upeast	0.3225333	0.8324466
Upwest	0.621164	0.9081562
Age	1.268073	0.9846189
Age2	- 0.0284171	0.0223225
Married	- 0.0239577*	0.7019361
Primary	- 1.148363	0.7159819
Timespent	0.4682389	0.2137489
Timespent2	- 0.0167561*	0.0074974
Susu	- 0.0333867	0.9970258
Child	0.1536491	(08648275)
Constant	- 15.78181	1.17744
Pseudo R2 ANOVA	0.36	†
Log-likelihood value	496.08337	†
No. of observations	197	†

\*: denote statistical significance at the 0.05 level respectively using two-tailed tests; †: denote not applicable

well determined at a conventional level of statistical significance using two-tailed tests. However most of the variables do have the anticipated signs.

**Age and gender effect:** The volume of *Kayayoo* remittances was found to rise with age in a linear fashion. This finding is resonant of that reported by (Markova and Reilly, 2007). A quadratic specification of the age term was experimented with. On average, and *ceteris paribus* remittances were also found to be lesser for *Kayayoo* males than their female counterparts.

**Earnings effect:** The monthly *Kayayoo* labour market earnings informs on the relationship between the informal sector labour market earnings in Kumasi and the annual remittances back home. Monthly *Kayayoo* labour earnings as anticipated are a positive determinant of remittances. This finding seems to render support to (Niimi *et al.*, 2009).

**Marginal and impact effects:** The marginal effect suggest that a one GH cedi rise in monthly *Kayayoo* earnings raises the annual remittances by another one GH cedi, suggesting a unitary elastic response of annual remittances to informal sector labour market earnings in Kumasi. Thus, a 1% rise (fall) in monthly *Kayayoo* earnings yields a 1% rise (fall) in annual *Kayayoo* remittances on average and *ceteris paribus*. The impact effect for the gender control suggests that, on average and *ceteris paribus* a male *Kayayoo* migrant remitted about 0.09 GH cedi less annually than a female *Kayayoo* migrant. The impact effect for the Northern region *Kayayoo* migrant control suggests that, on average and *ceteris paribus* a northern *Kayayoo* migrant remitted about 0.46 GH cedis less annually than her other counterparts. The impact effect for the Upper West region *Kayayoo* migrant control suggests that, on average and *ceteris paribus* remitted about 0.62 GH cedis more annually. A one month increase in the time an average *Kayayoo* migrant spends in Kumasi increases the annual remittances home by 0.47 GH cedi. The estimates for the linear and quadratic terms in time spent in Kumasi suggest an inverse U-shaped relationship between remittances and time. The turning point is computed at approximately 14 years. This is broadly consistent with the remittance decay hypothesis, (Liu and Reilly, 2004) but the turning point is somewhat later than generally found in the literature, albeit the fact that the remittance literature mostly deal with the formal sector as against this study dealing with the informal sector labour market. The marginal effect for *susu* suggest that, on average and *ceteris paribus* *Kayayoo*s who are engaged in the *susu* operations remitted about 0.03 GH cedi less annually as a result of the migrant having a form of insurance cover from the *susu* operation. *Kayayoo* migrants with children

remitted 0.15 GH cedi on average and *ceteris paribus* more back home annually than those without children, and this finding seem to render some support for the altruistic motive with respect to remittance behaviour.

### CONCLUSION

The main objective of this study is to explore some key aspects of the remittance behaviour of current *Kayayoo* migrants in Ghana using individual micro-level data. Migrant remittances have assumed increased significance in the Ghanaian economic development in recent times. Unfortunately, empirical studies on Ghanaian migrant remittances have mostly focused on the remittances from the external and overseas sources of which data are readily available to the total neglect of the internal sector, and most especially internal remittances from the informal sector labour market. Internal *Kayayoo* migrant earnings in the informal sector labour market are vital not only to the livelihoods of the migrants and their immediate dependants but also to the non-migrant relatives and communities back home in the three northern territories of Ghana and the quest of all and sundry in alleviating poverty.

The substantive findings of this study are that the monthly earnings in the *Kayayoo* market exert predictable effects on migrant remittances and the remitting behaviour of the internal *Kayayoo* migrant with regards to time spent in Kumasi suggests an inverse U-shaped relationship which is more consistent with what is obtained in the migration remittance literature. However, the channel through which the *Kayayoo* remittances are sent back home, the potential impact they exert on households and whether the feminisation of migration from northern Ghana to south Ghana in recent times is a 'brain gain' rather than a 'brain drain' was not explored, and remains an agenda for future research.

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