FORMATION OF SUBJECTIVE REMITTANCE EXPECTATIONS BY MIGRANT FAMILY MEMBERS LEFT BEHIND

Abstract

When families participate in migration there are two lines of subjective expectations that go on: the first is the migrant's subjective expectation that he/she will 'make it' in the destination country (first-order subjective expectations), and the second is the subjective remittance-expectations by family members left behind (second-order subjective expectations). Given the importance of expectations in understanding and predicting economic decisions, including migration-remittance behaviour, especially in Africa where families are losing members through accidents on their way to 'sweet Europe,' the need to statistically study second-order subjective remittance-expectations is crucial. Using a specially designed survey data I construct a time-adjusted subjective remittance-expectation that allows for families to be classified as highly- and lowly-demanding. Selection models are run with various levels of information flows. Results show that information flow is not that important in the formation of remittance expectations even though it significantly reduces the likelihood of excessive demand. And though past performance of migrants is quite significant in determining expectation status, levels of expectations are not overly determined by past performance. Relationships are more important in the formation of levels of subjective remittance-expectations than information flow and past performance of migrants

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Introduction

> Back home, expectations are so high among family members, friends and relations that it does not matter whether these individuals are able to make it to the so-called 'promise land' or not. It does not matter whether they are employed or not. After all who cares to hear their stories? They are in America and Europe where milk and honey flows, so they have no excuses." *Tsikata, (2006) writes about migrant families left in Ghana.*

When families participate in migration there are two lines of subjective expectations that go on: the first is the migrant's subjective expectation that he/she will 'make it' in the destination country (first-order subjective expectations), and the second is the subjective remittance-expectations by family members left behind (second-order subjective expectations). Expectations are important in understanding and predicting economic decisions, including migration-remittance behaviour, especially in Africa where families are losing members through accidents on their way to 'sweet Europe,' with the expectations of improving the lives of relations left behind and their own lives. Yet unlike mainstream social psychological and economic studies, not much has been done to help us understand formation expectations in migration studies, even though major theories in the latter assume the operations of expectations.

From social psychologists perspectives expectations are viewed as theoretical constructs, not directly observable, but which arise from *observable* behaviour, and determine *future observable* behaviour (Sobieszek, 1972). Expectations are always in relative states, that is, an expectation for self relative to other, and may, for simplicity, be viewed as positive, negative, or undifferentiated. They are relative conceptions of task ability, which each member of a group or family comes to hold for each other (Ibid). These relative states are conceptualised in two modes: expectations one holds for oneself (first order expectations) and those one believes others hold for him or her (second order expectations) (see Troyer et al, 2001; Webster & Whitmeyer, 2002; Webster et al, 2004). In both cases, expectation are fundamental source of actions for the individual in any social settings including the family, and are determinants as well as allocative principles of how people should undertake their social and economic actions both now and in the future (Young, 2007).

The importance of expectations in economic behaviour cannot be overemphasized. The belief in the future eventualities explains why individuals, households and businesses

engage in such economic activities like savings, investment, lending and borrowing. Beginning with Keynes, it is the economists who began to use various econometric models to measure or quantify expectations (Olivares, 2009). But full-fledged theoretical investigations into the determinants of expectations started with the adaptive expectations school pioneered by Cagan (1956) and Nerlove (1958). Under this school, expectations of the future value of an economic variable are based on past values. For example expectations of value of future flow of remittance will be influenced or determined by past trends of remittance flows. This is epistemologically relevant for we all learn through our past experiences, which invariably suggests that the world is relatively stable in many social phenomena according to this school. When only the past performance or historical data inform formation of expectations, the confidence with which people hold their expectations are also the very past events of the variable in question. In this case significant events in the past could be turning point exerting excessive influence on the formation of expectations. This is because those turning points could be viewed as containing information about the general course of events of the variable (Schmalensee, 1976). In migration for example, an unusual increase in the flow of remittances in say festive season or periods of disaster in the past could have excessive influence on future expectations of remittances when such periods arise. The problem with this line of thought is that levels of expectations become overly (if not only) influenced by past events. Thus in case of remittance flows, expectations of future levels of flows would almost solely be influenced by past, especially recent past flow of remittances.

The works of John Muth formally exposed weakness of adaptive expectations theory with their emphasis on the latter's limited class of variables and hence too biased towards the influence from few variables of past events (Muth, 1961; Curtin, 2003). Muth came up with the rational expectations theory which states that people in the economy make choices based on their rational outlook, available information and past experiences. The theory suggests that the current expectations in the economy are similar if not equivalent to what the future state of the economy will be. For example, people's expectations of an increase in the value of equities in the stock market will lead to more purchase, and this in turn, will lead to increase in the prices of the equities. In another example, the production of food crops in the agricultural market will depend on how much farmers expect to produce. Thus rational expectations require that people take, into account, their knowledge of all relevant economic information, especially the macroeconomic ones, so that their actions are based on

an expectation that is, in turn, realised as a result of their actions. The advantages of rational expectations over adaptive expectation model is that the rational expectations solution is formed with reference to an underlying view of the world as reflected in the model held by agents. That is expectations reflect the underlying view of the socioeconomic situation of the agent. Second, expectations incorporate all economically relevant information known to the agents (Palley, 1993). Thus rational expectation theory presumes people can have access to 'relevant' information as well as have the capability to compute their expectation in ever-changing structures of an economy. This assumption has been the main criticism of the rational expectation theory. Even if the information is available it may be too costly for people to get it (Demertzis, 2008).

While the theories of adaptive and rational expectations have been applied in many economic investigations, very few, if any, studies have incorporated the idea of first- and second-order expectations in these empirical investigations. So far the only known example is that of Marshall (2003) who applies the two concepts in business management by exploring export managers' first- and second-order expectation in interactive decision-making. He finds that managers, who heavily weigh their beliefs of what others expect of them in decision-making, tend to make affect-based decisions in the early stages of an inter-organizational relationship.

Expectations have only been assumed in two of the major theories of migration. The neoclassical microeconomic theory postulates that an individual makes cost and benefits calculations between the origin and the destination, and moves only when the *expected* utility is greater than the opportunity cost of staying behind (Sjaastad, 1962). In the new economics of labour migration (NELM) theory, the *expected* utility is not only defined by the individual involved in migration, but the whole household or family (Stark, 1988; Todaro, 1989). In both of these migration theories people involved in the decision-making process are said to be rational agents making informed decisions with all the available information. Thus following the tradition of economic rationality, these agents (both the migrant and relations left behind) are said to be having some rational expectations of some benefits that they seek to maximize from migration. That is as he seeks to maximise his own expectations (first-order expectations), the migrant is also aware that relations and friends left behind at place of origin also trying to maximise their remittance expectations (second-order expectations). But both neoclassical microeconomic and NELM theories fail to tell how these *expected* benefits are exactly formed. For example, how do the individual

migrants or relatives left behind reach the expectation that by participating in migration, they will be able to build a house or establish some business within a certain period of time?

Apart from failing to account for how the remittance expectations are formed, the NELM theory also assumes access to information just like the rational expectations theory does. That is those left behind are said to be taking into consideration all the relevant past and current information in the formation of their expectations from migration. The NELM theory implicitly assumes a cohesive, traditional family, the members of which share common goals, and are likely to trust, and remain loyal to, each other in sharing information (Sana, 2003). The value-expectancy framework which is a variant of the NELM and championed by De Jong (2000) perhaps raises the strongest voice of this cohesiveness in family expectations from migration. According to this framework, migration intentions are based on an underlying desire to improve or maintain the individual's or family's quality of life. Migration decisions are seen as involving specific values and goals of the kinship network, and the expectation that migration will result in the attainment of these goals including information sharing between migrants and those left behind (Ibid). And others like others O'Neil (2003), Young (2007) and Mazzucato (2009) contend that the strength of these social norms, customary rules and values of kinship network is enough to coordinate interaction through information flow between the migrants and those left behind. According to Mazzucato (2009), kinship cohesion can bridge the gap created by geographical distance.

But empirical studies emanating from NELM theory attest to the fact that there is some significant level of information asymmetry between the migrants and those left behind irrespective of the level of cohesion in the kinship network. This is manifested in either migrants complaining of unrealistic expectations of relatives left behind (Tsikata, 2006; Fleischer, 2007; Mazzucato, 2009) or potential migrants not getting enough or accurate information about the economic wellbeing of migrant relations abroad (McKenzie et al, 2007). In a study on imperfect monitoring due to distance between migrants and the household members left behind, Chen (2006) found that there is bound to be information asymmetries between migrants and spouses left behind at home of origin. The consequent of these information asymmetries could be inability of the agents to form "rational expectations" (Knight, and Gunatilakaw, 2010). Or expectation may just be based on guesses and other sources of information (Demertzis and Hallet, 2008).

In spite of these shortcomings there have been some good attempts to study factors that influence pre-migration expectations. Pioneering this attempt is a study by Yoesting and

Bohlen who found that gender, level of education and occupational status are important exogenous determinants of pre-migration aspirations of migrants (Yoesting and Bohlen, 1968). In more recent studies, it has been established that socioeconomic wellbeing (Bjarnason and Thorlindsson, 2006) and times of economic shock (Fafchamps and Bubert, 2007), for example, droughts (Konseiga, 2005) raise levels of expectations of potential migrants. And still others have found expectations as the major driving force for realisation high income among migrants (Gao and Smith, 2010). Perhaps the most robust of these attempts is the one of McKenzie et al (2007). By employing elicited subjective probabilistic expectations, they found that negative feedbacks from migrants have negative effects on pre-migration expectations of potential migrants. In almost all of these studies expectations have been confined to the first-order –expectations migrants hold for themselves. And yet even at this level studies in exogenous determinants of subjective expectations, are still very much inadequate as more insights, especially as regards methodology, are needed (Delavande et al, 2010). This paper tries to contribute to insights in this area by suggesting alternative means of measuring subjective expectations and exogenous factors that can contribute to their formation using data on migrant family members left behind at home of origin.

Measuring Expectations

Formal approach to measuring expectations started with the adaptive expectation school (Nerlove, 1958; Cagan, 1973). For them expectations of a variable (remittance flow, for example) are modelled as a distributed lag of past values of the variable, with the restriction that the sum of the distributed lag coefficients equal unity. As observed earlier, this approach is too reliant on the past, especially recent past flow of remittances and fails to take into account the current and possibly future information which also impact on the formation of expectations (Palley, 1993; Johnson et al, 1995; Demery & Duck, 2007). The works of Muth (1961) and subsequent followers of rational expectations improved on the weaknesses of adaptive expectations with a model expectations based on available current and future information, learning from errors of past experiences and people's rational outlook. That is acquiring relevant information as far as the cost of any additional piece of information is economically feasible (Demery and Duck, 2007). In spite of its popularity rational expectation models have also had a fair share of criticisms especially with its

assumption of absence of systematic errors. And as Manski rightly put it economic researchers or rational expectation theorists would "pose a model of the economy, assert that this model is correct, and also assert knowledge of the information on which agents condition their expectations" (Manski, 2004). Rational expectations assume that it is a necessity for a rational agent to make expectations about the future (Gertchev, 2007). Thus an expectation so defined is imposed on decision makers (Manski, 2004). This imposition is as a result of over-reliance on choice data and neglect of elicitation of subjective expectations. That is rational expectations assumptions by themselves do not specify subjective expectations that persons hold; they only state that people hold objectively correct expectations conditional on the information they possess (see Manski, 2004; Gertchev, 2007). It is this inadequacy of rational expectations measures and their reliance on revealed data that has necessitated the need to support revealed data with elicitation of subjective expectation.

Linkert scales have been used and continue to be used in many attitudinal researches by other social scientists including migration studies to measure or assess subjective expectations of likelihood of an events occurring (Gill and Reynold, 1999; Gao and Smith, 2010). As Dominitz and Manski (1997; Manski, 2004) have noted, there are some limitations to this method. It is difficult to do comparative analyses with such value-laden responses since each individual or household has different interpretations of terms such as "very likely" or "very good", "strongly agree", "high", "very high", etc. Also statistically, such responses limit the amount of information one can get from the analyses. What-do-you-expect questions have also been used in many studies to measure expectations. Though simple and easy to answer, this is also problematic because it is difficult to assess the quantity respondents specify (Delavande et al, 2010). Bearing these drawbacks, McKenzie et al (2007) followed Manski's subjective probabilistic expectation method by asking potential migrants from Tonga to state their various levels of percentage chance of getting employment in the destination country – New Zealand. This approach is said to be able to minimize the problem of overconfidence as respondents are not inclined to focus so much on central tendencies and ignore uncertainties of outcomes (Dominitz and Manski (1997). And though it may seem complicated for illiterate populations, elicited probabilistic expectations have been argued strongly, with examples from Malawi, Colombia and India, by Delavande et al (2010) that the basic principle of probability is not difficult to be grasped by illiterates. They advise that the researcher has to devise a means to depict the probability concept. In

any case there is still no conclusion on which of these methods should be the dominant one. What is important though is for the researcher to take into consideration, the context within which the study is being conducted. Delavande et al (2010) rightly suggest that an assessment of the general education level of the respondents and interviewers with a pilot study before an appropriate technique can be employed.

In this study, wo attempts were made to elicit subjective probability of remittance flows in the pilot phase. The first followed the approach used by McKenzie et al (2007) in the tradition of Manski (2004). That is respondents were asked to indicate various percentage chances of getting the things they expect from their migrant relatives staying abroad. The items were limited to the three most popular ones: annual amount of money for living expenses including school fees and healthcare, business venture and establishment of a house (see Diko & Tipple, 1992; Adams, 2005; 2006; Brown & Leeves, 2007; Mazzucato, 2009). This approach did not go well with many respondents leading to poor response rate for that section (45%). Respondents found it a bit cumbersome. The general comment was from most of them was that they know migrant relations must provide these things, because "that is the way it is done here." There was some sense of impatience among the respondents about repeating the same question several times with different percentage chances. In spite of their apparent expression of certainty respondents indicated that the time they expect to get these things may differ in accordance with the item.

Hence in the second attempt the probabilistic elicitation of expectations was dropped. The head of the family or the person with whom the migrant has most contact in the family is asked the number of these items that they expect the migrant to send. Specifically they were asked to state whether or not they expect the migrant relative to send money for living expense, build a house, and/or establish business. People at home of origin do have different time period within which they expect their migrant relatives to meet their expectations. As Vishwanath (1991) rightly points out, people, especially migrant relations left behind have expectations that are not independent of time. Through observation of achievements of neighbours or migrant relations, people do have rough idea of what migrants have been doing within specific time period. Their expectations of remittances are always described or given with reference to what other migrants have done within some period of time. In a way this makes sense especially in the case second-order expectations since people are not directly involved in or do not know much about the acquisition of the expected items, they can only make reference to past trends. Now whether or not people would be overly

influenced by past experience in the formation of their levels expectations will be clear in the later part of the paper. It also makes sense that people at home would express their expectations in terms of time as this would propel them to take action, for example support for future migration. That is as people expect to get certain things within a certain period, which is usually shorter they would otherwise realise without migration, this would make them participate in migration process. For if there is no time difference between staying at home and migrating in acquisition of these items, people may find very little incentives to engage in migration, all things being equal. Following this line of thought elicitation of expectations of these three items are weighted by the time period within which people at home of origin will want to realise the outcomes, taking into account the relative value of the items and the discount rates. In order to avoid the problem of ambiguity in time period stated by respondents, interviewers were asked to emphasize on mean period of time that people are willing to wait to realise, at least, some of the expected items. For example if the family expects the migrant relative to build a house, the question is when the family expects the migrant to finish the building. In this way, interpersonal comparison, which is difficult to obtain with Linkert scale, can be achieved with this approach as people have the same understanding of time expressed in years. Also with the emphasis on mean amount of money, the ambiguity surrounding quantity in what-do-you-expect questions is reduced if not eliminated.

Data and method of analysis

The data for this study come from a survey designed in 2009 under the advisory role of Growth Laboratory[1] and the University of Cape Coast, covered migrant families in two of the major international-migrant-sending districts in Ghana – Sunyani and Berekum. It also has information on migrants residing abroad given by relations left behind. While the survey obtains social and demographic information from all adults in both migrant and non-migrant families detailed questions on expectations are directed only at migrant families. The total sample size of 943 migrant households was stratified according to population of migrant households in the two districts and their respective assemblies.

[1] Growth Laboratory is a business consultant and research company specialized in household and labour issues . It is based in Johannesburg, South Africa

Model Specification

Taking the preceding discussion into consideration, expectations of relation left behind are modelled with the following specifications. Let *Exp* represent the value of total expected items of each household/family at home of origin and let $x_{i,t}$ represent its *i*th component (i.e each individual item: money, house and/or business) at time *t*. The general relationship between *Exp* and $x_{i,t}$ can be stated as

$$Exp = \left[\sum_{t=1}^{N}\sum_{i=1}^{n}\frac{X_{i,t}}{(1+r)^t}\right] \qquad (1)$$

The total value of expectations in future of each family can therefore be expressed presently as

$$Exp_T = \left[\sum_{t=T}^{N}\sum_{i=1}^{n}\frac{X_{i,t}}{(1+r)^t}\right] \qquad (2)$$

where *r* is the interest rate and *t* is the waiting period (i.e number of years people would allow for the realisation of their expectations and n= {*i*: 1, 2, 3}. From the sample the average amount people expect migrants to send is about GH¢2200 (US$1600) for living expenses which is roughly about one-third and half of what migrants generally send annually for building a house and opening business respectively (see Diko and Tipple, 1992; Orozco, 2007). The weighting of each expected item therefore takes the form expressed in Table 1

Table 1: Weighting expected items

Expected Item	Average waiting period (Years)	Indicator	Weight
Money for living expenses	1.5	Amount expected	Amount expected ÷ 2200
House	3.7	Yes (1) or No (0)	3(1, 0)
Business	4.0	Yes (1) of No (0)	2(1, 0)

Families or relatives would view their current levels of expectations as a function of observed performance of migrants. As stated earlier this performance could be

accomplishments of migrant relatives. Thus traditionally families' expectation could be predicted with the following equation

$$Exp_T = \left[\sum_{t=T}^{N}\sum_{i=1}^{n}\frac{X_{i,t}}{(1+r)^t}\right] = Perf_{t-1} + \varepsilon \qquad (3)$$

where $Perf_{t-1}$ represents observed past performance of migrants. This is defined as achievements of migrants in the community. These migrants are related to the families at the community of origin in one way or another. To be consistent with the measure of expectations, these achievements are also limited to establishment of a house, business and average amount of money sent annually for living expenses. Since people left behind always evaluate performance of migrant against the time period the migrants made those achievements, performance is also adjusted to the number of years the migrants used to achieve any combination of these items. This leads to estimation of migrant performance at home of origin with the following model:

$$\mathrm{perf_t} = \frac{1}{\mathrm{m}}\left[\sum_{t=1}^{N}\sum_{i=1}^{n}\frac{Q_{i,t}}{(1+r)^t}\right] \qquad (4)$$

where *perf* is performance of migrant at home of origin, *t* is the time period within which each of the three items were achieved, Q_i quantity of each item achieved (money, house, business), with n= {*i*: 1, 2, 3}, *r* interest rate and *m* is the number of years since the migrant has been abroad. As Table 2 shows the weights applied to migrant performance is similar to those of the expectations.

Table 2: Weighting migrant achievements

Expected Item	Average waiting period (Years)	Indicator	Weight
Money for living expenses	2	Amount sent	Amount sent ÷ 2200
House	4.9	Yes (1) or No (0)	3(1, 0)
Business	6.2	Yes (1) of No (0)	2(1, 0)

As discussed earlier, modelling expectation as a function of past events alone biases expectations toward few variables from past events. People continually learn new information and update the previous ones with time. In migration, relatives at home learn of current information and even future ones through their contacts with their migrant friends and relatives abroad. I measure information flow with an index computed from access to pieces of information about the migrant's socioeconomic conditions as given in Table 3. Families were asked to indicate whether or not they currently have knowledge about the following socioeconomic conditions of the migrants: current or additional educational attainment since the migrant left Ghana, size of migrant's family abroad, employment status of the migrant, type of job, and migrant's salary. These information items were chosen because current knowledge of each of them as well as combinations of any of them is likely to impact on people's formation of expectations of remittance flows. For example having a current knowledge that the migrant's salary is high can bias expectation levels to be high, but if those left behind also know the big size of the migrant's family the high expectations may be moderated. Because of the sensitivity of some of these pieces of information, respondents were encouraged to state "yes" or "no" without giving further details.

Table 3: Information items for construction of information index

No.	Information Item	Response
1	Migrant has attained more qualification	Yes =1 / No=0
2	Marital status of migrant	Yes =1 / No=0
3	Size of migrant's family abroad	Yes =1 / No=0
4	Employment status	Yes =1 / No=0
5	Type of job	Yes =1 / No=0
6	Salary	Yes =1 / No=0

Perhaps knowledge of some of these information items (salary, for instance) may influence remittance expectation levels more than others (attainment of more qualification), and hence should carry more weight. But given that getting figures on wages was not only too sensitive an exercise, but also unreliable as most households have little or no knowledge about how much the migrant earns, the simple dichotomous responses were used. See Appendix A for percentage distribution of knowledge/information levels about migrants' socioeconomic conditions. The responses for all the items for each migrant related to the household were summed up and divided by the total number of migrants related to the household. So, for example, if a household answers 'yes' to all the information items for each of say five

migrants relations, the household would have the maximum score of 6 (30/5) representing a very good knowledge of the migrant(s). But if the households has full information on four of its migrants and only three items for the fifth migrant, the household scores 5.4 (27/5). Conversely, if the household does not have knowledge of any of these items about the migrant, it scores zero. Thus the scores range from zero to six. The mean score for the 943 migrant households is 3.85 with a standard deviation of 1.14 and a highest score of six. See Appendix B for more details of the descriptive statistics of the information Index. Adding the information index to equation (3) gives us the following model:

$$Exp_T = \left[\sum_{t=T}^{N}\sum_{i=1}^{n}\frac{X_{i,t}}{(1+r)^t}\right] = Perf_{t-1} + Inf + \varepsilon \qquad (5)$$

where *Inf* represents current relevant information available to the family at home of origin at the time of expectation decisions. In addition to information flow between the migrant and relations left behind, which I would term private information, there is also some public information estimated from whether or not the family has also got information from other sources. Controlling for various household covariates and types of relationship the final model for estimating remittance expectations of families or relatives left at home of origin becomes

$$Exp_T = \sqrt{\left[\sum_{t=T}^{N}\sum_{i=1}^{n}\frac{X_{i,t}}{(1+r)^t}\right]} = b_0 + b_1 Perf_{t-1} + b_2 Inf + b_3 h + b_4 Rel + \varepsilon \qquad (6)$$

where h and Rel are household characteristics and relationship with the migrant respectively, b_0, b_1, b_2, b_3 and b_4 are parameters to be estimated, and ε is the independent normally distributed error term with the variance of the mean equal to zero. The household covariates includes wealth, level of education, years of experience in migration, household size, age of household head and whether or not the household contributed significantly towards the movement of the migrant. Type of relationship is captured by categorical responses stating whether or not the migrant is a spouse, head, son, daughter, brother etc. Thus in response to the deficiency exhibited in adaptive models of expectations, this augmented model incorporates information on other variables that are assumed to influence the formation of expectations. The use of this additional information can help to offset the tendency toward systematic prediction errors (Curtin, 2003). Square root transformation is

then used to normalize the computed expectations variable which is skewed to the right due to the multiplicative effects from the computation.

Any Selection Bias?

Given the nature of the data for the study one would not suspect sample selection bias. This is because the sample covers only migrant households so there is no concern for selectivity from the general population into migrant households. Also the 117 (12.4%) of the total households sampled that do not expect anything clearly stated their choices. If these people had refused to answer the questions on expectations, then they could perhaps be treated as missing and hence a need to apply the selection bias model.

Nevertheless, some level of selection bias may arise if families that expect things are a select group, a situation that could render biased estimates from a simple OLS model presented in equation (6). The biased estimates are likely to arise from the fact that certain factors may have effects on the probability to expect something or nothing, but may not necessarily have any effect on the continuous choice of expectation levels. If these factors are not controlled, a simple OLS model may overestimate the effects factors that influence the choice of expectation levels. Hence, it would be important to simultaneously model the determinants of probability to expecting something or not and the continuous variable of remittance expectation levels. Heckman's sample selection model would be the appropriate technique to use in this case. A key advantage of this model is its ability to control for sample selection biases that could otherwise arise from the existence of unobservable variables that determine both the discrete and continuous choices pertaining to migration remittance expectations respectively. Thus there are two regimes defined by one, whether or not the individual migrant household expect something from migrant relations, and two the level of these expectations once selected. In this way the model allows for the information from non-expecting families to be used to improve the estimates of the parameters in the regression model. The reduced form of the Heckman model is given as follows:

$$S_i^* = b_4 Z_i + u_i \qquad (7)$$

$$S_i = 1 \quad \text{if } S_i^* > 0 \text{ and } S_i = 0 \text{ if } S_i^* \leq 0 \qquad (8)$$

where S^* is a latent variable indicating the utility from expectation, S_i is an indicator for expectation status (expect=1, do not expect=0), Z_i denotes the determinants of this status, b_5

is a vector of associated parameter estimates, and u_i is an error term having a standard normal distribution. After estimating b_4 using the probit maximum likelihood method, the second stage (equation 8) involves estimating OLS regression of levels of remittance expectation conditional on $S = 1$. This second stage regression appends the inverse Mills ratio (IMR) calculated from the linear predictions of the probit model as an additional explanatory variable. A significant coefficient of IMR indicates the presence of sample selection bias.

One of the major conditions of Heckman selection model is to get at least one variable that uniquely identifies the discrete choice of remittance expectation status from continuous choice of remittance expectation levels. This presents a challenge in a study of this nature in which factors that affect people's expectation status are also most likely to affect the choice of expectation level. Attitude towards migration and use of public information were chosen as unique identifiers on the assumption that having a good or bad attitude towards migration, and having access to public information will determine the household's choice of whether or not to expect something from migration, but it is difficult to see how these variables per se would affect continuous levels of expectations. This is because migration attitude and access to public information may have very little to do with helping those left behind know the socioeconomic conditions of the migrants – a knowledge that is important for gauging what to expect. Also unlike factors such as relationship, wealth contribution to movement, these public information and migration perception or attitude do not draw any responsive action from the migrant. Hence people left behind would not find them helpful to determine their remittance expectation levels. This assumption was tested by including both variables in both the selection and outcome equations, and they were highly significant in the discrete choice of expectations but insignificant in the continuous choice of expectation levels. In other words a good attitude, for example, would make the household expect something from migration, but when determining the level or quantity of the expected items households would not use attitude; they would rather rely on factors such as relationship, past performance migration experience etc that are likely to generate some action or response between themselves and the migrant. Having a good or bad attitude towards migration or getting information about migrants from the general public does not generate this action or response.

Results

Descriptive Statistics

Table 4 presents a descriptive statistics of the variables used in the model. This is done for remittance-expectant and non-remittance-expectant families with a t-test of difference in mean. Of all the types of relationships, it is only in cases where the migrant is either a household head or spouse that we find a significant difference between the expectant and non-expectant families. But there is no significant difference between the two sets of families when it comes to current flow of information about the socioeconomic conditions of the migrant members, even though the latter has slightly a higher level of information flow.

Table 4: Descriptive statistics of expectant and non-expectant families

	Expectant Families		Non-Expectant Families		T-test of difference	
	Mean	*Std. Error*	*Mean*	*Std Error*	*Difference in mean*	*Std. Error*
Migrant is head	0.05	0.01	0.01	0.01	0.04**	0.02
Migrant is spouse	0.12	0.01	0.06	0.02	0.06**	0.03
Migrant is son/daughter	0.43	0.03	0.54	0.08	-0.11	0.08
Migrant is an in-law	0.13	0.02	0.09	0.03	0.04	0.04
Migrant is brother/sister	0.55	0.03	0.65	0.08	-0.10	0.08
Migrant is other relation	0.29	0.02	0.22	0.06	0.06	0.07
Migrant is a friend	0.05	0.01	0.04	0.04	0.01	0.03
Performance of migrant	6.11	0.15	4.09	0.37	2.02***	0.43
Current information flow	4.08	0.04	4.15	0.11	-0.07	0.11
Other information	0.93	0.02	0.66	0.06	0.27***	0.07
Household wealth	0.05	0.04	0.19	0.11	-0.14	0.13
HH level of education	3.52	0.03	3.61	0.08	-0.09	0.08
Years of migration experience	10.43	0.25	9.27	0.63	1.16	0.72
Age of household head	42.39	0.77	46.68	1.87	-4.29**	2.18
Household size	4.54	0.07	4.54	0.16	0.00	0.21
Contribution to movement	0.36	0.02	0.42	0.05	-0.06	0.05
Main decision maker	0.23	0.02	0.21	0.02	0.02	0.03
Attitude to migration	0.97	0.01	0.81	0.04	0.16***	0.02

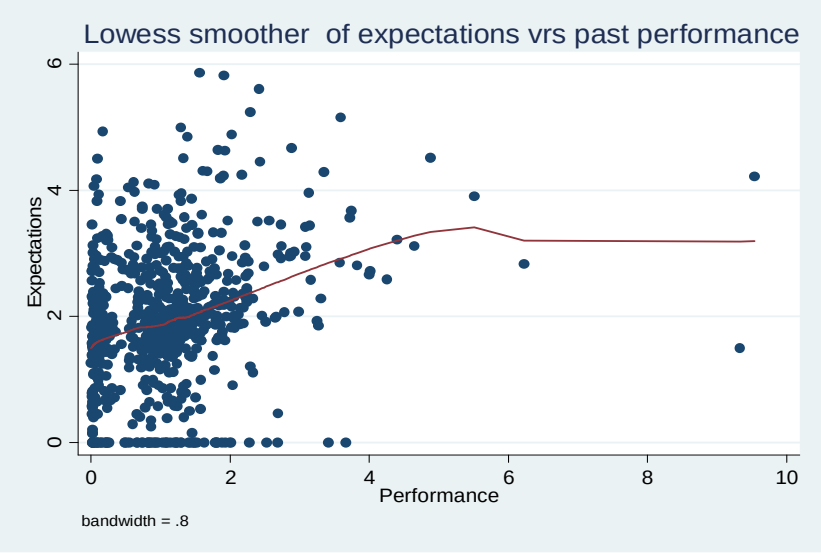
No. of Expectants =826; Non-expectants =117; *p<0.1; **p<0.05 ; ***p<0.01

There are significant differences in the flow of public information (defined by what other friends and relations in the community of origin talk about) as the expectants families have

slightly but significantly higher information flows in the community of origin. Non-expectant families significantly have older household heads than expectant families. This could probably be due to the fact that older families have also been in migration process for a long time enough to have realised most of the things they expect to get from migration. Families that expect some flows of remittances do have significantly better attitudes towards migration than their non- expectant counterparts. Interestingly there is no significant difference between those who did and those who did not contribute financially to the movement of the migrant. Does this imply that one does not have to make any financial contribution in the movement for one to expect to get something from migrant?

In addition to the descriptive statistics, a closer look at the relationship between expectations and past performance and information flows with lowess smoother plots is given in figures 1 and 2. On average past performance of migrants of expectant families is significantly higher than their counterparts from non-expectant families (ref. Table 4 above). Figure 1 gives another picture of the relationship between past performance and expectations

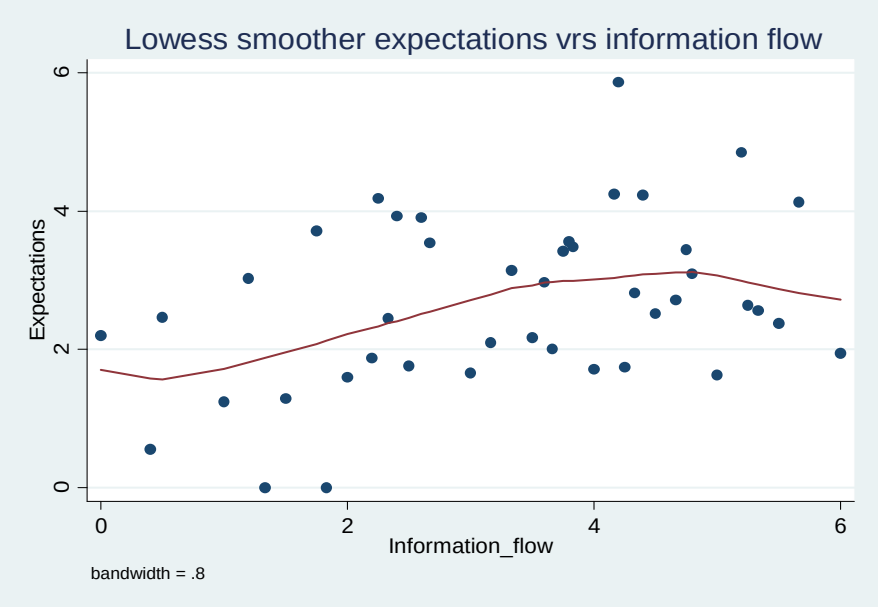
Fig. 1: Past performance and remittance expectation



levels. Generally remittance expectations rise with increase in past performance then decreases slightly, before it becomes relatively constant at higher levels of past performance. For the bulk of the sample, however, there is a positive relationship between expectations and past performance indicating that families that have seen migrants doing something at home of origin do have high expectations of remittance flows.

Remittance expectations rise with increase in information flow up to about level five where families at home of origin would have information on marital status or family size and employment status and probably type of job. Beyond this level of information flow, that is level five, expectations start decreasing. In other words people who have access to high information flow seems to have lower levels of expectations than those who have average

Fig. 2: Information flow and remittance expectation



information levels. However it would be too early to read too much into this relationship without controlling for other factors. It could be that families with access to high information flows may also have migrants who have performed well enough to have satisfied them, and hence little or no need to expect more.

Determinants of formation of Remittance Expectations

As Table 5 shows the (*rho=0)* is significant with *Prob > chi2 = 0.0138* indicating the presence of selection bias and hence the use of Heckman selection model is in order. The table also shows the estimates from the OLS regression model and the estimates of marginal effects from the Heckman model to aid interpretation. See Appendix C for the formula used to estimate the marginal effects. In absence of the selection model, there are more upward

Table 5: Estimates from Heckman selections model of determinants of formation of remittance expectation

	OLS		Heckman		Marginal Effects	
	Coef.	Std. error	Coef	Std.Error	Coef	Std.Error
Outcome: **Levels of expectations**						
Past performance	0.142***	0.032	0.065**	0.026	0.096***	0.000
Private information flow	-0.005	0.028	0.023	0.024	0.015	0.000
Migrant is head	0.612***	0.154	0.434***	0.124	0.553***	0.002
Migrant is spouse	0.678***	0.107	0.647**	0.087	0.674***	0.000
Migrant is son/daughter	0.331***	0.050	0.432***	0.042	0.429***	0.000
Migrant is an in-law	0.417***	0.077	0.446***	0.063	0.456***	0.000
Migrant is brother/sister	0.359***	0.047	0.468***	0.040	0.466***	0.000
Migrant is other relation	0.488***	0.052	0.502***	0.043	0.523***	0.000
Migrant is a friend	0.153	0.110	0.172	0.096	0.196	0.000
Household wealth	-0.006	0.027	0.015	0.023	0.007	0.000
HH level of education	0.048	0.044	0.048	0.037	0.056	0.000
Migration experience	0.011	0.005	0.006	0.004	0.008	0.000
Age of household head	-0.002	0.006	0.000	0.005	0.000	0.000
Age of hh hold head squared	-0.000	0.000	0.000	0.000	0.000	0.000
Household size	0.053***	0.017	0.038***	0.014	0.042***	0.000
Contribution to movement	0.247***	0.091	0.194***	0.075	0.208***	0.000
Main decision maker	-0.216**	0.103	-0.034	0.087	-0.075**	0.001
Public information flow	0.283***	0.069				
Attitude to migration	0.754***	0.149				
Constant	0.458*	0.274	0.795***	0.221		
Selection: **Expectation status**						
Past performance			0.234***	0.078		
Private information flow			-0.065	0.052		
Public information flow			0.415***	0.124		
Migrant is head			0.901*	0.484		
Migrant is spouse			0.203	0.224		
Migrant is son/daughter			-0.025	0.094		
Migrant is an in-law			0.081	0.161		
Migrant is brother/sister			-0.015	0.089		
Migrant is other relation			0.165	0.114		
Migrant is a friend			0.180	0.199		
Household wealth			-0.062	0.050		
HH level of education			0.056	0.079		

*<0.1; **p<0.05; ***<p0.01

Table 5: Estimates from Heckman selections model of determinants of formation of remittance expectation - *continued*

	Coef.	Std. Error
Expectation status		
Migration experience	0.0.12	0.009
Age of household head	-0.004	0.011
Age of hh hold head squared	0.000	0.000
Household size	0.033	0.031
Contribution to migration	0.102	0.178
Decision maker	-0.313	0.190
Attitudes	1.174***	0.206
Constant	-0.472	0.551
/athrho	-0.716	0.182
/lnsigma	-0.315	0.033
rho	-0.615	0.113
sigma	0.730	0.024
lambda	-0.449	0.094

No. obs. =938	No. obs. =938
F(19, 918) = 20.64	Censured obs. =115
Adj R-squared = 0.2848	Uncensored obs =823
Root MSE = .92175	Wald chi2(18) = 533.78
	Log likelihood = -1167.196

LR test of indep. eqns. (rho = 0): chi2(1) = 6.07 ***Prob > chi2 = 0.0138***

estimates for all the variables, except relationship categories when one compares the estimates from OLS and marginal effects of the Heckman model. Generally though, the estimated from both models are a bit closer. This is expected given the fact the selection bias is not too much – significant only at 5% level. Nevertheless the comments that follow are all based on the results from the Heckman selection model.

Past performance, in terms of what migrants have done at home of origin, strongly and positively predict the probability of being in the group of households that expect something from migration. But once selected into this group, the effect of past performance is not equally strong in affecting the continuous choice of expectation levels. Private information flow between the migrants and relatives at home is not significant both in the selection into expectation status and expectation levels, confirming the observation from descriptive statistics. As observed by McKenzie et al (2007) the generally low and perhaps poor quality of information flow from migrants to relation at home could be an explanation

for the insignificance of information flow. As shown in Appendix A, very few of the relatives left behind have current information about the type of job (37%) and salary (19%) of the migrants. And this is the type of information one would expect to have major influence on levels of expectations, because it gives indication of income and hence the financial ability of the migrant to fulfil the expectations of those left behind.

In the descriptive statistics, it was found that there is no significant difference between expectant and non-expectant families with regards to the two factors measuring the participation of the household in the movement of the migrant. These are whether or not the household made a major contribution to meeting the cost of movement and/or the household was the main decision maker. But when other factors are controlled, it is apparent that any additional money a family contributes to meeting the cost of movement has a marginal increase in the level of expectation by 0.208. Obviously people would want some returns for their investment as the NELM makes us to understand. On the other hand, when the family only plaid a major role in the decision making without any financial commitment, the effect is negative on expectation levels. With the exception of household size most of the other household characteristics such as wealth, education level, age of household head and migration experience are neither significant in predicting the probability of expectation status nor expectation levels, even though they all, expectedly, have positive effects. Household size has no significant effect on household expectation status, but has highly significant positive effect on remittance expectation levels. This is expected as there is a likelihood of more demands by various members in the family.

The impacts of relationship on formation of remittance expectation are interesting. None of the relationship types has any significant impact on expectation status, but with exception of friendship, all of them do have highly significant effects on the formation of levels of expectations. And among the relations, families in which the migrant is a spouse, head of the household or other relation stand out as major factors contributing to the formation of remittance expectation levels. The case of other relation is a testimony of the strength of the bond between uncles and aunts on one hand, and nephews and nieces on the other in Akan matrilineal lineage systems. Among the Akans, uncles and aunts have strong impacts on the livelihood decisions concerning nephews and nieces (Nunkunya, 2003). Friendship is expectedly not a significant factor probably due to much lesser bond than all the other types of relationships.

Are relations left behind too demanding?

Given some imbedded relativity of people's needs and interaction with migrant, it is a bit difficult to find an objective criterion to measure whether or not families left behind are too demanding. In other words how do we categorise a certain level of expectation as being too much or moderate? I think past performance of migrant can help in answering this question. In addition to helping them assess the ability of migrants to meet their expectations, past performance, as estimated in this study, also tells what migrants could achieve relative to the number of years they have been abroad. Against this backdrop, expectations (*Exp)* are also adjusted to the same number of years (*m)* migrants used to achieve their various levels of performance. That is dividing the result of equation (2) by *m* in equation (4) and subtracting the past achievement (performance) from the result as given below.

$$d = \frac{Exp}{m} - Perf \qquad (9)$$

where *d*, the demand level, is categorised into zero for values that are less or equal to zero (for less demanding) and one for values that are greater than zero (for too demanding). The basic assumption here is that all things being equal, people should expect migrants to perform within the same number of years just as they have seen migrants do before in the community of origin. Anything more than this is considered excessive. This resulted in the 66.3% and 33.7% of the sample being grouped under moderately and excessively demanding families respectively.

Table 6 presents the results from the logistic regression used to estimate the determinants of the demand status of the household. Private information flows is the strongest predictor of the demand status of the families left behind. The odds of families demanding (expecting) excessively from migrants are lower with increase the flow of information between the migrant and those left behind. As regards relationships it is only brotherhood and friendship that are statistically significant predictors of demand status. That is all things being equal, households in which migrant is a friend or sibling are more likely to have excessive demand compared to past performance. Household characteristics such as size and contribution to movement cost expectedly increase the odds of excessive demands. But with the increase in years of experience in migration the odds of the family left behind being excessive in demand or expectations is toned down. This could be due to that fact that the family will have realised most of the things they expect to get.

Table 6: Logistic regression showing the odds of household demand status

	Odds ratio	Std error
Private information flow	0.609***	0.042
Public information flow	0.897	0.149
Migrant is head	1.052	0.400
Migrant is spouse	0.970	0.256
Migrant is son/daughter	1.083	0.127
Migrant is an in-law	0.989	0.188
Migrant is brother/sister	1.280**	0.141
Migrant is other relation	1.063	0.134
Migrant is a friend	1.589*	0.423
Household wealth	0.952	0.063
HH level of education	0.989	0.106
Years of migration experience	0.940***	0.012
Age of household head	1.000	0.014
Age of household head squared	1.000	0.000
Household size	1.083**	0.045
Contribution to migration	1.495*	0.325
Decision maker	0.792	0.194
Attitudes	1.313	0.491
Number of obs.	938	
LR chi2(18)	115.28	
Pseudo R-squared	0.096	
Log likelihood	-542.369	

Discussion and Conclusions

The focus of this paper has been to quantify remittance expectations relations left at home have (second-order expectations) and analyse exogenous determinants of the formation of levels of this expectation. Of major concern was to determine relative importance of past performance of migrants in terms of what they have done at home of origin and current flow of information given various socioeconomic and demographic characteristics of the families left behind. The method employed in estimating levels of expectation and past performance allows for families to be classified into two groups of excessive and moderate expectants.

The insignificant impact of current information flow from migrants in the formation of remittance expectation levels and status is interesting given the fact that information flow is an important part of formation of expectations as reported in various economic and migration literature (Tegene et al, 2003; Curtin, 2003; Chen, 2006; McKenzie et al, 2007).

Information people get from migrant relations most often does not include migrant's economic performance that could help relations behind to gauge their levels of expectations. The essence of good information flow is to enhance predictability of remittance flow as people can use the information to monitor, at least to some extent, how the migrant is doing economically and socially. Hence if people left at home do not have access to crucial information such as type of job or salary of the migrants then people are likely to resort to guesses of what they can get. According to Demertzis and Hallet (2008), the guess-work is not only the most natural behaviour when an economic agent faces uncertainty about various economic parameters, but also the optimal choice action to take. Members of the kinship network who may find it difficult to access information from the migrant will resort to alternative sources of 'relevant' information that will help them to make good guesses about their levels of expectations of remittance flows. It is therefore not surprising to find that these families rather rely on information from the general public in their communities of origin to at least decide on whether or not to expect something. But the significant impact of this same private information in reducing the likelihood of excessive expectations proves that should migrants disclose more and more of their economic wellbeing to their relations left behind, the complaints of excessive demand or expectations may perhaps not arise.

Past performance of migrants in the community of origin significantly does better than information flow in formation of remittance expectation levels. But its impact on expectation status seems to be stronger than expectation levels. So the formation of remittance expectation levels is not overly determined by past events even though people are quick at making reference to what so and so has done. They would use their experience of what migrants have done at home of origin as a starting point in the formation of their future remittance expectation, but the level of these expectations are much more influenced by other factors than past performance. From this study these other factors are led by types of relationship people left behind have with the migrant.

From the Heckman selection model, it comes out clear that type of relationship with the migrant, though insignificant in selecting families into expectation status, is the major factor on which people left behind rely to form their various levels of remittance expectations. And the levels vary significantly according to the type of relationship people have with the migrant with families in which the migrant is much closer – household head and spouse, for example – have the highest marginal contribution to the expectation levels. Thus all the close relations have much higher positive marginal effects on formation of

levels of remittance expectations than the traditional economic model that focuses on past performance and information flow. This could mainly be due to the fact that we are dealing with second-order expectations in which there is an intermediary –the migrant- between the subject (the families) and the object of expectation levels. Hence a lot has to do with the cooperation or closeness of the migrant abroad. And this closeness or cooperation is determined much more by type of relationship than any economic or demographic variable including household wealth. In other words, because the content of expectations in the second order also depends on kinship relationships and obligations, the economic and demographic factors alone cannot go far in determining levels of remittance expectations. Relationships define kinship obligations to towards one another (Brunie, 2009; De Varies, 2009). And the strength of this relationship defies any other factor in the formation of remittance expectation levels. So probably Tsikata (2006) is right: it does not matter whether the migrant is employed or not. The most important thing is that people left behind at home of origin have some relationship with the migrant. For them this should be an enough basis for the formation of their remittance expectations levels. They really do not have to care to hear any other stories.

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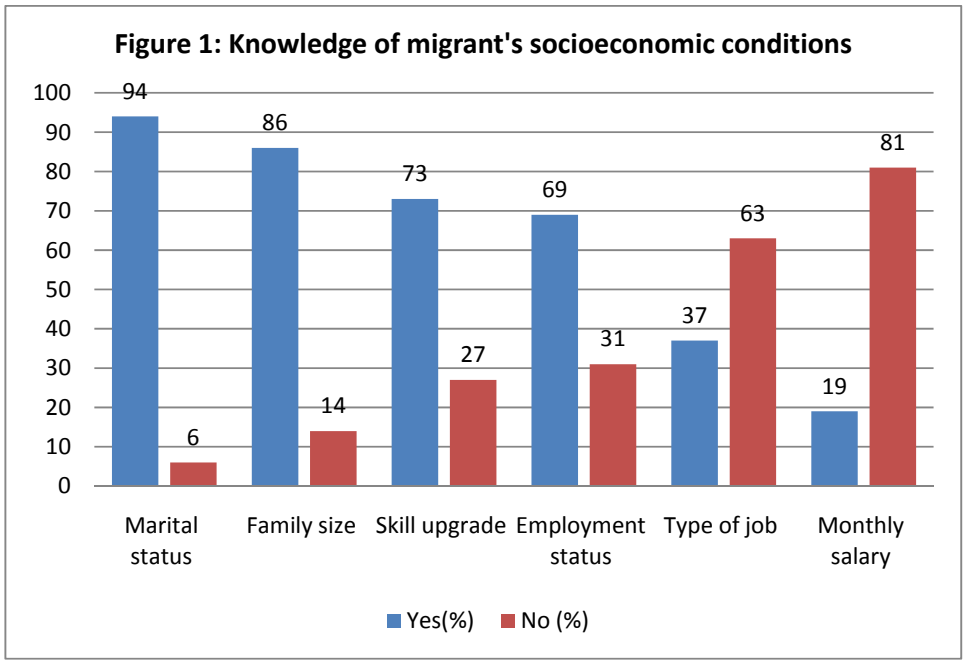
Appendix A: Percentage distribution of information items

Figure 1 below shows various levels of information or knowledge about the conditions. Of the 1590 individual migrants, about 94% of them disclose their marital status to the family relations left in Ghana. Other social status



information like size of family and skill upgrade also score very high. But when it comes to the economic issues there is a significant decrease in number of migrants letting their

relations back home knows how they are doing. For example, only 37% of migrants tell their relations the type of job they are engaged in the destination country, while only 19% do so about their salary.

Appendix B: Descriptive statistics of information index and quantiles

Information flow from migrants is grouped into four categories using the values of the index as category cutpoints for the four quantiles. The first (lowest) the fourth (highest) quantiles are respectively relabelled "Very low", "Low", "High" and "Very high". Table 4 gives the descriptive statistics of this grouping

Descriptive statistics of information flow quantiles

	Obs.	Percent	Mean	Std. dev	Min	Max
Very low	319	34	2.55	0.63	0.00	3.00
Low	278	29	3.87	0.23	3.17	4.00
High	298	32	4.92	0.19	4.17	5.00
Very high	48	5	5.80	0.28	5.20	6.00
Total	943	100	3.85	1.14	0.00	6.00

Appendix C: Estimating the marginal effect from the Heckman model

In the case of the Heckman model, since the coefficients of the variables that appear both in the selection and outcome equations are affected by the former, marginal effects are estimated for those variables with the following formula, following Sigelman and Zeng (1999):

$$\frac{\Delta E(Y|S>0,x)}{\Delta X_i} = \beta_i - \alpha\rho\sigma_\varepsilon\lambda(\alpha Z) \qquad (11)$$

where Beta is the coefficient in the outcome equation, alpha is the corresponding coefficient in the selection equation, rho is the correlation between the errors in the two equations and sigma is the error from the outcome equation and $\lambda(\alpha Z)$ is a function of the inverse mills ratio. The first part of the effect measurement, given by β, measures the effect of determinants on the remittance expectation levels, while the second part, represented by $\rho\sigma_\varepsilon\lambda(\alpha Z)$ shows the effect of a change in each of the determinants on the probability expecting something from migrants.

Appendix D: Test for multicollinearity

To test for multicollinearity and hence the stability of the model estimates, *variance inflation factor* (VIF) is used. None of the variables has a VIF value greater than 10 or tolerance less than 0.1. It shows none of the variables can be considered as a linear combination of other independent variables. An influence of a point causing this was removed.

Test for Multicollinearity and stability of model estimates

Variable	VIF	1/VIF
Age of household head	6.93	0.14
H. head age squared	6.91	0.14
Migrant is son/daughter	1.90	0.53
Migrant is brother/sister	1.70	0.59
Migrant is other relation	1.33	0.75
Household wealth	1.31	0.76
Performance of migrant	1.30	0.77
Migrant is spouse	1.29	0.78
Household size	1.27	0.79
Migrant is head	1.27	0.79
Years of migration experience	1.26	0.79
HH level of education	1.25	0.80
Migrant is an in-law	1.20	0.83
Contribution to migration	1.17	0.86
Current information	1.06	0.94
Migrant is a friend	1.06	0.94
Other information	1.06	0.94
Mean VIF	1.96	