Effects of Information Flow on Remittance Expectations of those Left Behind

By ***Samuel Kojo Antobam****, Univ. of the Witwatersrand, Johannesburg*
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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

When families engage in migration there is always an expectations that migrant would send something back home; this is somewhat an unwritten contract. It is expected that the migrant contributes to improving the livelihood conditions of those left behind at home of origin. And like any contract there is a need for monitoring so as to keep things in check or balance. A major avenue through which this contract can be checked is information flow between the migrant and those left behind. Unfortunately due to cost associated with distance and other factors, it becomes difficult for those left behind to really know what is going on. Sometimes the seemingly lack of adequate information flow has been attributed to nonchalant attitude of those left behind towards the livelihood conditions of the migrant member. As echoed above by Tsikata (2006), those left behind are generally perceived to be only interested in their remittance expectations; they do not care to hear the stories of the migrant members. But the problem could also be that it is not that those left behind do not care to hear the stories, but the stories do not actually come to them from the migrant members. Should the stories about the living conditions of the migrant come to them, perhaps their remittance expectations would be different.

Many studies have shown that individuals do possess some private information that can help them to reasonably predict future phenomenon of expected outcomes (Hammeresh, 1985; Manski, 2004; Perozek 2005). What I have done here is to differentiate private information people get through their interaction with the migrant themselves (private) and the one they get through interaction with other relatives and friends at the community of origin, that is through a second party (public). Both the quantity and quality of private information flow about current socioeconomic conditions of the migrants have profound effects on the structure of the household's expectation of remittance flows. This is because this information opens the windows for those left behind to know what is going on at the destination country

while shaping their general thinking around what to get and further migration intentions. As rational beings, people form expectations based on the relevant information available to them about the entity. The flow of this information also helps agents to monitor the environment within which their expectations are formed. This, in a way, would help them to form expectations that are more and more realistic depending on the level of information flow. In addition, it is this private information that makes subjective expectations of any kind so special, and makes individuals "know something we do not know" (Perozed, 2005). It is therefore important to subject remittance expectations people form to various levels private information flow to see the impact of the latter on the former.

Information flow and formation of remittance expectations

Quantitative measure of formation of expectations and information flow has seen more attention in economic literature, especially macroeconomics, than in migration studies. From the adaptive to rational expectation models economics have tried to measure expectations and use the results to predict some macroeconomic functions such as inflation. According to Muth the current expectations in the economy are similar if not equivalent to what the future state of the economy will be. As he stated, "I would like to suggest that expectations, since they are informed predictions of future events, are essentially the same as the predictions of the relevant economic theory" (John Muth 1961: 316). 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 requires 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. Following this logic the amount of remittance flow in any community or economy is, for instance, based on the level of remittance expectations of individual households which are, in turn, as result of remittance flow behaviour in the community. Rational expectations would imply that the same factors that predict actual flow of remittances also predict individual remittance expectations (conditional on these factors being in the information set of individuals).

But the attempt by rational expectations removes the subjective aspect of expectations in decisions. According to this school, individuals do not hold private information different

from the objective ones in the formation of their levels of expectations. This approach therefore suggests that individual expectations are accurate and homogenous, hence there is no need to incorporate them in any model. That is the subjective-probability distribution of economic actors is identical with the true objective probability distribution of the economic system (Herr, 2009). When subjective expectations are assumed we imply that observed choices are consistent with various combinations of expected preferences (Manski, 1993). On this basis, it can firstly be assumed that the subjective probabilities of remittance flows of all household members left behind are identical with the observed probabilities of remittance flow. And this is exactly what has been the case with almost all the works on household migration following the theory of new economics of labour migration (NELM). Observed flows of remittances to members of the family left behind have been explained at best from the point of view of the remitters and some demographic and socioeconomic characteristics of those left behind. The subjective expectations of the receivers have not been empirically considered in these studies. When this happens we assume that what is sent is consistent with what the individual household members left behind expect. But it has been established that this assumption does not hold (Manski, 2004). We therefore need to relax this assumption and incorporate subjective expectations in behavioural models (Manski, 2004; Walker, 2006; Braykov, 2010).

Major criticism of rational expectations and its followers in migration studies such as NELM, however, is the assumption of access to information. In both theories, there is a presumption that people can have access to 'relevant' information. In the new economics of labour migration (NELM) framework, it is assumed that economic agents, including relations at home, have the availability of all information required to manage any decision problem and to arrive at utility-maximizing solution with the help of principles of marginal analysis (Scapens and Arnold, 1986; Stark and Taylor, 1991). Consequently, from NELM point of view, the ability of the relations left behind to monitor the informal contract of remittance flow between them and the migrant is in order because it is assumed that along with the flow of remittance is the flow of other information regarding the socioeconomic conditions of the migrant.

A major premise on which NELM and all the studies based on it build their assumption of information inflow is the belief that the strength of social norms and values in kinship networks is enough to ensure that people involved in the informal contract to cooperate in information sharing (Massey et al, 1993). Social norms, as customary rules of behaviour,

coordinate our interactions with others and hence once a particular way of doing things becomes established as a rule, it continues in force because people would prefer to conform to the rule given the expectation that others are going to conform (Young, 2007). The resultant collective social capital arising from the interaction between the migrants and the relatives left at home, and governed by trustworthiness, is therefore expected to increase efficiency in the cooperation between the parties with resultant reduction in transaction cost. By lowering transaction cost, networks among the members in the family also facilitate communication of information about others and hence detection of non-compliance (Fleischer, 2007; Brunie, 2009).

Interfamily transfers of any nature needs monitoring irrespective of the strength of social norms binding the family members together. And information flow is crucial in this regard. Numerous empirical studies show that geographical proximity is important for households and migrants, for example, to monitor and enforce these implicit contracts (Stiglitz, 1991; Fafchamps and Gubert, 2007). Thus with a vast geographical distance between the migrants and the relations left at home in international migration, the assumption of availability of information between migrants and those left behind becomes highly untenable. Nevertheless, believers of social capital from kinship network expect smooth interactions between the migrant and those left behind to enable smooth flow of information needed for formation of their remittance expectation levels. In fact according to Mazzucato (2009), in absence of geographical proximity "cultural proximity" ensures that all members in the kinship networks abide by the informal insurance contract. He has observed that through the gatherings of various social events like church service, funerals, marriage etc, migrants from various communities in Ghana share information on what is happening back home, including progress of their projects (Ibid). And this indicates that in absence of geographical proximity, social and cultural proximity help the migrants to monitor and enforce the informal insurance between them and their relatives and friends. But how about those left behind? How do they monitor the migrant member to make sure that he or she also complies with the informal contract in terms of meeting their expected remittance flows? The best they can do is just to rely on phone calls and assume that whatever the migrant tells them about their socioeconomic conditions is the right message. According to Hagen-Zanker (2008) those left behind can enforce compliance from the migrant if they have those left behind have a powerful head who can enforce the contract.

But other studies have established that, in absence of legal bindings, the trust in social norms and relational values to guide information flow and monitoring is bound to suffer moral hazards with resultant information asymmetries between migrants and those left behind (Chen, 2006). He observed that even within the same family in the same location, it is reckoned that members can only have partial information (*Ibid*). Also feedbacks from returning migrants, especially the most recent ones have been found to be partial and have negative impact on potential migrants' expectations of job opportunities and levels of income (McKenzie et al, 2007). Three major reasons have been identified especially in in the literature to explain why informal contracts with the assumption of full information flow may not hold within the family. One, because participants are not legally bound to fulfil their obligations in the contract (i.e. to share information), they are at the liberty to compare the short and long term utility of conformity and nonconformity (Morduch and Sharma, 2002*)*. If, for example current non-cooperative behaviour has much bigger long-run utility or benefit for the migrant, he or she may choose not to cooperate, and vice versa if the utility is much better in the short-run. And as long been established in consumer economics (Nelson, 1970), monopolistic (migrant's in this case) power over a good (remittance expectations) is greater if consumers (households at home) know only a few things about the nature of the good (remittances). In other words individuals may choose to increase their bargaining power rather than participate in the shared interests (Doss, 1996). It is therefore not surprising that many migrants do not tell their relatives at home how they make their money or how they do socially and economically, in general (Diko and Tipple, 1992; Peil, 1995; Owusu, 2000; McKenzie et al, 2007). Keeping all or part of the information enhances their monopoly of the decision to send or not and how much to send.

Secondly differences in resources and trajectories of wealth and social class between the migrant and those left behind have also been observed as a factor influencing non-cooperative behaviour in information sharing. As social and economic situations of families change, so also does their social class of relationship. When families become wealthy, they tend to associate more with the wealthier people either in or outside the kinship network, leaving the relatively poor ones out (Doss, 2001; Morduch and Sharma, 2002). After some years in the destination country, migrants tend to become more integrated in the culture of the destination country (Mazzucato, 2005*;* 2009). The effect of this integration may lead to non-cooperative behaviour with those at home as they become more and more distant not only geographically but also culturally. Of course, transnational theorists would dispel this

assertion with empirical evidence that migrants do maintain strong transnational ties over sustained periods and that these ties can even become trans-generational (O'Neil, 2003); and as observed in Ghana, migrants tend to remit for much longer duration than average (Bump, 2006). More research, however, is needed to augment the transnational claim, because most of the studies emanating from the transnational school are from cross sectional data, which hardly factor in effects of time in their analyses. Flow of remittances, for example, has been found in many studies to be inverted u-shaped when years of migration are considered (*ibid*). And the explanation that is often given is that after some years, the migrant would have most of the close family members with him/her in the destination country. This is most likely to lower expectation levels in two ways: one, with close relations now residing with migrants there would be a reduction in the number of people as well as the quantity of items expected from the migrant; two, many of the relatives left at home would now have limited reference point to justify why they should also expect something from the migrant (Briant, 2005).

The third reason found to be responsible for non-cooperation is the cost of obtaining information. Network and kinship systems of migration theory postulates that there is almost negligible cost involved in information about migration as trust of friendship and family relationship ensures the information is free and available. Perhaps this might be the case with those very close to the migrant, especially the ones through whose help the migrant was able to make the journey. In the extended kinship system, not all the members who expect something may have free access to information, especially about the socioeconomic situation of the migrant. This implies that obtaining information about the socioeconomic conditions of the migrant could be difficult and costly for some people in the kinship network. 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. And when this happens, people are likely to resort to guess-work behaviour. 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 determine their levels of expectations of remittance flows. And these sources may be different not only in their origins but also their authenticity. Another consequence of these information asymmetries could be inability of the agents to form more realistic expectations (Knight, and Gunatilakaw, 2010). Or as Van Dalen et al (2005) point out, in absence of perfect

information flow, past flows of remittances may be a major source of information that would "talk" to those who are left behind to either enhance or dampen the spirit of expectations of potential migrants. It emerges from the foregoing discussion that in the family, especially the kinship/extended family, some are likely to have access to relevant information while others are not. If current information flow is important in shaping expectations, then it follows that the asymmetric nature of information flow between migrants and those left behind has also got a lot to do with the expectations thus formed.

Data

Data set is from a specially designed survey of migrant international households in two districts of Bono Ahafo Region of Ghana: Berekum and Sunyani. These are two of the major migrant-sending districts in Ghana. This survey, sponsored by the Growth Laboratory of South Africa, has information on demographic, socioeconomic and remittance expectations of international migrant family members left behind. It has a sample size of 943 international migrant household with 1590 individual migrants residing abroad.

Computing Information Index

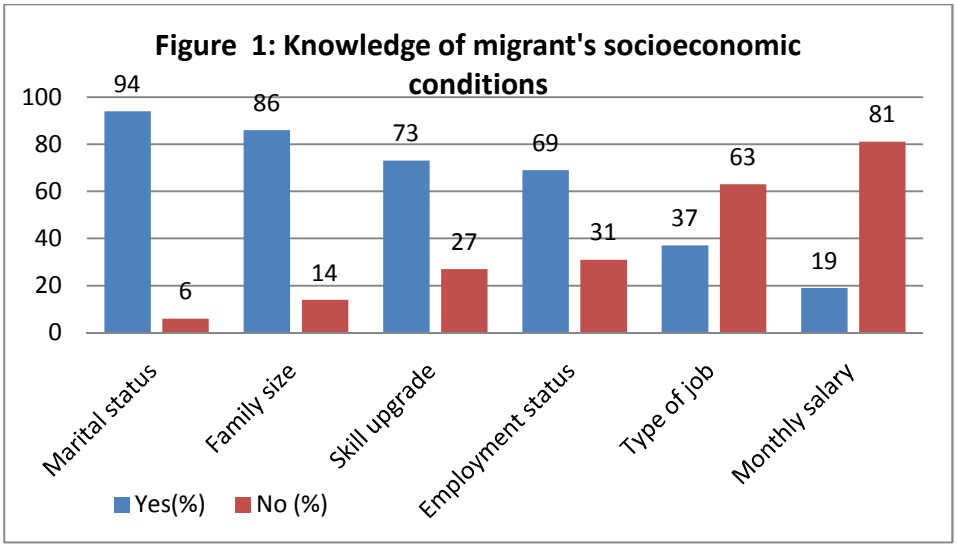
Given that different factors are likely to affect information flow and hence the level of knowledge of those left behind about their migrant relations, a simple question of asking households to rate their knowledge of socioeconomic conditions of the migrant relations would not be technically appropriate. This is because one, respondents do not necessarily use the same frame of reference when answering such ordinal questions. For example, the elderly may use a different frame of reference than the young when assessing or rating their level of knowledge about the migrants. Two, some factors can cause respondents to employ different thresholds when describing their knowledge levels. For instance the more educated may have different threshold from the less educated household heads. In addition, some households may be more modest than others in describing their levels of knowledge. For these reasons and to arrive at a more standardised measure of knowledge (or information) about migrants, an index is computed using access to various pieces of information items about the migrant's socioeconomic conditions in the host country as indicated in Table 1.

Table 1 Information items for knowledge index construction

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

That is they 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, current employment status of the migrant, type of job and 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 expectations of remittance flows and consequent intention to support future migration. For example having a current knowledge that the migrant's salary is high can bias expectation levels to be high, but if the household also knows 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. 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, I take these items as having the same weights. Figure 1 below shows various levels of information or knowledge about these 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 know how they are doing, confirming the findings of Diko and Tipple (1992), Peil (1995), Owusu (2000) and McKenzie (2007).



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 salaries. Migrants do not disclose their conditions especially the type of job as most of them work in areas that are deemed downgrading at home of origin. Those who score high on the index are the families that have access to crucial information such as type of work and salary.

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 migrant relations, the household would have the maximum score of 6 (30/5) representing a very good knowledge of the migrant's socioeconomic conditions. 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 current knowledge of any of these items about the migrant, it scores zero. Thus the score ranges from zero to six. The mean score for the 943 household is 3.85 with a standard deviation of 1.14 and a highest score of six. As shown in Appendix A, there is a very good level of internal consistency with Cronbach's alpha measure of 0.82 indicating that the index is good to be used. The Eigen value of the first factor is quite large (more than thrice) than the second factor, and it accounts for almost 86% of the total variance. This show a very high unidimensionality within the items used. The index is divided into two groups of low and high information flow. The low information comprises families that only know few social characteristics such as

marital status and household size, while the high-information category consists of families that have information on employment status, type of job and salary.

Measuring Expectations

Likert scales have been used and continue to be used in many attitudinal researches by 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 unlikely", "strongly likely", "highly likely", "highly unlikely" etc. Also statistically, such qualitative expectation measures limit the amount of information one can get from the analyses (McKenzie et al, 2007; Delavande et al, 2010).

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). That is one is not sure whether the responses being given are mean, mode, minimum or maximum quantities. Bearing these drawbacks, McKenzie et al (2007) followed Manski's subjective probabilistic expectation method by asking potential migrants from Tonga to state their levels of percentage chance of getting employment in the destination country – New Zealand. These elicitations area said to have the advantage of being measured on numeric scale in which responses can be interpreted as probabilities. There has been an increasing use of this approach in recent years among cognitive psychologists and economists (Delavande and Kohler, 2009; Zafar, 2009; Attanasio and Kaufmann, 2009; Delavande et al, 2010; Braykov, 2010). 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. However, there is still no conclusion as to 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 has to be done before an appropriate technique can be employed.

In this study, expectations were elicited not in probabilistic way in the tradition of Manski. Respondents were asked to indicate whether or not they expect to get various items from their migrant relations. 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, 2006; Brown & Leeves, 2007; Mazzucato, 2009). People at home of origin do have different time periods 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 migrant performance are always described or given with reference to what other migrants have done within some period of time (Tsikata, 2006). Respondents were asked to express their certainty or uncertainty about the probability of getting the items in terms of the time period within which they can realise the expected items. The head of the family or the person whom the family designates is asked the number of these items that they expect the migrant to send and the time within which it should be accomplished. Specifically they were asked to state whether or not they expect the migrant relative to send money for living expenses, build a house, and/or establish business, and the time for each of these items.

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 expected items, 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, on average, the family expects the migrant to finish the building after migrating. In this way, interpersonal comparison, which is difficult to obtain with Likert scale, can be achieved with this approach. That is by measuring expectations as weighted product of items expected and

the time period within which they are expected to be done, we achieve a comparable measure that is equally understood by individuals as all of them have the same understanding of time in years. Also with the emphasis on mean amount of money and time, the ambiguity surrounding quantity in what-do-you-expect questions is reduced. And since households left behind have to rely on the migrant's commitment to this loosely monitored contractual agreement between them and the migrants, time within which they hope to get the things becomes the best way they express their certainty or uncertainty about what they expect to get. That is those who are not very certain may give many more years to realise their expectations. I must, however, admit that, in spite of the emphasis on mean, there would still be some level of ambiguity as to whether or not respondents really refer to the mean when asked to state the average time within which they expect the items to be accomplished. Perhaps a study that combines this methods and that of probabilistic elicitations in the line of Manski, may give more insights about these issues of uncertainty and comparability of these measures.

The computation of the expectation index is shown with Table 2 of the 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 3.7 below.

Table 2: 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)

Taking the preceding discussion into consideration, remittance expectations of relation left behind are estimated with the specifications almost the same as the ones used for estimating migrant performance. 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}. This gives an index of expectation level for households that expect at least one the items. The index ranges from 0 to 34.39, with a mean of 4.53 and standard deviation of 4.64. This clearly shows that values are heavily skewed to the left. Hence there will be a need for appropriate transformation before the regression analyses are done. See Appendix B for detailed descriptive statistics. The internal consistency with Cronbach's alpha measure of 0.62 is not that great, but with the first Eigen value explaining about 65% of the variance, the unidimensionality of the items is quite good. Hence it is fine to estimate the expectation index with these items.

The analytical model

Two models are used to estimate impact of low and high information flows on remittance expectations. The first is propensity score matching. In order to bring out the marginal effect of low and high information on remittance expectations there is a need to control for at least the differences in observed characteristics of individual households in the sample in a kind of quasi experimental setup. This can be done with the propensity score matching (PSM) technique. Propensity score is the probability of taking a treatment (i.e having access to low or high information flow in this case) given a vector of observed variables as will be described below shortly. I estimate this with a *probit* function as follows:

$$P(x) = Pr[\, D=1|X=x]$$

where $P(x)$ is the propensity score, D is the treatment variable (access to low or high information flow) and X is a vector of observed variables. A major assumption of this technique is the assumption of common support. That is, the propensity scores of the treated should be in common with the untreated or control cases. In other words the propensity scores based on observed characteristics of, for example, migrant households that get high private information should be the same as those households that do not have this access. Since it is difficult to obtain the common support for the range of all values of both the treated and control groups. It is therefore advisable that always one should use kernel density estimates to present evidence on how the treatment and control groups differ and on which subpopulation is being studied or matched (Nichols, 2007). Appendix C presents kernel density estimates showing the ranges for which the propensity scores of both the control and treatment groups overlap. The adjacent graph show the ranges to which the estimates were limited. Observations outside this range are discarded from the final PSM estimates.

The PSM only controls for fundamental differences in observed characteristics. It also does not take into account the possible reverse-causal relationship or endogenous relationship between remittance expectations and information flow. Information flow may put reality check on level of remittance expectations, but it is also important to consider the fact that levels of remittance expectations or lack of it may also affect family's desire or attempt to get more information about the migrant relation abroad. In other to control for this endogenous relationship and any possible unobserved characteristics such as income shocks, ability, etc, I employ instrumental variable technique via the two-stage least square. The second model is the instrumental variable technique employing the two-staged least square. The specification of the model is given below.

$$Y_i = \alpha_1 + \beta_1 Info + \beta_2 X_i + \varepsilon_h \qquad \text{(i)}$$

$$Info_i = \alpha_2 + \beta_3 X_i + \gamma Z_i + \varepsilon_h \qquad \text{(ii)}$$

where Y_i is the observed outcome of expectation levels. The main independent variables of interest information flow is represented by *Info* with its associated coefficient β_1. A significantly positive sign of β_1 would imply that information flow has positive effect while a

significant negative effect would have the opposite effect. The vector X_i contains other observed explanatory variables of household and household head characteristics as described under Equation (1). The variable Z_i represents the instruments used to identify information flow. It is quite difficult to get instrumental variables that affect remittance expectations only through information flow as variables that affect information flow are also most likely to affect remittance expectations directly. I use household wealth and education average education level as instrument to identify the endogenous regressor, information flow. The argument is that household level of wealth and education would affect expectation levels through their ability to help the household source information that can shape their expectations. As described below, the test statistics show that the instruments are fine. To justify the validity of the instrument I first rely on the over-identification test results provided by the ivreg2 procedure. For instrument validity and hence inability to reject the null hypothesis of the over-identification test, the test statistic should be statistically insignificant. In this case the instruments are proven to be valid with the p-value for the Anderson Identification /IV relevance tests and Hansen J test of over-identification from the ivreg2 procedure not being significant support the claim that the model offer adequate explanatory power of the instruments. The Cragg-Donald F-statistic estimated as part of ivreg2 procedure is lower than 10, the recommended threshold (Staiger and Stock, 1997), but lager than 10 in the low-information model. It is, however observed in the case of multiple endogenous regressors as we have here, that F-statistic test may not be adequate as it is not clear whether the same threshold rule applies to all the regressors (Baum et al, 2003). The use of Shea Partial R^2, which gives the inter-correlations between instruments, is recommended when multiple endogenous regressors are used See Appendix D for various tests of validity of the instruments and identifications. The use of PSM and IV technique enables control for differences in both observed and unobserved characteristics of the those who are exposed to the treatment effect (High or low information flow) and those who are not. The endogeneity of information flow ($info_i$) can be tested by H_0: $\rho=0$. If the value of ρ is not significantly different from 0, the estimates from Equation (ii) could be done using the standard OLS model as presented in Equation (i). The test statistics given in Appendix E actually show that private information flow has no endogenous relationship with remittance expectations. Thus the estimate could made with OLS. Nevertheless I have also produced the 2sls estimated for comparative purposes.

Results

Before the results from the main models are discussed I show the descriptive statistics of the variables in the model according to the two types of information flow. Table 3 shows the differences or similarities in socioeconomic and demographic characteristics of the families that score high or low on the information flow index, and the second shows characteristics of those who source public information and those who do not. Generally there are not many statistically significant differences between families that have high information or knowledge of the migrant relation and those who do not. There is a significant difference between high and low information as regards past flows of remittances, as families with high information flow have migrants doing better in remittances than those with low information. This somewhat gives indication of a possible positive influence of remittance flow on increasing flow of information. In terms of relationships or kinship ties, families in which the migrant is much closer (for example, head of family, spouse child) are generally more on the high

Table 3: Descriptive statistics of households that have low and high information flows from the migrant relations

	High		Low		T-Test	
	Mean	Std. error	Mean	Std. error	Mean diff	Std. error
Migrant past performance	1.18	0.07	0.85	0.04	0.33***	0.07
Migrant is head	0.06	0.01	0.04	0.01	0.03*	0.01
Migrant is a spouse	0.13	0.02	0.10	0.01	0.02	0.02
Migrant is a son/daughter	0.49	0.05	0.42	0.03	0.08	0.05
Migrant is an in-law	0.12	0.02	0.13	0.02	-0.01	0.03
Migrant is a brother/sister	0.53	0.04	0.58	0.04	-0.05	0.06
Migrant is other relation	0.26	0.03	0.29	0.03	-0.03	0.04
Migrant is a friend	0.04	0.01	0.06	0.01	-0.02	0.02
Education level	3.60	0.04	3.49	0.03	0.12**	0.05
Household wealth	0.37	0.07	-0.11	0.05	0.48***	0.08
Household size of age 15+	3.81	0.11	3.72	0.09	0.08	0.14
No. of children	0.76	0.06	0.80	0.05	-0.04	0.07
Years of migration	10.54	0.37	10.10	0.30	0.45	0.49
Age of household head	47.20	0.79	47.12	0.73	0.08	1.14
Main financial contributor to travel - migrant	0.62	0.03	0.64	0.02	-0.03	0.03
Main migration decision maker - migrant	0.15	0.02	0.15	0.01	0.01	0.02
Attitude	0.95	0.01	0.95	0.01	0.00	0.01

*p<0.1; **p<0.05; ***p<0.01

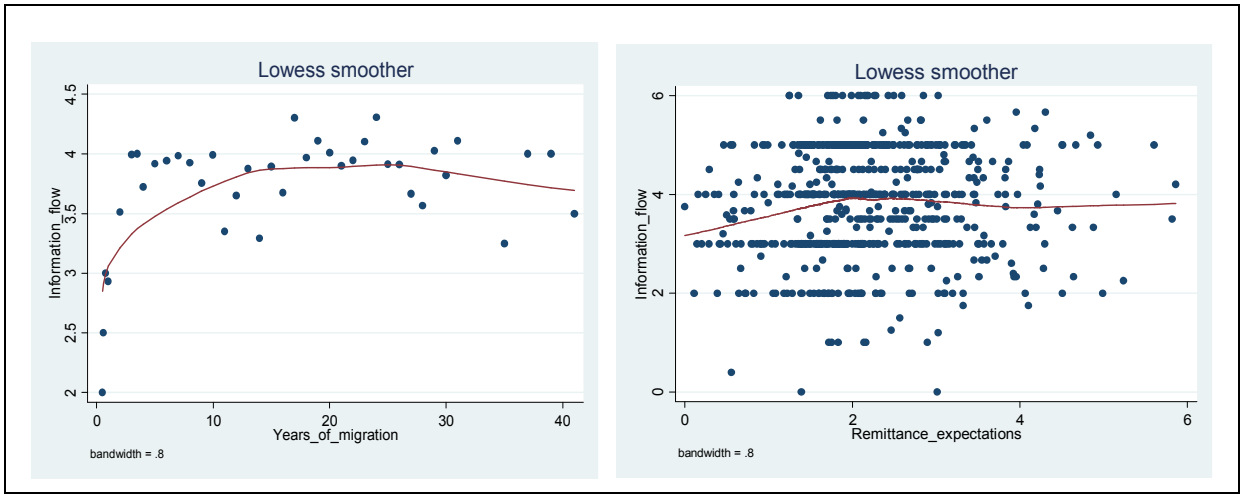
information side than the low information flow. But it is only in the case of families where the migrant is the head that the difference is slightly statistically significant at 10 percent level. Families in which the migrant is a bit of a distant relation such as in-laws, other relations and friends are generally on the low side of private information flow, though again, the differences are not statistically significant. Thus, apart from situations where the migrant is the head of the family, there is no statistically significant differences in all the other variables measuring kinship ties for both low and high information-flow families. Pre-migration factors such as whether or not the migrant himself or herself mainly carried the travel cost and/or made the final decision to move have some ambivalent differences. Expectedly families in which the migrant footed the travelling cost are more in the low information flow side most probably because the migrant may not feel any obligation to share information, especially the economic information about him or herself. However families in which the migrant took the final decision to migrate are slightly more on high information side. This is a bit surprising because one would expect that more of such families should also be on the low side of information as the decision to migrate was more of the migrant's own than that of the family. In any case these differences, though puzzling, are not statistically significant so not much can be read into them.

Significant differences between families that have high information and those with low information come out against the background of average levels of house]hold education and wealth. Families that dominate in the high category of information flow do significantly have higher average level of education and wealth than their counterparts in the low category. This is expected because the highly educated families are also likely to be found in the higher quintiles of wealth and hence the ability to afford high cost of international phone calls. Also migrant might find it more comfortable to communicate with highly educated families as the latter may find it easier to understand the migrant through their exposure to mass media.

None of the demographic factors such number of adults (15+ years), number of children and age of household head have statistically significant difference in mean between high and low information flows. Even though not statistically significant, it is somewhat surprising that families that have longer years of migration experience and older household heads are generally found to be on the high side of getting information about the migrant relations. This is because migrants that have been abroad for a long time are said to be more integrated

in the culture and society of the destination country. Or they may have brought their close relations to live with them. Therefore they would not have any strong sense of obligation to share lots of information about themselves with the rest of the relations who may be distant kins. Theoretically it should also follow that the older the household head, the less the information flow because older heads would have migrants who are also older and hence are more likely to be integrated in the host nation as they may have been abroad for a longer time than migrants from younger households. To further investigate the relationship between years of migration and age of household head, and information flow, a lowess with a line representing least-square smoothing is presented in Figure 2. The figure shows that

Figure 2: Relationship between information flow, years of migration with lowess smoother



information flow rises rapidly with increase in years the migration until around 15 years before it becomes relatively stable for the next ten years and then begins to decline. This therefore confirms the notion that information flow eventually decreases with increase in years of migration even though the decrease does not seem to be that significant in this sample. The figure also shows relationship between private information flow and remittance expectations. Generally there seem to ambivalent relationship. Private information seems to rise with remittance expectations initially, but further increase does not seem to have any significant relationship with expectation levels. Whether this is the case or not should be much clearer after the PSM and IV-2sls techniques have been applied to control for other confounding factors.

Results from PSM and IV (2sls) techniques

The effects of low and high information flow on remittance expectations, using nearest neighbour matching and stratification method of PSM technique, are shown in Table 4. A major assumption of the PSM technique is the common support assumption. And since it is difficult to obtain the common support for the range of all values of both the treated and control groups, it is advisable to use kernel density estimates to present evidence on how the treatment and control groups differ and on which subpopulation is being studied (Nichols, 2007). The kernel density and *psgraphs* in Appendix C show the sub-population to which the PSM estimates are limited. Being exposed to low flow of information, can potentially

Table 4: PSM estimates of effect of low and high information flows on remittance expectations

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
		Effect of low information flow				
Remittance expectations	Unmatched	1.852	1.792	0.059	0.073	0.80
	ATT	1.852	1.741	**0.111**	0.105	1.00
	ATU	1.792	1.667	-0.126		
	ATE			-0.039		
		Effect of high information flow				
Remittance Expectations	Unmatched	1.856	1.796	0.060	0.074	0.82
	ATT	1.856	1.914	**-0.058**	0.106	-0.54
	ATU	1.796	1.800	0.004	.	.
	ATE			-0.019	.	.

increase remittance expectation levels by about 11%, with all the observed characteristics are controlled. However, having access high level of information flow reduces remittance expectations levels by 6% (ATT). Thus when all observed differences in the socioeconomic and demographic characteristics are controlled high information flow between migrant and relations left behind reduces the level of remittance expectations. It is also interesting to note that generally increasing levels of information flow has the potential of reducing remittance expectations by between 2% and 4% for everyone in the sample (ATE). But all these marginal effect are not statistically significant given the low values of t-statistics, so not much can be made of them.

Table 5 shows the results from the OLS and IV techniques. As stated earlier the Hausman test statistic failed to reject the null hypothesis that private information flow has exogenous relationship with remittance expectations. This is confirmed by insignificant differences in the coefficients of the two models. Hence the comments will be based more on the OLS estimates than the IV- 2sls ones. Confirming the results from the PSM technique, increasing levels of information flow seem to have the potential of decreasing remittance expectations. But just as indicated by the PSM scores this effect is not statistically significant. Community dynamics in terms of what people see migrant doing at home of origin and various 'gossips' running through the community do have significant positive effect on remittance expectations

Table 5: OLS and IV-2SLS techniques estimating effect of information flow on remittance expectations

	OLS		IV-2sls GMM	
	Coef.	Std. Error	Coef.	Robust Std. Error
Private information from migrants	-0.003	0.028	0.040	0.204
Community dynamics				
Migrant performance at home	0.140***	0.031	0.130*	0.070
Public information	0.282***	0.069	0.267**	0.094
Kinship ties				
Migrant is head of HH	0.616***	0.157	0.627***	*0.141*
Migrant is spouse	0.676***	0.107	0.672***	0.099
Migrant is son/daughter	0.331***	0.050	0.332***	0.070
Migrant is an in-law	0.418***	0.077	0.422***	0.090
Migrant is brother	0.358***	0.047	0.365***	0.077
Migrant is other relation	0.488***	0.052	0.492***	0.075
Migrant is a friend	0.152	0.110	0.171	0.150
Controlled HH characteristics				
Household wealth	-0.007	0.027		
HH level of education	0.047	0.044		
HH Years of migration experience	0.011**	0.005	0.010*	0.005
Age of HH head	-0.003	0.006	-0.004*	*0.006*
Age of HH head Sq	0.000	0.000	0.000	0.000
HH size	0.053***	0.017	0.055***	0.020
HH contributed to movement	0.248***	0.091	0.248**	0.100
HH made final decision	-0.215**	0.103	-0.214*	0.113
HH attitude to migration	0.755***	0.149	0.751***	0.158
Constant	-0.284	0.313	-0.244	0.720
No. of obs	938		938	
F(19, 918) = 20.60			F(17, 920) = 19.92	
Adjusted R^2	0.284		0.296	
Root MSE	0.922		0.914	

levels. The information people gather around (not from the migrants) in the community doubles the effect of what migrant actually to at home. But the most important factors that seem to influence the remittance expectation levels are the kinship ties. Stronger kinship ties such as the migrant being the head of the family or a spouse, expectedly have much greater positive effects on remittance expectations than more distant ties. Interestingly, in-laws and other relations such as uncles, aunts, nieces and nephews have significantly higher expectations than even parents of migrants. This is a clear reflection of the Akan culture where extended members like aunts, uncles and nephews have some strong influence and/or ties with families no matter where they are (Nukunay, 2003). Two of the variables measuring the family's characteristics and as part of the controlled variables need some attention here. Expectedly the effect of a family making a major contribution to the movement of the migrant expectations is significantly positive. But when the family's contribution to the movement was only limited to helping the migrant make decision, the effect on expectations is significantly negative. Thus family relations left behind do not see themselves bound to expect anything when they only help the migrant to make decision to move, but when they contribute financially, they expect to get something back.

Discussion and Conclusions

Migration as a household livelihood strategy involves two parties: the migrant and the family members left behind at the place of origin. And what connects the two parties is the flow of remittances. While investigation into the flow of remittances has mainly focused on observed flows, the expected flows have received little or no attention. This study tried to contribute to filling that gap by focusing exogenous determinants of remittance expectations with special interest in studying how information flow between the migrant and those left behind affect these expectations. The theoretical foundation of the study is that formation of remittance expectations mainly revolves around triangular points: kinship ties between the migrant and those left behind, the demonstrative effects of migrants' performance at home of origin and private information people get through their interaction with their migrant relations still residing abroad. The main objective was to determine relative importance of current flow of private information verses the other two points of the triangle - kinship ties and community dynamics of migration. The main models used for this investigation, after the computation of information flow and expectations indices, are propensity score matching (PSM) and ordinary least square (OLS), while employing instrumental variable (IV) techniques to test for

presence or absence of endogenous relationship between information flow and remittance expectations.

Information flow between migrants and relations left behind is important in shaping remittance expectations people left behind have. Good amount of information lets those left behind know about the socioeconomic conditions of the migrant and hence enable them to put their expectation in perspectives. But from the descriptive analysis we observe that most family relations left behind do not have access to crucial information such as the economic conditions of the migrants. This resonates with what has been observed in various economic and migration studies (Tegene et al, 2003; Curtin, 2003; Chen, 2006; McKenzie et al, 2007).. Migrant may not share information because it they think doing this raises expectations of those left behind and hence demand too much from them... "They think money grows on trees" as often commented by migrants (McKenzie et al, 2007; Mazzucato, 2005). As discussed earlier migrants may also refuse to share information in order to have some short- or long-run utility gains (Morduch and Sharma, 2002) or they may do so in order to increase their bargaining power (Nelson, 1970; Doss, 1996). For others, being migrants for many years, they might have had most of their close relations to live with them in the host nation, hence little or no urgency in the desire to exchange information with relations who may be distant from them. Or the migrants might just be so integrated with the culture of the host country that they may attach little or no importance to interactions with those left at home of origin (Morduch and Sharma, 2002).

The insignificant impact of current information flow from migrants in the formation of remittance expectation 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). If people left at home do not have access to crucial information such as type of job of the migrants then people are likely to resort to guesses of what they can get. 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. According to Demertzis and Hallet (2008), 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. In this study it seems guesses of what

one could expect are largely informed by demonstrative effect of migrant performance in the community and kinship ties.

It is therefore clear that, when forming their remittance expectations, family relations do not really consider what they hear from the migrants. The most important factors impacting on the formation of their remittance expectations are kinship ties. 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 having close relationship with the migrant naturally leads to much higher positive marginal effects on formation of levels of remittance expectations. 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. In other words, because the content of expectations 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. So it may be true that those left behind do not really have to "care to hear any other stories," especially from the migrant. Whatever information they get from the migrant does not matter in their remittance expectations. Consequently it may also be true that, given the inadequate private information or family's disregard of this source of information, remittance expectations they have may be grossly ill-informed.

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Appendix A: Cronbach test of internal consistency and factor analysis test for Unidimensionality

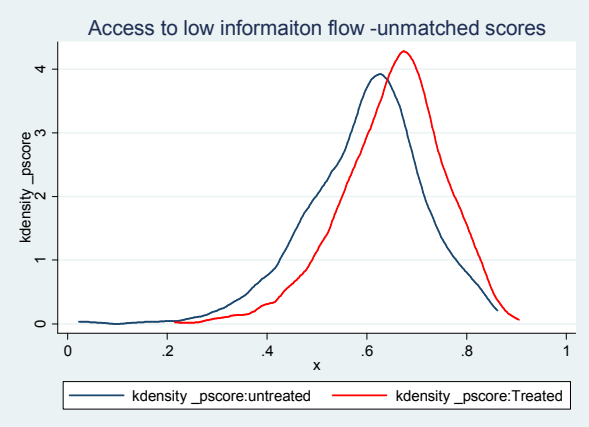
	Cronbach Alpha						Factor analysis		
	Obs	Sign	Item-test correlation	Item-test correlation	Average Inter-item correlation	Alpha	Eigenvalue	Difference	Proportion
Private information index									
Education	943	+	0.804	0.696	0.405	0.773	3.050	2.464	**0.862**
Marital	943	+	0.824	0.724	0.396	0.767	0.586	0.311	**0.166**
HH size	943	+	0.820	0.719	0.398	0.768	0.275	0.331	0.078
Job type	943	+	0.680	0.525	0.459	0.809	-0.056	0.423	-0.016
Employed	943	+	0.837	0.744	0.390	0.762	-0.098	0.119	-0.028
Salary	943	+	0.408	0.193	0.578	0.873	-0.217	.	-0.061
Test scale	943				0.438	**0.824**			
Subjective remittance expectations index									
Money	943	+	0.583	0.346	0.217	0.581	1.591	0.231	**0.551**
House	943	+	0.637	0.417	0.198	0.553	1.361	0.939	**0.471**
Business	943	+	0.521	0.269	0.239	0.611	0.422	0.437	0.146
Years for mon	943	+	0.577	0.339	0.219	0.584	-0.015	0.176	-0.005
Years for hse	943	+	0.637	0.417	0.198	0.553	-0.191	0.089	-0.066
Years for bus	943	+	0.575	0.336	0.220	0.585	-0.280	.	-0.097
Test scale					0.215	**0.622**			

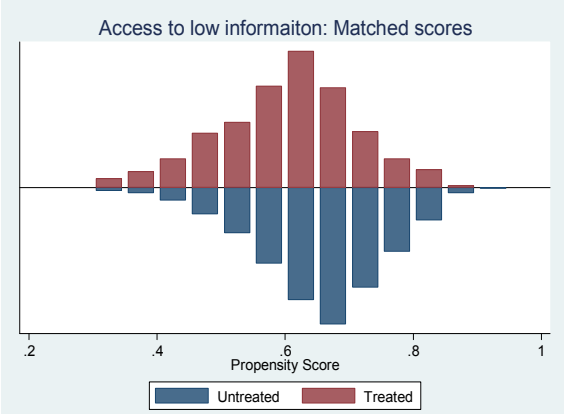
Appendix B: Detailed descriptive statistics of information flow index

Percentiles		Smallest		
1%	1	0		
5%	2	0		
10%	2	.4	Obs	943
25%	3	.5	Sum of Wgt.	943
50%	4		Mean	3.851
		Largest	Std. Dev.	1.137
75%	5	6		
90%	5	6	Variance	1.293
95%	5.2	6	Skewness	-0.387
99%	6	6	Kurtosis	2.669

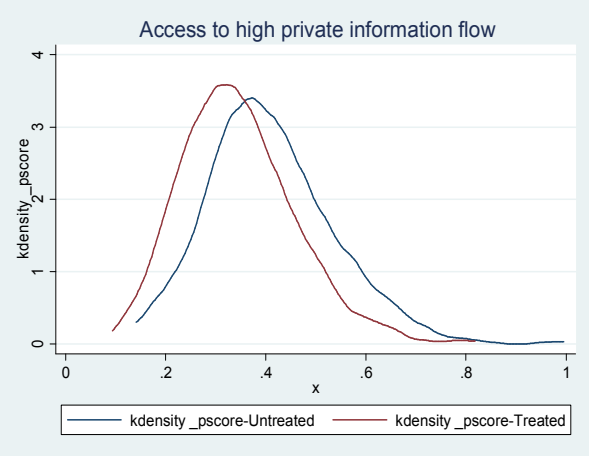
Appendix C: Kdensity plots and PSgraph to check and correct for violation of assumption of common support

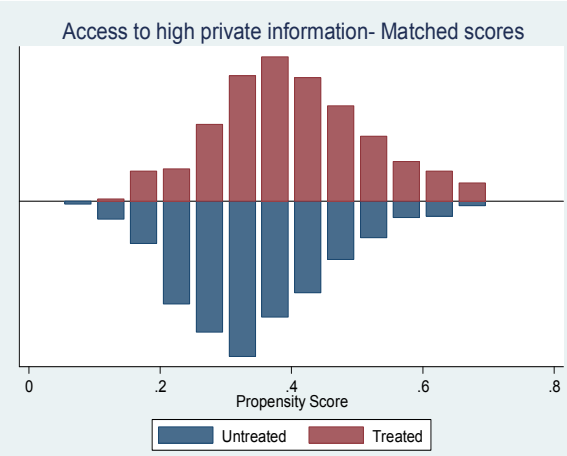
Low private information flow





High private information flow





Appendix D: 1ST stage eq estimating determinants of private information flow

	Coef	Std error
Migrant performance at home	0.246	0.059
Public information	0.239***	0.086
Migrant is head of HH	-0.125	0.189
Migrant is spouse	-0.069	0.118
Migrant is son/daughter	-0.139**	0.068
Migrant is an in-law	-0.215***	0.083

Migrant is brother	-0.237***	0.057
Migrant is other relation	-0.233***	0.060
Migrant is a friend	-0.284**	0.143
Years of migration	0.013**	0.005
Age of HH head	0.008	0.007
Age of HH head Sq	0.000	0.000
HH size	-0.014	0.022
HH contributed to mvt	0.070	0.102
HH made final decision	-0.044	0.116
HH attitude to migration	0.087	0.188
Household wealth	0.127***	0.033
HH level of education	-0.006	0.050
Constant	3.399***	0.351
F(2, 919)	8.52	
Anderson canon. corr	18.81***	
Cragg-Donald	19.00***	
Hansen J statistic	1.11	
Hansen J Chi-sq(1) P-val =	0.292	

Instrumented: info
Included instruments: rperf _Iinfout2_1 _Im_head_1 _Im_spouse_1 m_sondota m_inlaw m_brosis m_other m_friend yrsmigr2 agehhd agehhdsq hhsize _Ireln_cont_1 _Irdmaker_h_1 _Iattitude_1
Excluded instruments: wealth1 eduIndex

Appendix E: Tests of endogeneity of private information flow

H0: Regressor is exogenous					
Wu-Hausman F test:	0.02527	F(1,919)	P-value	=	**0.87374**
Durbin-Wu-Hausman chi-sq test:	0.02579	Chi-sq(1)	P-value	=	**0.87242**