



# Kent Academic Repository

**Piracha, Matloob and Amrita, Saraogi (2015) *Remittances and migration intentions of the left-behind*. Migration and Development . ISSN 2163-2324.**

## Downloaded from

<https://kar.kent.ac.uk/54787/> The University of Kent's Academic Repository KAR

## The version of record is available from

<https://doi.org/10.1080/21632324.2015.1129691>

## This document version

Other

## DOI for this version

## Licence for this version

UNSPECIFIED

## Additional information

## Versions of research works

### Versions of Record

If this version is the version of record, it is the same as the published version available on the publisher's web site. Cite as the published version.

### Author Accepted Manuscripts

If this document is identified as the Author Accepted Manuscript it is the version after peer review but before type setting, copy editing or publisher branding. Cite as Surname, Initial. (Year) 'Title of article'. To be published in *Title of Journal* , Volume and issue numbers [peer-reviewed accepted version]. Available at: DOI or URL (Accessed: date).

## Enquiries

If you have questions about this document contact [ResearchSupport@kent.ac.uk](mailto:ResearchSupport@kent.ac.uk). Please include the URL of the record in KAR. If you believe that your, or a third party's rights have been compromised through this document please see our [Take Down policy](https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies) (available from <https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies>).

IZA DP No. 7779

## Remittances and Migration Intentions of the Left-Behind

Matloob Piracha  
Amrita Saraogi

November 2013

# Remittances and Migration Intentions of the Left-Behind

**Matloob Piracha**

*University of Kent  
and IZA*

**Amrita Saraogi**

*Bunge Ltd*

Discussion Paper No. 7779  
November 2013

IZA

P.O. Box 7240  
53072 Bonn  
Germany

Phone: +49-228-3894-0  
Fax: +49-228-3894-180  
E-mail: [iza@iza.org](mailto:iza@iza.org)

Any opinions expressed here are those of the author(s) and not those of IZA. Research published in this series may include views on policy, but the institute itself takes no institutional policy positions. The IZA research network is committed to the IZA Guiding Principles of Research Integrity.

The Institute for the Study of Labor (IZA) in Bonn is a local and virtual international research center and a place of communication between science, politics and business. IZA is an independent nonprofit organization supported by Deutsche Post Foundation. The center is associated with the University of Bonn and offers a stimulating research environment through its international network, workshops and conferences, data service, project support, research visits and doctoral program. IZA engages in (i) original and internationally competitive research in all fields of labor economics, (ii) development of policy concepts, and (iii) dissemination of research results and concepts to the interested public.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

## ABSTRACT

### Remittances and Migration Intentions of the Left-Behind<sup>\*</sup>

Migration and the consequent flow of remittances are like a double-edged sword; while keeping many out of poverty, they can also result in further brain drain and demographic imbalance for the country. Using a large household survey data from Moldova and employing simultaneous equations model we show that there exists a dual causality between receipt of remittances by non-migrants and their migration intentions. Moreover, we add a novel element to the empirical literature by being the first to be able to specify the mechanism behind the link between remittances and migration. We find evidence that remittances not only relieve credit constraints in the home country but also act as a signalling device of success in the host country. These results provide a fresh outlook on the role of remittances in shaping migration flows in the migrant sending countries.

JEL Classification: F22, F24, J1

Keywords: migration intentions, remittances, simultaneity, Moldova

Corresponding author:

Matloob Piracha  
School of Economics  
University of Kent  
Canterbury, Kent CT2 7NP  
United Kingdom  
E-mail: [M.E.Piracha@kent.ac.uk](mailto:M.E.Piracha@kent.ac.uk)

---

<sup>\*</sup> We would like to thank Alastair Bailey, Stephen Drinkwater and Yu Zhu for detailed comments on an earlier draft.

## 1. Introduction

There is an on-going debate about the positive and negative implications of migrant remittances. While the proponents of remittances argue that such transfers promote economic development in receiving countries by providing a mechanism to share risks, reduce poverty and improve inequality, critics emphasise the unproductive nature of such transfers. They argue that remittances fail to enhance development in migrant- sending countries because they are not spent on investment goods but, rather, used for consumption purposes, which breeds dependency. In a similar context, a recent strand of literature has highlighted the role of these transfers in furthering migration of other non-migrant individuals in the home country. In particular, it shows that remittances serve as signals of financial success of the remitters and their well-being in the host country and, in-turn, encourage non-migrants to move abroad<sup>1</sup> (Van Dalen *et al* 2005a, 2005b; Dimova and Woolf 2009; Leeves 2009). This evidence stands in stark contrast with the tenets of New Economics of Labour Migration (NELM) approach, according to which, remittances should reduce future emigration because they help households overcome credit constraints and provide insurance against negative income shocks at home (Taylor, 2002). This debate provides an interesting context for the study of remittances as not only a result of but also a cause for further migration.

This paper investigates the impact of remittances on subsequent migration by exploring the link between remittance receiving households and the migration intentions of non-migrant individuals residing in such households. In contrast to the earlier work, it has been argued that the role of remittances in perpetuating migration intentions of non-migrants differs between migrant and non-migrant households. Migrant households are defined as those households that receive remittances from family members. Non-migrant households are those that receive remittances from friends/acquaintances or ex-household members. Previous research has shown that in countries with strong migration networks it is common for non-migrant households to receive remittances too (Cox and Ureta 2003; Leeves 2009). For instance, as family members are the remitters for almost all migrant households there is a high probability that the strength of the ties between the two determine the migration

---

<sup>1</sup> This is also known as the concept of chain migration or in other words remittance induced migration wherein the remittances sent by current remitters are a source of encouragement for those in the home country to emigrate.

intentions of individuals from such households.<sup>2</sup> By contrast, because family members are not the remitters for non-migrant households, it is reasonable to assume that it is the signalling property of remittances that encourages migration intentions of individuals in such households. Differentiating between these mechanisms is important as the potential policy implications are likely to vary with the nature of the link between remittances and migration intentions. For instance, if remittances have a signalling property, it indicates greater comparative well-being in the host country vis-à-vis the home country, in which case policies that aim to create more opportunities in the home country will be necessary to weaken such incentives. On the other hand, if subsequent migration is a result of family ties, it would imply a relatively smaller flow of remittances in the future, e.g. when families reunite in the host country. This may then weaken the argument that incoming remittance transfers partly compensate for the loss of human capital due to migration.

In addition to this, the research also argues that the past empirical analysis has ignored the possibility of intent induced remittances, e.g. individuals who have prior intentions to migrate may ask migrants (either their family or friends) who are abroad to send them money to cover their migration costs. Ignoring this dimension of the relationship is likely to underestimate the effects of remittances on subsequent migration.

The paper attempts to fill these gaps in the literature by analysing a simultaneous relationship between the receipt of remittances and subsequent migration of non-migrants using data from Moldova. Policy makers implicitly assume that remittances benefit the country of origin and base these possible benefits to underpin their migration policy. Macroeconomic research shows that remittances may not be beneficial for the countries as a whole (Chami *et al*, 2005). Although the current analysis is microeconomic oriented, it reflects upon an important consequence of remittances that may explain their negative macroeconomic effect. Besides, it is also argued that countries with strong migration networks have lower costs of migration

---

<sup>2</sup> Van Dalen *et al* (2005a) show that in Egypt and Turkey, migration intentions are determined by the strength of family ties. They run different regressions with and without emigrant variables. While the latter regression results show that remittances have a positive influence on migration intentions, the use of emigrant variables completely neutralise the effect of remittances on intentions. This suggests that emigration intentions are determined by the strength of ties between the migrant and the sending household.

(Boyd 1989) and the information conveyed in remittance receipts to the benefits of migration will be more reliable than other sources such as newspapers, agencies that help in moving abroad etc (Bauer, Epstein and Gang, 2007). Furthermore, unlike most emigration countries, migration from Moldova is more of a temporary nature. For example, amongst the pool of migrants 60 percent migrate to Commonwealth of Independent States (CIS), primarily to Russia, most of them on temporary contracts to work in the construction industry (Luecke *et al* 2007). Other evidence based on the surveys realised by the International Organisation of Migration (IOM) also show that most Moldovans planned to emigrate for a short period only. As highlighted by the existing literature, the form of migration plays a key role on the impact of remittances as those who plan to return to the home country have a different objective of migration than those who wish to settle permanently in the host country (Dustman and Mestres, 2006).

A preliminary breakdown of migration intentions by receipt of remittances shows that the intention to migrate increases with the household's remittance-status i.e. only about 6 percent of non-migrants from non-recipient households express intentions to migrate compared to 10 percent of non-migrants from remittance receiving households (see Table 1). Table 1 also shows that the probability to receive remittances increases if the individual has intentions to migrate in the near future – 25 percent of individuals with plans to go abroad in the future receive remittances compared to only 15 percent without any plans.

**Table 1: Average emigration intentions by household receiving remittances & average receipt of remittances by migration intentions'**

<b>Individuals living in household who,</b>	<b>Emigration Intentions (mean)</b>	<b>Intentions to migrate abroad in the near future</b>	<b>Receive Remittances (mean)</b>
Received remittances	0.103	Yes	0.245
Did not receive	0.059	No	0.151

Our estimation results show that in Moldova, remittances and migration intentions share a reciprocal relationship. In particular, we find that remittances have a

signalling effect of a positive chance of success in the destination country. We also show that transfers alleviate the liquidity constraints of the recipients in the home country, which then triggers further migration. These results have potential implications for policies in the home country that could help in the weakening, if not eliminating, the phenomenon of chain migration.

The rest of the paper is organised as follows. Section 2, provides a review of previous literature while Section 3 presents the conceptual framework and details the empirical methodology. Section 4 explains the data and the main variables used in the analysis. Section 5 discusses the empirical results and finally Section 6 concludes.

## **2. Literature Review**

The analysis of remittances as an important stimulant of migration is noteworthy for the following reasons. As remittances arise primarily out of self-enforcing agreements between individuals, they are of a more resilient nature and can have an enduring impact on further migration compared to the effects of international migration policies that are more transitory and are likely to be a response to a political agenda. Also, as remittances are a result of successful migration of family members, relatives or friends, the information content in these transfers about comparative opportunities and standards of living in the host country is far more credible. Hence, it is likely to translate into action much more quickly than general information about labour market disparities from other sources such as migration recruitment agencies, social media etc.

Notwithstanding these interesting characteristics of remittances, most of the literature on remittances has either disregarded the causal effects of remittances on future migration based on the NELM perspective or has not explored this aspect due to data limitations. There are indeed a few exceptions. For instance, Stark and Wang (2002) were the first to model the impact of migrants' transfers to non-migrants in the home country. They advance the idea of 'strategic remittances' and explain the role of remittances in influencing the structure and dynamics of migration. Their insight essentially builds on an earlier work by Stark (1999), and captures the viewpoint of a relatively high-skilled migrant who has an ulterior strategic motive in sending



remittances to a low-skilled migrant in the home country to subsidise the latter's ability to migrate. Stark argued that in the presence of asymmetric information and absence of screening by market participants, the first wave of migrants (who are assumed to be more entrepreneurial) could benefit from dissuading the low-skilled workers from migrating by sending them remittances to stay put. Based on this, the model predicted that the intention to migrate should be significantly lower among household members in remittance receiving households compared to those who don't receive remittances. Stark argued that in situations where migrants' are heterogeneous and their productivity is observable, migrants may have an incentive to strategically use remittances to mould the beliefs of the employers and aim at negative selection of migrants. On the other hand, when employers in the host country use the average productivity of the group to determine the wage rate of migrant workers, migrants have the motive to bribe the potential migrants who are relatively unskilled to stay put.<sup>3</sup> Within the logic of the strategic motive, these remittances would protect the wages of the highly skilled workers by entrenching their position in the labour market. Based on this, the model predicts that the intention to migrate will be significantly higher among individuals living in remittance-receiving households relative to non-recipient households.

More recently, de Haas (2010) put forward a theoretical framework to explain the impact of remittances on migration. He draws attention away from the direct economic consequences of remittances to the non-pecuniary consequences such as their impact on inequality, education, gender empowerment including the impact on further migration. He argues that these underexposed second order effects of remittances transform the broader social, cultural and economic contexts in migrant-sending communities which induces further migration. De Haas argues that besides the impact of remittances on social stratification and relative deprivation as well as the economic structure in sending communities, remittances from abroad have a third effect in the form of cultural and social change, which then has a reciprocal impact on the non-migrant's propensity to migrate in the future (see Fig 1).

---

<sup>3</sup> This works under the assumption that the first cohort of migrants is relatively more skilled than the future cohorts.

Van Dalen *et al* (2005a) examine the effect of remittances on intentions of non-migrant household members using data from Egypt, Turkey and Morocco. They use a large household survey conducted in 1996/1997 and restrict their sample to migrant households with no-return migrants on the grounds that the presence of return migrants in the household is likely to influence future migration decisions of other family members. Under these settings, Van Dalen *et al* use logistic regression to analyse the role of remittances in shaping emigration intentions of non-migrants. They show that for all three countries, remittances have a positive impact on intentions of non-migrant individuals. However, interestingly they find that the mechanisms behind the link differ across the three countries. While in Egypt and Turkey, the strength of the family ties between migrant and migrant-sending household determined emigration intentions, in Morocco remittances had a signalling effect of a chance of success in the destination country. Thus, in Egypt and Turkey migration intentions were part of a linked decision – those individuals who showed the greatest intent to migrate were either the spouses or children of former migrant members while in Morocco migration intentions were the result of the signalling property of remittances.

Although the authors find positive results, it is important to highlight the shortcomings of the study. First, the dependent variable is just a simple question that asks the reference individual whether they want to migrate abroad or not. Using a variable without any indication of timing is less informative and is not a good proxy for the actual probability to migrate (Dustmann 2003; Van Dalen *et al* 2005b; Van Dalen and Henkens 2008). The second concern is that the study does not address potential endogeneity in the relationship between remittances and migration intentions. If there are omitted household characteristics that determine the likelihood of remittance receipts as well as the intentions to migrate, then this will substantially bias the estimated impact of remittances on migration intentions.

Dimova and Wolff (2009) recognise the possibility of selection bias and take explicit account of it by employing a propensity score approach. They also account for unobserved heterogeneity by estimating random and fixed effect models. Moreover, unlike the former study they use a definite measure of migration potential to capture the migration intent of non-migrants. The question is - How likely do you think it is

that you will move abroad in the coming year: very likely, quite likely, not very likely, not likely at all? Thus it is equal to 1 if the answer is any of the first three options, and zero otherwise. Using data from Bosnia and Herzegovina the authors find that workers remittances from abroad contribute to net flows of emigration. In particular, they show that it is the young and highly educated who are most inclined to migrate, which suggests that the effect of remittances on the labour market and the entire economy might be negative as it may lead to a demographic imbalance and also shortage of human resources for the country. However, the authors do not differentiate between the relationship of remitters and the sending household and therefore between the mechanisms (i.e. whether remittances have a signalling effect or whether they are conditional on family ties). As a result, they are unable to identify the exact repercussions of the relationship on the nation's economy.

Leeves (2009) investigates the effects of remittances on emigration intentions of households in Fiji and Tonga in 2005. Similar to the previous paper, the dependent variable is a dummy that asks individuals about specific plans to migrate in the next couple of years. The question asked was- Do you have any intentions to migrate abroad within the next couple of years? Like Van Dalen *et al* (2005a), households with any return migrants are not included in the sample. Furthermore, he controls for potential endogeneity by employing the instrumental variable (IV) approach.<sup>4</sup> Endogeneity can arise and bias results if there are omitted household characteristics that determine both remittance receipt and migration intentions. However, in contrast to the earlier work, Leeves (2009) divides the sample by the household's migration status and estimates the impact separately. Migrant households are defined as those who have migrant members abroad while non-migrant households are those who do not have any current migrants. Some non-migrant households also belong to remittance receiving household category. While migrant households receive remittances from family members/relative who are abroad, non-migrant households receive remittances from presumably friends and acquaintances. The results from the estimation show that remittances stimulate migration intentions in both Fiji and Tonga and that the impact of remittances is weaker for non-migrant households. In Fiji, the impact of remittances on intentions of individuals in non-migrant households is less

---

<sup>4</sup> The instruments used in the current context relate to the altruistic motive of remittances. Previous research (Gubert, 2000; Yang and Martinez, 2006) has proved that remittances motivated by altruistic concerns are unlikely to influence longer-term plans for migration.

than a third of that in migrant households. This finding is consistent with their *a priori* hypothesis that the information content of remittances is weaker for non-migrant households as these flows arise from outside the household.

While Leevess (2009) addresses most of the estimation issues, it has some limitations too. First, the instruments used to proxy remittances are not relevant for Fiji and Tonga, which may undermine the findings. For instance, the crop shock variable – a proxy for short-run income shocks – is not very efficient for small countries where there is no meaningful variation in the district economic and climatic conditions. Second, even though Leevess differentiates between migrant and non-migrant households, this information has not been utilised to shed light on the varying roles of remittances in perpetuating migration. On the contrary, the study assumes that remittances play similar roles in both household types and the impacts differ only in their intensity.

### **4.3. Conceptual Framework**

#### **4.3.1 Theory**

The idea that remittances play a role in perpetuating migration is at odds with the logic of the self-interest model wherein the receipt of remittances should dampen further emigration intentions of those left behind because these transfers soften the perceived income and insurance constraints of the household such that there is no need for additional members to migrate. Moreover, even the insurance contract model suggests that as long as the contract pays off it will sustain household members to live their lives in the country of origin (Van Dalen *et al* 2005a, 2005b). However, a few recent papers have explored the idea that remittances have a perpetuating effect on further migration of those left behind (Dimova and Wolff ,2009; Leevess, 2009). In this context, we analyse the role of these transfers on the future migration intentions of non-migrants in the source country. Using Moldovan data, we want to know if remittances from abroad have a trigger effect on future emigration intentions of non-migrant individuals living in remittance-receiving households.

Fig 2 provides a diagrammatic illustration of how remittances contribute to trigger migration intentions of individuals living in remittance receiving households. To

conduct such an analysis, non-migrants (those without any previous migration experience) are divided according to their respective migration-specific household status, i.e., those with one (other) migrant member and those without any migrant in the household. Thus, individuals from households with a current migrant are part of migrant households (category 1 in Fig 2) while those from households with no current migrant(s) belong to the second category (2 in Fig 2). The latter group is included on the basis that in ‘mature’ migration-and-remittances economies<sup>5</sup> (e.g. Moldova, Tonga etc.) it is common for non-migrant households to also receive remittances (see Roberts *et al* 2005; Cox-Edwards and Ureta 2003). For example, in Tonga, nearly 80% of non-migrant households receive remittances while in Fiji, a less ‘mature’ migrant economy, almost 20 percent of households without migrants had received remittances (Brown, 2008). Individuals are further divided into categories by their intention to migrate – non-migrant members with no prior intentions to migrate in the future (links 1(A) and 2(A) in Fig 2) and those with prior intentions (1(B) and 2(B)). This division gives four categories shown in the figure as 1(A), 1(B), 2(A) and 2(B).

As discussed previously, Stark and Wang (2002) were the first to conceptualise remittances as a stimulant of migration according to which remittances are one of the channels through which current migrants spur subsequent migration. They explain the link from the viewpoint of the emigrant who may have ulterior motives in sending remittances.<sup>6</sup> However, the same link can also be explained from the perspective of the household members who are left behind (Van Dalen *et al* 2005a). Thus, for those without any prior intentions (in both migrant and non-migrant households), remittance receipts may signal comparative well-being in the host country which represents information on migration (investment) opportunities, thereby making non-migrants consider the possibility that migration is a profitable venture. As members of migrant households can also receive remittances from friends and ex-household members (apart from their own family members/relatives), it will be incorrect to assume that intentions are only determined by the strength of family ties. Therefore, in order to differentiate between the signalling property of remittances and remittances as a result

---

<sup>5</sup> Economies where migration and remittance dependency has been long established and has become almost ubiquitous.

<sup>6</sup> This link cannot be tested in this paper as the data used was conducted in the country of origin and therefore does not contain detailed information about the migrant. Testing this link would require detailed information about the skill-set of the migrant as well as the recipient, in order to ensure that the recipient is lower skilled than the emigrant remitter.

of family ties, separate estimates using a variable that captures the strength of ties between the migrant and the household can be carried out. If remittances have a positive impact on intentions without the variable and if the inclusion of the variable neutralises this effect, it can be said that migration intentions of members of such households are only determined by strength of family ties. Alternatively, even if with the inclusion of the variable, remittances have a positive effect then migration intentions can be a result of both aspects. Therefore, it will then be reasonable to argue that it is not the signalling property of remittances that shape migration intentions of non-migrants living in such households. This situation is represented by link 1(A) and 2(A) in the diagram.

Alternatively, a similar link can hold for individuals with prior intentions to migrate in the future. This is captured by modelling remittances as a function of prior intentions to migrate. Link 1(B) and 2(B) in the figure capture this causal relationship for non-migrant and migrant households respectively. As it can be seen in the diagram, there are two scenarios in which this relationship may hold for members of non-migrant households. First, when high migration costs of international migration impede members from migrating, receipt of remittances can help alleviate such credit constraints and thereby have a positive effect on future migration. Second, it can be explained in the context of a risk-diversifying arrangement between the migrant and the origin household. For instance, when the larger extended family bears the costs of migration of a potential migrant, an implicit part of the repayment may include helping other family members to migrate in the future (Ilahi and Jafarey 1999). Post migration, when the migrant repays the borrowed funds, these transfers cover the costs of migration of other family members who wish to migrate. However, once migration is established, the costs of migration for subsequent migrants are much lower due to the provision of support in the host country, which further encourages migration plans.

For households with current migrants, the strength of family ties between the migrant and the sending household maybe the key mechanism that explains the positive impact on intentions to migrate. For instance, the spouse may have prior intentions to migrate and join the husband in the host country. As a result, the husband sends remittances to the spouse and these transfers help the spouse realise his/her intent.

The empirical analysis conducted in this paper draws upon the two main causal links shown and discussed earlier. On the one hand, as in Van Dalen *et al* (2005a), remittance receipts by origin households are modelled as a stimulant of migration intentions. On the other hand, they are specified as an outcome of prior migration intentions of non-migrants. In this set up, it is argued that there exists a reciprocal relationship between migration intentions of non-migrants and receipt of remittances i.e. incoming remittance flows stimulate migration intentions of non-migrants in the source country and, in its turn prior migration intentions affect the inflow of such transfers.

#### 4.3.2 Empirical Methodology

The conceptual framework described above can be represented by the following econometric model:

$$M = \alpha_0 + \alpha_1 R + \alpha_2 CC + \alpha_3 H + \alpha_4 I + \varepsilon_0 \quad (1)$$

$$R = \beta_0 + \beta_1 M + \beta_2 CC + \beta_3 H + \beta_4 I + \varepsilon_1 \quad (2)$$

where  $M$  denotes the future emigration intention of a non-migrant individual in the home country,  $R$  represents the household's remittance status,  $CC$  controls for community characteristics,  $H$  is a vector of household characteristics,  $I$  captures individual characteristics of the non-migrant individual and  $\varepsilon$  is a normally distributed error term.

The standard approach to modelling equations 1 and 2 is in a simultaneous equation framework where migration intentions and remittances are the joint endogenous variables. The general form of a system with  $g$  simultaneous equations can be written as:

$$Y_t C + X_t B = e_t \quad (3)$$

where  $Y$  is a  $(g \times 1)$  vector of endogenous variables,  $X$  is a  $(k \times 1)$  vector of predetermined, exogenous variables and  $e$  is the  $(g \times 1)$  residual's vector.  $C$  is the  $(g$

$g \times g$ ) matrix of coefficients of the endogenous variables and  $B$  is the  $(g \times k)$  matrix of coefficients for the predetermined variables. The errors of the model are normally distributed with an unknown but finite co-variance matrix. The simultaneity in the variables is resolved by transforming the system from the structural form (3) to the reduced form (5):

$$Y_t = -C^{-1}BX_t + B^{-1}e_t \quad (4)$$

Assuming  $C^{-1}B = \pi$  and  $B^{-1}e_t = \varepsilon$ , we get

$$Y_t = \pi_t X_t + \varepsilon_t \quad (5)$$

As we can see from equation 5, the resultant reduced form specifies the endogenous variables as explicit coefficients of the exogenous variables and thereby eliminates the simultaneity. However, to estimate the model the system has to be identified. The *rank and order conditions* (Greene, 2008) and/or other non-sample information such as exclusions and linear restrictions and restrictions on the disturbance covariance matrix help identify the model. We rely on the exclusion restrictions.<sup>7</sup> Since migration intentions and remittances are the joint endogenous variables we need at least two instruments. Following this, the first instrument should be highly correlated with migration intentions of the non-migrant and uncorrelated with the probability to receive remittances and vice-versa for the second instrument.

We proxy migration intentions using “migration rate” in the sending region. It is argued that individuals living in areas with greater prevalence of migration are more likely to develop migration intentions as these migration networks help lower migration costs (both monetary and psychological) which then has a positive effect on migration. The use of migration rate has been widely employed in the literature. Quisumbing and McNiven (2010) use percentage of migrants from other households in the village to instrument for migration in rural Philippines. Similarly, Taylor and Lopez-Feldman (2010) use a similar measure for rural households in Mexico.<sup>8</sup> Based on this we employ a categorical variable which captures the rate of migration in

---

<sup>7</sup> We use this condition because otherwise the rank will be less than  $k$  (*the number of unknown parameters*) and the model will be under-identified.

<sup>8</sup> They use a dummy variable that takes the value of one if other households in the village had migrants abroad.



Moldova. We gather information on this variable from the Quarterly Labour Force Survey conducted by the National Bureau of Statistics. The variable highlights the migration prevalence in different districts of Moldova. The LFS defines migration prevalence as the number of migrants per 100 residents, between the ages of 18 and 64 and classifies them into three broad categories: high, medium and low migration prevalence. Thus, a district with high migration prevalence is one that has more than 25 migrants per 100 residents. Similarly, districts with 10-25 migrants and less than 10 migrants belong to medium and low migration prevalence districts respectively. The variable turns out as a good proxy for intentions to migrate with the rate of correlation with receipt of remittances being insignificant.

We use information on bank account to instrument the remittance variable. Previous studies have shown that in Moldova, the share of remittances sent via formal channels (bank services) has been on the rise (Sander *et al*, 2005). Also, other evidence based on the report by the National Bank of Moldova (2004), shows that the amount of remittances sent through formal channels almost doubled in a span of three years (from US\$232.6 million in 2001 to US\$401.5 million in 2004). Drawing on this information, we argue that if the household member working abroad has a bank or postal account, it increases the household's probability to receive remittances because it makes transferring money easier. On the other hand, the correlation between having a bank account and intention to migrate is 0.0005.

Given our hypothesis on the relationship between remittances and migration intentions, we can assume that there is a correlation between equations, hence the covariance matrix will not be diagonal and therefore 3SLS/SURE is the most appropriate estimation method. This econometric procedure accounts for both the simultaneity between the endogenous variables as well as the contemporaneous correlation between the disturbance terms.

Thus, our model consists of two endogenous equations: one equation represents the migration intentions of the non-migrant household members (equation 6), and the other equation represents the likelihood of receipt of remittances by the non-migrants (equation 7). We estimate these equations in a two-equation system to investigate the degree of correlation between migration intentions and receipt of remittances.

$$\begin{aligned}
Migration\ Intentions_{ij} = & A_0 + A_1 Rec\_Remit + A_2 Migration\_rate + A_3 hh\_size + \\
& A_4 Network + A_5 Affluent + A_6 Urban + A_7 Trust + A_8 Edu\_mem \\
& + A_9 Female + A_{10} Age + A_{11} Unemployed + E_{ij}
\end{aligned} \tag{6}$$

$$\begin{aligned}
Rec\_Remit = & B_0 + B_1 Intentions + B_2 Bank\_Account + B_3 hh\_size + B_4 Network + \\
& B_5 Affluent + B_6 Urban + B_7 NELM + B_8 Edu\_mem + B_9 Female + B_{10} Age \\
& + B_{11} Unemployed + U_{ij}
\end{aligned} \tag{7}$$

where *Intentions* is a dummy variable equal to 1 if the respondent states that he wants to migrate abroad in the near future, 0 otherwise; *Rec\_Remit* equals 1 if the respondent lives in a household that had received remittances from abroad in the twelve months prior to the survey and 0 otherwise; *hh\_size* is the number of members in the household; *Network* equals 1 if the respondent knows people abroad; *Affluent* measures the wealth status of the household based on information on the household's ownership of property; *Urban* equals 1 if the household resides in an urban area and 0 otherwise; *Trust* measures the trust of individuals in the financial institutions of the country and therefore can be used as a proxy for the individual's perception of the economic environment of the country; *Edu\_mem* is the individual's education level; *Female* equals 1 if the respondent is a female and 0 if male; *Age* is the individual's age in years; *Unemployed* equals 1 if the individual is unemployed and 0 otherwise; *Migration rate* is a categorical variable that is indicative of the rate of migration in the area the respondent resides in; *Bank\_Account* equals 1 if the migrant has a bank or postal account abroad and 0 otherwise.  $E_{ij}$  and  $U_{ij}$  are the error terms.

#### 4. Data and Sample Description

The data used in this paper comes from a survey conducted by Swedish International Development Agency (SIDA) and International Organisation for Migration between June and August 2006. The aim of the survey was to study the impact of migration and remittances on Moldovan households. It builds upon and updates a similar survey first conducted in 2004 (though it so not longitudinal). It also complements migration data available from the quarterly Labour Force Survey (LFS) (carried out by the National Bureau of Statistics) and the Balance of Payments information on remittances (provided by the National Bank of Moldova, NBM).

The survey implements a multi-stage sampling design and thus is representative of all Moldovan households. The survey methodology involves administering questions to only those households where migrants returned after January 1<sup>st</sup> 2005. If a migrant returned before January 2005, the case was not studied, just registered. Given this, a total number of 3940 households were interviewed. Out of this, 25% of the households report as having at least one current or ex-household member currently working abroad, compared to 22.5% in 2004.<sup>9</sup> Moreover 30% of the households report that they received remittances in the 12 months prior to the survey interview date. The migration contingent, defined as those individuals who have plans to go abroad in the future was 10.6% in 2006 relative to 8.3% in 2004. Although not all of these individuals may actually migrate abroad, this finding reflects the growing importance of labour migration as an option for Moldovans. Thus, in view of the significant flow of migrants and intentions of a large proportion of those still in the country, exploring the link between the receipt of remittances and the possible trigger of further migration of non-migrants seems quite important.

For the purpose of the survey, one member of the remittance-receiving household was asked about other household members including those living abroad. In 95% of the cases, the head of the household answered the questions. The household head is asked about each individual member's relevant background information such as age, gender, marital status, education, labour-market experience (primary and secondary occupation). Information was also provided about other household related questions, such as: households perceived income status, household size, ownership of assets, and trust in the institutions of Moldova etc. For households who have a migrant, detailed information about the year of migration, problems and costs faced during migration, living and working conditions, legal status in the destination country, further intentions, frequency and amount of money or goods sent home by the migrants, the effect of remittances on household welfare and use of remittances were also recorded.

We identify two key questions in the survey that form the basis of the analysis.

*Do you receive monetary remittances from abroad? ; and*

---

<sup>9</sup> A household member is considered a migrant if, at the time of the interview, the member is temporarily absent, i.e. "staying abroad to work or look for work".

*Do you have any intentions to migrate abroad in the near future?*

Both questions take the value of one if the answer is affirmative and zero otherwise. While remittances are measured at the household level, the intentions are reported at the individual level. As mentioned before, we use stated emigration intentions to proxy future emigration decisions of the non-migrant. De Jong *et al* (1996) shows that in Thailand, the intention to migrate is a powerful predictor of actual migration. In fact, Van Dalen and Henkens (2008) find that forces that trigger emigration intentions are also the same that make people actually migrate. Also, Gardner *et al* (1986: 70) present some evidence from Philippines that shows that potential (international) migrants who were unable to realise their intentions were mainly thwarted by legal hurdles. Thus, intentions to migrate abroad seem to reflect willingness to respond to opportunities in the realisation that such opportunities may be few and far between and may disappear rapidly.

Following Van Dalen, Groenwold, and Fokkema (2005a), households that included a return migrant were dropped from the sample, as these return migrants are likely to influence decisions of others and also, return migrants' themselves have a higher probability to migrate again. Furthermore, we restrict our analysis to individuals between the ages of 18 and 65 living in households that do not contain return migrants.<sup>10</sup> It is also important to mention that as the data set contained a lot of missing observations due to the rate of non-response being quite high, it was cleaned for the missing information and anomalies. After all the exclusions, we obtain our final sample by constructing a data set where each individual in the household is counted as one observation. Thus our main sample consists of 5394 individuals with no prior migration experience.

Even though the use of intention data to predict future behaviour is often used (Van Dalen *et al* 2005b; Yang 2000; Leeves 2009), it is important to recognise and be cautious of the problems of misreporting. First, the measure of intentions (i.e. answer to the question asked) is of key importance in drawing accurate predictions of behaviour. For instance, when predicting intentions to 'migrate abroad', it is

---

<sup>10</sup> Individuals below the age of 18 are excluded from the sample on the assumption that they do not take decisions on moving abroad on their own.

important to ensure that intentions relating to ‘migrate abroad’ and no intentions to ‘migrate’ are being analysed. In the same vein, the framing of the questions in the survey (i.e. whether the question is open-ended or a ‘forced-choice’ question) are important determinants of the information quality. While a general intention to migrate without any time bound is definitely less informative as intentions may change over time not necessarily because of a change in preferences but mainly due to changes in circumstances and change in expectations, there exists ample empirical evidence to prove that time-bounded questions on positive migration intention turn out as good proxies of the actual probability to migrate. In the present survey, the respondent is asked about his intentions over the next 12 months thereby minimising the problem. Moreover, the measure of intention is specific to the behaviour of interest and is not open-ended.

Besides these two variables, a mixture of individual and household based variables that approximate theoretical concepts are often used in migration intention and remittances theory. Some of these variables are reported at individual level (age, gender) while others are reported at the household level (wealth status, household size). These variables are divided into three broad categories capturing household, individual and community level characteristics.

### ***Household Characteristics***

Household characteristics include wealth status of the household, connections abroad and its size and location. As information on the income of the household was unavailable in the survey, information on ownership of property is used to construct a household wealth-score index. Based on this, two broad categories are created – *affluent* – if a household owns an apartment/ house and more than 1.5 hectares of land – and *non-affluent*. Wealth can either have a negative or positive impact on migration intentions. As wealth is a much more stable indicator of the financial status than income, it is likely to be strongly related to migration intentions. Affluent households may have the resources to fund migration, which could promote migration. However, it may have a negative effect too as it could easily be a reason to stay at home.

Similar to the wealth index, the impact of household size on future intentions is also ambiguous. While larger households imply stronger networks hence stronger intentions, such households also require more funds for bearing the costs of additional family members. In addition, a dummy variable identifying whether the household is urban or rural based is also included in the analysis. Research has shown that the intention to migrate is strongly related to the area the household resides in (Van Dalen *et al* 2005a; Leeves 2009; Dimova & Wolff 2009). On the one hand, urban households are more open to migration as they have better access and more information hence are more likely to want to migrate. On the other hand, rural households have a great propensity to migrate to overcome market failures specific to their location and a higher dependency ratio.

There is a general consensus on the role of social networks abroad as drivers of further migration. Such contacts in the destination country are important as they lower the costs of adjustment (both monetary and psychological) for potential migrants (Massey *et al*, 1998). Thus, individuals with existing contacts abroad are more open to migration than those without.

### ***Individual Characteristics***

Individual characteristics include the age, education level, employment status and gender of the non-migrant. In general, younger people have stronger intentions to migrate due to a combination of human capital and life course hypothesis. As their level of human capital is generally higher than migrants from older cohorts and because the payback period for the loans incurred to fund migration is longer, the net benefits of migration are more likely to be positive. In addition, their stock of local social capital is lower because of which they are less bound by family ties and social environments, which decreases the psychological costs associated with moving. These reasons together have a significantly positive impact on their migration decision.

According to the theory of self-selection, increased years of education are associated with greater intentions to migrate, as the expected returns in the host country are higher. Existing research (Liebig and Sousa-Pozo 2004; Fourage and Ester; 2008) shows education level to be a strong determinant of migration intentions. We also control for the employment status of the potential migrant. While the unemployed are

more likely to exhibit stronger migration intentions than the employed as the need to migrate is relatively lower for the latter, it does not imply that only the unemployed migrate i.e. unemployment is not a necessary condition. Finally, gender differences in mobility intentions reflect the structure of society in an economy. In most cases, fewer women than men report intentions to migrate to another country.

### ***Community Characteristics***

Following Sana and Massey (2005) and Durand *et al* (1996), we also control for the economic environment in the home country. We construct a cumulative measure of the trust in the different financial institutions (FI) like banks, micro-financial agencies, saving associations and post offices.<sup>11</sup> This variable is a proxy for efficient economic environment in the country, which may have a negative impact on future out-migration, especially if the main motive of migration is to overcome credit constraints in the home country.

Table 2 provides a full description of the variables used in the empirical analysis. It also reports the mean values of the main sample along with the mean values by migrant status. Thus, column 1 of Table 2 provides the mean values for the whole sample while column 2 and 3 do so for non-migrant (3996 individuals) and migrant (1398) households, respectively. As discussed in section 3 above, an individual belongs to a migrant household if at the time of the survey the household had a current migrant. Individuals from households without any current migrant are part of the non-migrant households.

While it is common for individuals in migrant households to receive remittances, it has been shown that in countries with strong migration networks it is common for non-migrant households to receive remittances too. For example, Cox-Edwards and Ureta (2003) show that 14 percent of rural and 15 percent of urban households in El Salvador who did not have any current migrants abroad received remittances from friends and distant relatives. Similarly, in Armenia relatively large values of transfers are remitted by distant relatives or friends from the West (Roberts 2004). Therefore, limiting the analysis to migrant households is likely to underestimate the impact of

---

<sup>11</sup> If the person responded that he trusted more than two financial institutions then that household was labelled as having trust in the institutions of the home country.

remittances. As we can see from the table, over 50% of the migrant households compared to only 6% of non-migrant households receive remittances. The large difference might be attributed to the fact that non-migrant households receive remittances from friends, distant relatives and ex-household members who are not bound by any 'duty' to send transfers, or maybe they do not know any migrants at all. Another advantage of dividing households by migration status is that it helps differentiate between different potential mechanisms at work - in particular, it may help to capture the signalling effect of remittances. As remitters to non-migrant households are less likely to be family members, it is reasonable to assume that it is the signalling property of remittances that triggers migration intentions of individuals in such households.

The other noticeable difference between the two groups are in terms of networks in the host country with 71 percent of migrant household members reporting that they know friends and family abroad compared to only 61 percent of non-migrant household members. This clearly provides some evidence on the migration-facilitating role of networks in Moldova. Moreover, among the individual level variables we find that non-migrant members of migrant households are marginally less educated compared to the migrant. This reflects the pattern of migration in Moldova, where lower levels of education of non-migrants capture the fact that Moldovan migrants are positively self-selected. Furthermore, women are over-represented in migrant households than non-migrant households, probably because they are left at home. Also, a greater proportion of migrant households are rural-based, thereby providing some evidence that one of the objectives of migration of Moldovans is to overcome market failure.

It is also instructive to look at Tables 3a and 3b which gives a breakdown of mobility intentions and remittances by household and individual characteristics respectively. It can be seen that the profiles of those who receive remittances and those who express a desire to migrate abroad are quite similar. The results show that the wealthy are more likely to express a desire to migrate and at the same time are more likely to receive remittances. We also find that educated people are slightly more likely to receive transfers and that they have a higher chance of migrating.



## 5. Results

Given the dearth of research on the role of remittances in triggering migration, the current paper aims to analyse this link using a simultaneous equations model and allowing for the possibility of a causal relationship between receipt of remittances and migration intentions. In doing so, the analysis takes into account the feedback effects between the two variables and presents a complete impact of remittances on future migration.

Table 4 presents the estimation results for the non-migrant population of working age (18-65 years) in Moldova; all coefficient estimates are reported as marginal effects. The model is estimated for three separate samples, conditional on a set of exogenous variables. Column 1 presents the estimates for the whole sample while column 2 and 3 show the estimates for members of non-migrant and migrant households respectively. Looking at the estimates it is clear that all three samples confirm to the central hypothesis with regard to the reciprocity in the relationship between receipt of remittances and migration intentions of non-migrants in the home country.

The results show that remittance receipts have a significantly positive effect on migration intentions and prior migration intentions significantly increase the likelihood of receiving remittances from abroad. For the whole sample, it is observed that receipt of remittances stimulates migration intentions of those left behind by 9.5% and those individuals who have prior plans to migrate abroad in the near future are 18% more likely to receive remittances. The use of 3SLS estimation is helpful in disentangling the effect of remittances from the effect of prior intentions.

Columns (2) and (3) give a deeper insight of the mechanisms in play. On drawing the mechanisms, the paper draws upon the diagrammatic illustration presented in Fig 2 above.

### ***5.1 Impact of Remittances on Migration Intentions (Links 1(A) and 2(A))***

Columns (2) and (3) in Table 4 show that the effect of remittances on migration intentions is stronger for members of non-migrant households. Remittance receipts increase migration intentions by 14.9 percent compared to an insignificant impact for

members of migrant households. These estimates indicate that the impact of remittances on intentions is significantly under-estimated in standard probit estimates with the marginal effects upto 60% greater compared to the model where endogeneity is taken into account (Leeves, 2009). This implies that as migration networks get stronger, remittances have greater influence on migration intentions. Moreover, as discussed in section 3.1, this evidence supports the hypothesis that remittances have a signalling property, which spurs the migration process.

For the other control variables, some consistent findings emerge. In accordance with earlier work (De Jong, 1996; Puri and Ritzema, 1999; Van Dalen *et al*, 2005a,b) the profile of a person with high emigration intentions (for all the three samples) is that of a young unemployed male with networks in the host country. Stronger migration intentions are held by the unemployed as compared to the employed supports the view that migration from Moldova is needs driven. Moreover, as the employed already have a secure economic position, the need to migrate is relatively lower hence the weaker intentions (Fourage and Ester, 2007). Besides, as Van Dalen *et al* (2005b) note, migration offers the unemployed an alternative route to gainful employment, therefore, it is associated with stronger intentions. Furthermore, females have less strong intentions to migrate than males. Also, individuals with greater human capital are more likely to express an intention to migrate. Educated individuals are 79 percent more likely to express intentions to migrate than the relatively less educated, which provides some evidence of positive self-selection in the migration process and evidence of the brain drain hypothesis.

The results in Table 4 suggest that the wealth status of the household has a negative impact on the migration intentions of individuals. Furthermore, network effects are quite significant. One explanation for this result is that perhaps they tend to lessen both monetary and psychological costs of moving and hence encourage stronger intentions to migrate.

## ***5.2 Impact of Prior Migration Intentions on Remittance Receipts (Links 1(B) and 2(B))***

Table 4 suggests that prior migration intentions also have a positive impact on the receipt of remittances. Focusing on the second half of Table 4, the effect is

particularly significant for non-migrant households and insignificant for migrant households. Intentions to migrate abroad increases the likelihood of receiving remittances by 10.5 percent. Consistent with the discussion in section 3.1, this suggests that in Moldova family ties do not determine remittance receipts (i.e. no support for link 2(B) in our theoretical framework). In fact, this lends support to the idea that remittances might be alleviating credit constraints of households, which might have prevented them from migrating. Alternatively, it can also be argued that these transfers are an outcome of a mutually beneficial contract between the migrant and the individual in the home country, which involves helping the latter move abroad.

It is interesting to note that a mixture of household and individual characteristics determines the receipt of remittances. Individuals with the highest likelihood of receiving remittances come from a large (in terms of number of members) but not so wealthy households. Both these results suggest that remittances have a liquidity-easing component to them. Presence of networks in the host country and trust in the economic environment in the home country have a significantly positive impact on the probability to receive remittances. Trust in the financial institutions of the home country is an indication of the local community's economic climate and thus business opportunities. Similarly, networks in the host country are likely to reduce assimilation costs in the host country and hence indirectly may have a positive effect on the likelihood of receipt of remittances.

The findings of the research are supplemented by carrying out separate estimation on a sample split by the household's wealth status. The rationale behind the division is to isolate the credit constraint effect from the signalling effect. As individuals from affluent households are less likely to be constrained, it can be argued that a positive effect of remittances on intentions would support the idea that remittances carry information of economic well-being of migrants in the host country. On the other hand, a positive impact of remittances on intentions for individuals from relatively poorer (non-affluent) households would be consistent with the liquidity-easing role of such transfers. Table 5 presents the results for individuals in affluent and 'non-affluent' households. It can be clearly seen that remittances have a significantly positive impact in both cases. The receipt of remittances appears to increase migration

intentions by more than 10% (7%) for affluent (non-affluent) households. This suggests that remittances have both a signalling property as well as the potential to help overcome credit constraints.

The impact of other explanatory variables remain unchanged across the two samples with a few exceptions. Comparing the impact across the two samples, we see that each additional year of education increases migration intentions of individuals from affluent households by four times more than it affects those from non-affluent households. This is in line with much of the previous literature where in the presence of signalling, highly educated are the most likely to emigrate. While as remittances relax credit constraints in non-affluent households, the education level of individual's does not have any significant impact on intentions. Moreover, the household size has a significantly negative impact on the migration intentions of individuals from non-affluent households. As members of such households have limited resources, migration of additional family members would strain the household's financial resources even more, thereby discouraging migration intentions. In addition to this, unemployed individuals in affluent households are more likely to express intentions to migrate relative to unemployed in non-affluent households as the incoming transfers signal financial gains in the host country for the former. Furthermore, as expected, efficient financial institutions in the home country have a significant negative impact on migration intentions of individuals in wealthy households.

Thus, to recapitulate we show that remittances perform the signalling function in Moldova that has a positive impact on migration intentions of non-migrants. We also find evidence to support that prior migration intentions might be the reason some individuals receive remittances. So it might be that remittances are part of an implicit contract between the migrant and the origin household where the migrant helps the members of the origin household to migrate abroad and remittances are used as loans for these members to cover the costs of migration (see Ilahi and Jafarey, 1999). This link is also consistent in the context of credit constraints where remittances are a liquidity reliever for individuals with prior intentions and thereby perpetuate migration.

### ***5.3 Extensions and Robustness Checks***

In order to ensure the validity of the results, an additional robustness check is carried out by re-estimating the model by gender. Results presented in Table 6 show that they are consistent with the previous results, i.e., the coefficient of the remittance variable is still significantly positive, implying that remittances stimulate future migration intentions in Moldova. Also, the causality between remittances and future migration intentions holds.

In summary, the findings from all the specifications support the hypothesis that remittances have a positive impact on future migration intentions. Based on the findings it can be said that the receipt of remittances trigger migration of additional members and thus strengthens the phenomenon of chain migration. The results support two main mechanisms underlying this link – signalling effect and credit constraint reliever.

## **6. Conclusion**

The aim of this paper was to explore the potential influence of remittances in perpetuating migration intentions of non-migrants in Moldova. In doing so, the paper employed a large household survey data and analysed the mechanisms through which remittances trigger further migration of those left behind. Previous literature has argued that remittances spur the migration process by providing non-migrants with the financial resources and information about the host country thus signalling to them that it is beneficial to migrate. However, unlike much of the literature the current research argues that receipt of remittances is a function of non-migrant's prior intentions to migrate. More specifically, remittances and migration intentions are allowed to simultaneously affect each other and this relationship is modelled in a simultaneous equation framework. The analysis aims to help uncover the unconventional impacts of remittances on the home country and contributes to the better understanding of the relationship between the migration intentions of non-migrants and remittances.

The estimations suggest a reciprocal relationship between the receipt of remittances and migration intentions of those left behind. In particular, evidence that remittances

from migrants to non-migrant households in the home country have a signalling effect, which enhances non-migrants aspirations and encourages migration intentions. Further, the results show that remittances alleviate liquidity constraints of the recipients. As high costs of migration and low access to credit markets impede migration of some members of the household, remittances help overcome these credit constraints and thereby have a positive impact on migration. Another interesting result that emerges from the analysis is the difference in the effect of remittances on individuals in migrant and non-migrant households. It is seen that the impact of remittances on intentions is only significant for non-migrant households and insignificant for migrant households, thereby highlighting the fact that remittances are not determined by the strength of family ties in Moldova.

In terms of policy relevance, the findings can help policy makers and governments to better understand and predict the effects of international remittances on the source country. For example, earlier findings that migration and remittances work in same way as official development assistance for less-developed countries might not hold anymore. Also, as it is the young who have the greatest inclination to migrate it may lead to demographic imbalance, as migration increases and migrant networks strengthen even more. Therefore, it is essential for the government to initiate some long-term reforms to break the chain of migration. One way of doing this is by improving the economic conditions of the home country which might reduce an individual's intentions to migrate in the future. Creation of domestic jobs is essential to counter the continuous emigration of workers. Better work opportunities at home will deter individuals from migrating thereby diminishing the signalling effect of remittances. The results from the analysis also suggest that it is the unemployed that express stronger intentions to migrate. State unemployment programmes, which engage young unemployed people would be one way to contain this form of outward migration.

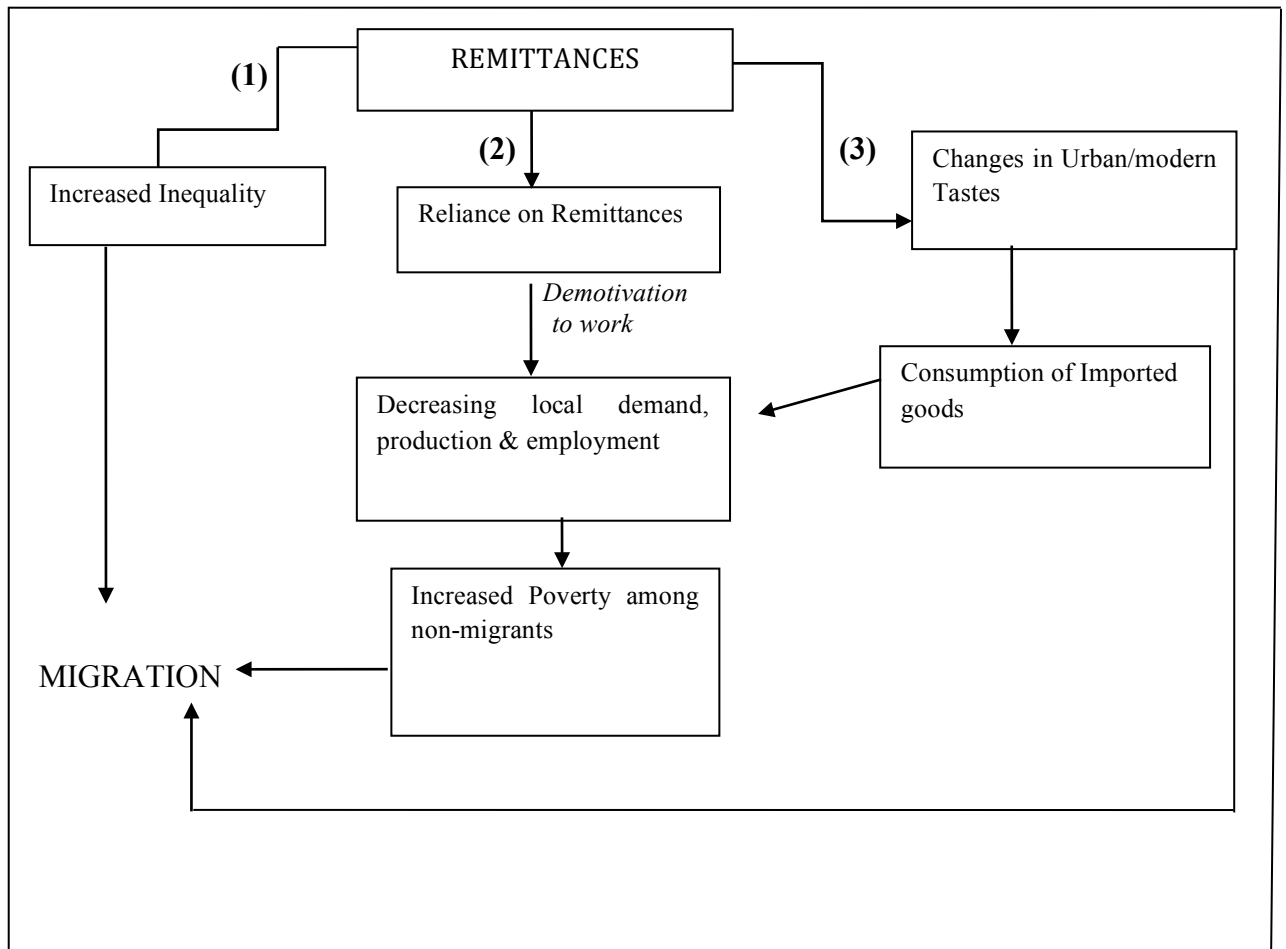
## References

- Agadjanian, V., L. Nedoluzhko and G. Kumskov (2008). Eager to leave? Intentions to migrate abroad among young people in Kyrgyzstan. *International Migration Review* 42: 620-651.
- Bauer, T., G.S. Epstein and I.N. Gang (2007). Herd effects or migration networks? The location choice of Mexican immigrants in the US. *Research in Labour Economics*, 26, 199-229.
- Boyd, M. (1989). "Family and Personal Networks in International Migration: Recent Developments and New Agendas." *International Migration Review* 23: 638-671.
- Chami, R., C. Fullenkamp, and S. Jahjah. (2003). Are immigrant remittance flows a source of capital for development?. *IMF Annual Research Conference*, IMF Washington.
- Cox Edwards, A. and M. Ureta (2003). International migration, remittances, and schooling: Evidence from El Salvador. *Journal of Development Economics*, 72(2), 429-61.
- de Haas, H. (2010). Migration and development: A theoretical perspective. *International Migration Review*, 44(1), 227-264.
- De Jong, G.F., K. Richter, and P. Isarabhakdi (1996). Gender, values, and intentions to move in rural Thailand, *International Migration Review*, 30, 748-770.
- Dimova, R., and F.R. Wolff (2009). Remittances and chain migration: Longitudinal evidence from Bosnia and Herzegovina. *IZA Discussion Paper No. 4083*.
- Dustmann, C. (2003). Children and return migration. *Journal of Population Economics*, Vol 16 : 815-830.
- Dustmann, C. and J. Mestres (2010). Remittances and Temporary Migration. *Journal of Development Economics*, 92(1), 62-70.
- Fourage, D. and P. Ester (2006). Long distance mobility and migration intentions in Europe. in OVER-WERK Tijdschrift van het Steunpunt WAV 3, 9-14.
- Greene, W.H., (2008). *Econometric Analysis, 7th Edition*. Prentice Hall.
- Gubert, F. (2000). Migration, remittances and moral hazard: Evidence from Kayes Area (Western Mali), Working Paper No. 200017, CERDI.
- Ilahi, N., and S. Jafarey (1999). Guest worker migration, remittances and the extended family: Evidence from Pakistan. *Journal of Development Economics*, 58, 485-512.
- Leeves, G. (2009). Migrations plans and received remittances: Evidence from Fiji and Tonga. *International Migration Review* 43: 160-177.
- Liebig, T., and A. Sousa-Poza (2004). Migration, self-selection and income inequality: An international analysis. *Kyklos*, 57(1), 125-146.

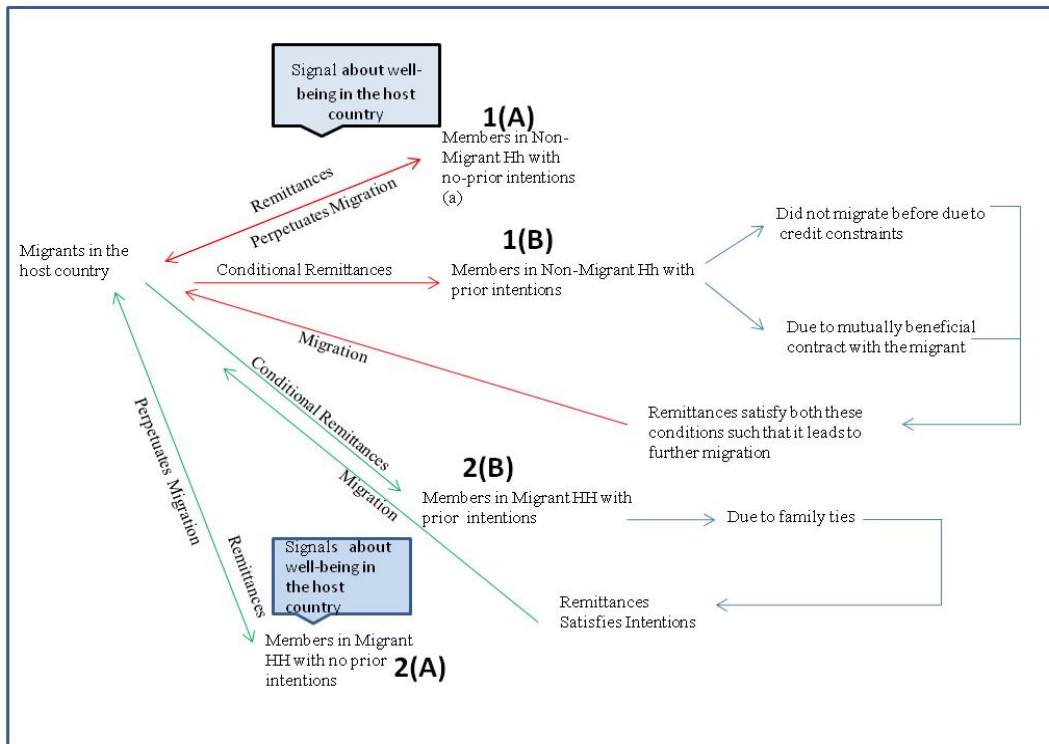
- Luecke, M., T.O. Mahmoud, and P. Pinger (2007). Patterns and trends of migration and remittances in Moldova. Chisinau: International Organisation for Migration.
- Massey D.S., J. Arango, G. Hugo, A. Kouaouci, A. Pellegrino, T.E. Taylor (1998). Worlds in motion: Understanding international migration at the end of the millennium. Oxford: Clarendon Press
- Puri, S. and T. Ritzema (1999). Migrant worker remittances, micro-finance and the informal economy: Prospects and issues. Social Finance Unit, International Labor Organization, Working Paper No. 21.
- Quisumbing, A. and S. McNiven (2010). Impact of migration and remittances on the rural Philippines. *Journal of Development Studies*. Vol 46(1): 91-113.
- Roberts, B. and K. Banaian (2005). Remittances in Armenia: Size, Impacts, and Measures to Enhance Their Contribution to Development, presented at the Third Annual International Conference on Armenia, January 15-16, Washington DC.
- Sana, M. and D.S. Massey (2005). Household composition, family migration, and community context: Migrant remittances in four countries. *Social Science Quarterly*, 86(2), 509-528.
- Sander, C., D. Nistor, A. Bat, V. Petrov and V. Seymour (2005). Migrant remittances and the financial market in Moldova. Study prepared for USAID (BASIS/CRSP).
- Stark, O. (1999). Altruism and beyond: An economic analysis of transfers and exchanges within families and groups. Cambridge: Cambridge University Press.
- Stark, O. and Y. Wang (2002). Migration dynamics. *Economics Letters* 76, 159–164.
- Taylor, J.E. and A. Lopez-Feldman (2010). Migration and productivity of rural households in Mexico. *Journal of Development Studies* 46(1), 68-90.
- Van Dalen, H., G. Groenewold and T. Fokkema (2005a). Remittances and their effect on emigration intentions in Egypt, Morocco and Turkey. *Population Studies* 59(3), 375-392.
- Van Dalen, H., G. Groenewold and T. Fokkema (2005b). Out of Africa: What drives the pressure to emigrate? *Journal of Population Economics*, 18, 741-778.
- Van Dalen, H. and K. Henkens (2008). Emigration intentions: Mere words or true plans? Explaining international migration intentions and behavior. Centre for Economic Research Discussion Paper No. 2008-60, Tilburg University.
- Yang, X. (2000). Determinants of migration intentions in Hubei province, China: individual versus family migration. *Environment and Planning A*, 32, 769 -787.
- Yang, D. and C. Martinez (2005). Remittances and poverty in migrants' home areas: Evidence from the Philippines. In Caglar Ozden and Maurice Schiff (eds.), *International Migration, Remittances and the Brain Drain*, Chapter 3, pp. 81-122. Washington, DC: World Bank.



**Fig 1: The Remittance Syndrome -Second Order Feedbacks**



**Fig 2: Link between Remittances and Future Migration Intentions of Non-Migrants**



**Table 2: Descriptive Statistics**

<b>Explanatory Variables</b>	<b>Description of Variables</b>	<b>Whole sample</b>	<b>Non-migrant HHs</b>	<b>Migrant HHs</b>
Remittances	Received remittances (dummy=1)	.165	.066	.502
Household Size	No of people living in household	3.862	3.783	4.08
Affluent Household	=1 If hh owns 1 or more apartment/house + more than 1.5 hectares of land; 0 otherwise	.326	.328	.320
Area	=1 If household in urban area	.370	.390	.316
Unemployed	=1 if respondent answers that he is unemployed	.135	.133	.140
Trust	=1 if the individual trusts the economic environment in Moldova	.255	.238	.304
Female	Individual's gender (male=0)	.535	.534	.537
Education	Individual's education (in years)	14.899	14.940	14.770
Existence of social network	=1 if has networks abroad, 0 otherwise	.643	.616	.718
Age	Individual's age (in years)	40.950	39.890	43.920
Bank Account	=1 if migrant has a bank/postal account abroad	0.018	.009	.042
N	No. of observations	5394	3996	1398

**Table 3(a): Individual Characteristics by stated emigration intentions in the near future**

Characteristics	Intention to Migrate	
	<i>Yes</i>	<i>No</i>
Household Size	3.953	3.656
Affluent	.3283	.3255
Area	.4583	.3604
Unemployed	.1898	.1641
Trust	.2847	.2462
Female	.4652	.5435
Education	15.37	14.38
Social network	.7754	.6167

**Table 3(b): Individual Characteristics by receipt of remittances**

Characteristics	Receive Remittance	
	<i>Yes</i>	<i>No</i>
Household Size	4.124	3.592
Affluent	.3121	.3283
Area	.3339	.3731
Unemployed	.2265	.1544
Trust	.4306	.2148
Female	.5439	.5372
Education	14.41	14.45
Social network	.7578	.6029

**Table 4: Estimates for Non-migrants by their household migration status (marginal effects)**

	(1) <i>All-Households</i>	(2) <i>Non-Migrant</i>	(3) <i>Migrant</i>
<b>Migration Intentions</b>			
Receive Remittances	0.0957*** (9.85)	0.149*** (8.06)	0.0119 (0.74)
Migration Rate	0.0282*** (4.58)	0.0225** (3.22)	0.0359** (2.82)
<b>Household Characteristics</b>			
Wealth Status	-0.0221** (-2.60)	-0.0154 (-1.66)	-0.0461* (-2.39)
Area (Urban=1)	0.0391*** (4.51)	0.0260** (2.76)	0.078*** (3.87)
Household Size	-0.00532 (-1.91)	-0.00273 (-0.87)	-0.0068 (-1.17)
<b>Individual Characteristics</b>			
Age	-0.00297*** (-11.40)	-0.00228*** (-7.80)	-0.004** (-7.97)
Gender (Female=1)	-0.0303*** (-4.31)	-0.0357*** (-4.62)	-0.0180 (-1.16)
Education Level	0.00950** (2.67)	0.00798* (2.03)	0.0161* (2.05)
Employment Status(Ref=Unemployed)	0.0272** (2.64)	0.0191 (1.67)	0.0462* (2.05)
<b>Community Characteristics</b>			
Networks Abroad (yes=1)	0.0314*** (4.25)	0.0311*** (3.90)	0.0375* (2.16)
Trust	0.000510 (0.06)	-0.00277 (-0.27)	0.0175 (0.93)
<b>Receive Remittances</b>			
Migration Intentions	0.183*** (9.80)	0.105*** (7.93)	0.0267 (0.60)
Bank Account (yes=1)	0.397*** (10.48)	0.283*** (8.11)	0.218** (3.24)
<b>Household Characteristics</b>			
Wealth Status	-0.0000534 (-0.00)	-0.0191* (-2.44)	-0.0015 (-0.05)
Area (Urban=1)	-0.00442 (-0.38)	0.0172* (2.26)	0.0232 (0.70)
Household Size	0.0327*** (8.57)	0.00685** (2.59)	0.0428*** (4.42)
<b>Individual Characteristics</b>			
Age	0.00288*** (8.00)	0.0000660 (0.27)	0.00167 (1.76)
Gender (Female=1)	0.0122 (1.25)	0.00893 (1.37)	0.00632 (0.24)

Education Level	-0.0124* (-2.52)	-0.00851* (-2.56)	-0.0028 (-0.22)
Employment Status(Ref=Unemployed)	0.00219 (0.15)	0.00550 (0.57)	-0.0162 (-0.43)
<b><i>Community Characteristics</i></b>			
Networks Abroad (yes=1)	0.0830*** (8.18)	0.0331*** (4.93)	0.110*** (3.82)
Trust	0.132*** (10.77)	0.0685*** (8.07)	0.209*** (6.76)
Observations	5394	3996	1398

Notes: Wealth Status: A household is considered “affluent” if it owns an apartment/land, vehicle.  
‘Trust’ measures the level of trust individuals have in the country’s economic institutions. *t* statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 5: Estimates by Wealth Status**

	(1) Affluent	(2) Non-Affluent
<b>Migration Intentions</b>		
Receive Remittances	0.129 <sup>***</sup> (7.48)	0.0805 <sup>***</sup> (6.84)
Migration Rate	0.0367 <sup>***</sup> (3.33)	0.0252 <sup>***</sup> (3.38)
<i>Household Characteristics</i>		
Area (Urban=1)	0.0497 <sup>***</sup> (3.33)	0.0352 <sup>**</sup> (3.27)
Household Size	-0.00104 (-0.19)	-0.00689 <sup>*</sup> (-2.13)
<i>Individual Characteristics</i>		
Age	-0.00236 <sup>***</sup> (-5.18)	-0.00332 <sup>***</sup> (-10.44)
Gender (Female=1)	-0.0169 (-1.36)	-0.0362 <sup>***</sup> (-4.25)
Education Level	0.0190 <sup>**</sup> (3.11)	0.00493 (1.12)
Employment Status (Ref= Unemployed)	0.0505 <sup>*</sup> (2.42)	0.0190 (1.60)
<i>Community Characteristics</i>		
Networks Abroad (yes=1)	0.0289 <sup>*</sup> (2.17)	0.0322 <sup>***</sup> (3.63)
Trust	-0.0270 (-1.70)	0.0126 (1.15)
<b>Receive Remittances</b>		
Migration Intentions	0.246 <sup>***</sup> (7.65)	0.153 <sup>***</sup> (6.67)
Bank Account (yes=1)	0.238 <sup>***</sup> (4.23)	0.521 <sup>***</sup> (10.21)
<i>Household Characteristics</i>		
Area (Urban=1)	0.0215 (1.13)	-0.0222 (-1.52)
Household Size	0.0221 <sup>**</sup> (2.92)	0.0359 <sup>***</sup> (8.08)
<i>Individual Characteristics</i>		
Age	0.00297 <sup>***</sup> (4.78)	0.00298 <sup>***</sup> (6.72)
Gender (Female=1)	0.00390 (0.23)	0.0148 (1.25)
Education Level	-0.0368 <sup>***</sup> (-4.45)	0.000156 (0.03)
Employment Status (Ref=Unemployed)	-0.0237 (-0.83)	0.0115 (0.70)

***Community Characteristics***

Networks Abroad (yes=1)	0.0649 <sup>***</sup> (3.58)	0.0864 <sup>***</sup> (7.06)
Trust	0.110 <sup>***</sup> (5.17)	0.144 <sup>***</sup> (9.60)
Observations	1757	3637

*Notes:* A household is considered 'affluent' if it owns an apartment/land, vehicle. *t* statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



**Table 6: Estimates by Gender**

	(1) <i>Female</i>	(2) <i>Male</i>
<b>Migration Intentions</b>		
Receive Remittances	0.121 <sup>***</sup> (10.08)	0.0649 <sup>***</sup> (4.13)
Migration Rate	0.0281 <sup>***</sup> (3.68)	0.0289 <sup>**</sup> (2.92)
<b>Household Characteristics</b>		
Wealth Status	-0.0124 (-1.16)	-0.0335 <sup>*</sup> (-2.48)
Area (Urban=1)	0.0440 <sup>***</sup> (4.05)	0.0331 <sup>*</sup> (2.40)
Household Size	-0.00606 (-1.76)	-0.00290 (-0.64)
<b>Individual Characteristics</b>		
Age	-0.00256 <sup>***</sup> (-7.75)	-0.00344 <sup>***</sup> (-8.37)
Education Level	0.00711 (1.63)	0.0141 <sup>*</sup> (2.41)
Employment Status (Ref=Unemployed)	0.0270 <sup>*</sup> (2.11)	0.0300 (1.81)
<b>Community Characteristics</b>		
Networks Abroad (yes=1)	0.0276 <sup>**</sup> (3.01)	0.0361 <sup>**</sup> (3.06)
Trust	-0.0104 (-0.94)	0.0143 (0.98)
<b>Receive Remittances</b>		
Migration Intentions	0.284 <sup>***</sup> (10.16)	0.101 <sup>***</sup> (4.02)
Bank Account (yes=1)	0.445 <sup>***</sup> (8.87)	0.328 <sup>***</sup> (5.69)
<b>Household Characteristics</b>		
Wealth Status	-0.00394 (-0.24)	0.00172 (0.10)
Area (Urban=1)	-0.0109 (-0.69)	0.00205 (0.12)
Household Size	0.0269 <sup>***</sup> (5.16)	0.0395 <sup>***</sup> (7.01)
<b>Individual Characteristics</b>		
Age	0.00256 <sup>***</sup> (5.07)	0.00313 <sup>***</sup> (6.04)
Education Level	-0.0171 <sup>**</sup> (-2.59)	-0.00627 (-0.85)
Employment Status (Ref= unemployed)	-0.0104 (-0.53)	0.0171 (0.82)

***Community Characteristics***

Networks Abroad (yes=1)	0.0801 <sup>***</sup> (5.77)	0.0847 <sup>***</sup> (5.72)
Trust	0.135 <sup>***</sup> (8.09)	0.130 <sup>***</sup> (7.14)
Observations	2885	2509

*Notes:* A household is considered 'affluent' if it owns an apartment/land, vehicle. *t* statistics in parentheses;

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$