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(Full title)
**Remittances and their effect on emigration intentions in Egypt,
Morocco and Turkey**

(Abbreviated title)
Remittances and effects on emigration intentions

May 9, 2005

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Abstract:

What determines remittances – altruism or enlightened self-interest - and do remittances trigger additional migration? These two questions are examined empirically in Egypt, Turkey and Morocco for households with family members living abroad. Results show, first, that one cannot clearly pinpoint altruistic or motives of self-interest since each country tells a different story and within a country both motives can be defended as driving forces behind remittance behaviour. A general conclusion based on a multi-country study is that the family ties and the net earnings potential of emigrants have stronger effects on receipt of remittances than net earnings potential of households in the country of origin. Second, the receipt of remittances has a positive effect on emigration intentions of household members living in the country of origin. Therefore, receipt of remittances may contribute to new flows of emigration, in particular in the case of Morocco.

Keywords: remittances, migration, intentions, networks, altruism, self-interest, households, development

Introduction

Remittances have become a significant source of income for less developed countries. According to the World Bank (2004), remittances received by less developed countries in 2002 totalled 93 billion US dollars. Although the size of remittance flows is undoubtedly large, the empirical support for the beneficial effects of remittances on development and economic growth is ambiguous and certainly not overwhelming. In a comparative study of 74 less developed countries Adams and Page (2003) found that remittances have a strong impact on reducing poverty. However, Chami et al. (2005) - using panel data of 113 less developed countries - show that remittances have a negative effect on economic growth. They suggest that the moral hazard problems tied to the transfer of money from migrants to receiving households may be the key to understanding why remittances engender poor economic performance. Recipients can lower their labour force participation or savings, limit job search efforts, invest in riskier investment projects or perhaps signal to family members staying behind that it is worthwhile to move abroad and join the remitter.

In short, whether remittances are beneficial or counterproductive depends on how remittances are allocated – invested or consumed – and especially how it affects the behaviour of recipients. The difficulty with appraising the more macro-economically inspired literature is that it makes numerous tacit assumptions about how remittances come about and affect household and individual decision making without really testing the plausibility of assumptions used. In this paper we will offer some empirical evidence which might shed light on the debate about the causes and consequences of remittances. To contribute to the debate we will focus on three less developed countries, which are

known to depend heavily on the inflow of remittances: Egypt, Morocco and Turkey (see Adams and Page 2003). Migrant remittances in Egypt for the year 1999 constituted 26 per cent of exports and 4 per cent of GDP. In Turkey and Morocco, the figures are 10 per cent and 2.5 per cent, and 18 per cent and 5.5 per cent, respectively. For this purpose we use data of a large-scale household survey implemented in the years 1996 and 1997 in these countries. The survey contains detailed information on households and to some extent information is provided by the households about their emigrant family members. The focus of attention is on households who have one or more household members living abroad. In particular, we address the following two questions: (1) which factors affect the likelihood that such households receive remittances?; and (2) does receipt of remittances in households in origin countries encourage or discourage emigration intentions of its members?

In answering the first question, we borrow some insights from a growing body of literature which sheds some light on the possible motives behind remittances. We will view remittances as a transfer of resources inspired by a mixture of motives ranging from altruism to pure self-interest. Essentially we put forward the question whether these flows can be interpreted as a sign of altruism or as being part of an implicit contract - be it a family loan arrangement or an insurance contract. In the case of altruism, the net earnings conditions of the recipients will matter, as well as the strength of family ties. In the case of a family loan, one has to imagine the existence of a tacit contract between the household and emigrants, whereby the latter promise to repay the loan they received to finance their move abroad. The commitment to repay that loan depends very much on the family household structure and, just as in the case of the altruism model, on the strength

of ties between the household members.

The second question deals with the effect that receipt of remittances may bring about, i.e. whether the transfer of money triggers emigration of household members staying behind. We shall test this proposition by examining whether remittances have a substantial effect on the emigration *intentions* of household members with one or more fellow household members living abroad. On the one hand, one would predict this effect to be negative as the prime function of remittances is to let those staying behind live in comfort. The emigration of one of its members can be interpreted as a well-chosen household strategy to overcome so-called missing insurance or capital markets (Stark and Bloom 1985). In short, the emigrant becomes an asset for those remaining behind. On the other hand, the reverse case may also arise: remittances may signal to those staying behind that migration is a profitable undertaking. Uncovering this signalling function of remittances is quite difficult since emigration is a complex decision process whereby one needs to account for various influences to discover that particular effect. If this effect exists, the phenomenon of 'chain migration' will arise with even more force since the chain between migrants and those staying behind is accompanied by a financial flow triggering more migration. Proving or disproving the existence of the signalling function is an important step because the popular image of remittances among policy makers is that remittances function at the same level as development aid (World Bank 2004). In principle, remittances could have the same beneficial effect as foreign aid because the level of remittances in the year 2002 is more than double the level of net official assistance (see World Bank 2004). However, when remittances trigger additional emigration the net benefits of remittances are bound to be far less pronounced, if not

absent.

To put our research questions in context, we start out with a review of a growing body of theoretical work that sheds light on the determinants and consequences of remittances.

Migration and the role of remittances

Emigration is a precondition for remittances to come about and knowing *who* emigrates (e.g., the high skilled or the low skilled) and *why* is essential for understanding the size, direction and consequences of remittance flows. Answering these questions can easily be done within the domain of simple equilibrium models of migration in which wage differences are the prime driving force. Migration in this view is an adjustment mechanism between regions or countries. The volume and direction of migration are considered to be primarily driven by wage income differentials. Moving labour across borders is in this equilibrium view an arbitrage process just like physical and financial capital move across borders to reap the benefits of interest differentials, and as long as there differences in wage rates across countries there will be a pressure to migrate.

A drawback of the early literature on migration (Sjaastad 1962; Todaro 1969; Harris and Todaro 1970) and its focus on migration as an individual choice process was that in such models there is in principle no significant role for remittances. All this changed with the so-called ‘new economics of labour migration’, as Stark and Bloom (1985) dubbed this strand in the migration literature. By moving from models where the migrant is motivated solely by individual incentives to models where individual decisions are influenced by household characteristics as well as individual characteristics, the issue

of remittances arises naturally. As long as migrants remain part of the household in the country of origin interaction can continue through the transfer of income or information.

Remittances: altruism or enlightened self-interest?

The main question about remittances is: *why* do emigrants send part of their income to family and relatives in origin countries? A common explanation is that migrants care for the ones they left behind: spouses, children, parents and other members of the extended family. A theory of altruism has the attractive feature that it is tractable and leads to straightforward predictions, although much depends on the specifics of the model of altruism (see Rapoport and Docquier 2005). With the help of a theory of altruism, in which migrants care not only for their own utility but also for the utility of the household in the origin country, one can make the prediction that the level of remittances increases with the migrant's income and decreases with the recipient's income.

One of the difficulties in testing the theory of altruism is that the predictions made are hard to distinguish from the predictions made with alternative theories of remittance behaviour. The encompassing feature of those alternative theories is the assumption of self-interest as the prime driving force behind remittances. So what appears as mutual altruism between the family and the migrant could just as well be enlightened self-interest. Remittances can serve both the interests of migrants and of the household in the origin country. In this set-up remittances are viewed as part of an intertemporal mutually beneficial contract arrangement (Lucas and Stark 1985; Poirine 1997; VanWey 2004). The elements of investment and risk stand out in this contract theory of remittances. To start with the investment argument, it has long been recognised that remittances can be

viewed as a repayment of the principal (plus interest) invested by the family for the education of the migrant. The higher the investment of the household in the education of the migrant, the higher the expectations of the family of being repaid through remittances. Migration, in other words, is seen as a portfolio investment strategy.

The other element of the self-interest view of remittances – the function of insurance contract – also points to some common practices in daily life in less developed countries. Emigration is not only viewed as a strategy for migrants to benefit from higher income opportunities but it can also be viewed as a household risk-diversification strategy to overcome missing insurance markets. This view – remittances as ‘insurance’ - generates the same predictions as the altruism model with respect to the appearance of adverse income shocks but it yields different predictions with respect to the timing of remittances. The altruism model should imply a gradual decrease of remittances over time as altruism decays in distance and time, while the insurance motive should imply no decrease during a given (contract) period and a sharp decline after a while when the insurance ‘contract’ expires.

Naturally, in these informal settings the strength of family ties may play a crucial role in overcoming the hurdles in financing lifetime consumption paths. Contractual arrangements between the migrant and his family are voluntary and thus must be self-enforcing (we will refer to migrants as being male because most of the empirical research yields the insight that men are in general the ones who emigrate). Close family relations may serve as such a force. Of course, the strength of family ties between the remitter and the recipient household plays also a large role within the altruism model, as VanWey (2004) suggests. The ‘altruism’ motive indicates that emotional attachment to the

household is important so that remittances reflect a kind of 'commitment' to live up to their promise to take care of their family members.

Lucas and Stark (1985) suggest a test, which could help to determine whether remittances represent altruistic or self-interested behaviour. The family may possess sanctions to overcome the hazards tied to long-distance transfers. For instance, a default to remit may be sanctioned by denying the migrant rights to future solidarity, inheritance or even the right to return to the household, once the migrant retires. In short, such sanctions may give the family bargaining power. Within a game-theoretic context, greater wealth should enhance the bargaining strength of the family. This yields a clear prediction that can challenge the prediction of the pure altruism model. The prediction of the latter model is that higher remittances flow to low-wealth households. The prediction of the self-interest model is exactly the reverse: remittances flow to wealthy households.

HERE TABLE 1

All in all, the predictions made by the two models overlap to some extent, but they also vary by a number of distinct driving forces. Table 1 summarises the expected effects of these competing models of remittances.

The Link between Remittances and Emigration

Whether receipt of remittances triggers emigration intentions of non-migrants has been spelled out to some extent in theory and either outcome – to emigrate or to stay - can be defended. Within the logic of the self-interest model receipt of remittances will have a

negative effect on the emigration intentions of those staying behind. This is because remittances soften the perceived income and insurance constraints of the household so that there is no need for additional members to emigrate. The ‘insurance contract’ model suggests that if the contract pays off it will sustain household members to live their lives in the country of origin. A problem for the migrant-sending household arises when the contract is not lived up to by the emigrant. Sending another household member abroad involves a certain risk since the ones who stay behind become more dependent on the ones that emigrated. Subsequent emigrants from the household may also not be financially successful and fail to generate remittances or, as time goes by, feelings of commitment to the sending household and community may even diminish. Therefore much depends on the success and commitment of the emigrant(s). Controlling for the characteristics of migrants residing abroad is therefore an essential step in testing hypotheses about the effect of remittances on emigration intentions.

Another reason why remittances may trigger emigration within the self-interest model may be the information contained in the message which households get when receiving money. Remittances also represent information on migration (investment) opportunities. For those staying behind it may well be a signal that it pays to emigrate. And when information on the destination countries is imperfect and uncertain it helps to have a reliable information source abroad. In other words, the money sent home by migrants ‘talks’. Remittances contain additional information, which enlarge or dampen the great expectations about countries of destination.

The above view on the link between migration and remittances represents the viewpoint of the (head of the) household having command over its members living

abroad. One can also take the viewpoint of the emigrant who may have ulterior motives in sending remittances. For instance, Stark (1999) argues that migrants may wish others *not* to follow in their steps, and these first movers would be willing to pay them to stay put. The intuition behind the flow of remittances is quite simple: remittances protect the wage income of high-skilled emigrant workers from being ‘contaminated’ by the presence of low-skilled workers in the same pool. In other words: the decision for migrants to remit is not motivated by altruistic considerations but rather by pure self-interest. Within that context, the intention to emigrate should be significantly lower among household members in remittances-receiving households than such intentions of persons in non-receiving households.

However, Stark and Wang (2002) examine another mechanism which reverses the previous prediction. The insight is essentially based on the idea that employers in the country of destination distinguish between skill types of migrants. Under those circumstances, the first-mover migrants - assumed to be high-skilled or highly entrepreneurial - will be willing to pay low-skilled migrants to follow in their footsteps and join them. High-skilled migrants draw benefits from a skill dilution of the pool of migrant workers. Testing this idea would imply that persons living in households that have received remittances would have a higher probability to emigrate than persons living in households that did not receive anything. In addition to this straight-forward prediction, one would also need to test the prediction that recipients would be lower skilled than the emigrant-remitter. The latter prediction would imply quite detailed information on household relations, information that is unfortunately lacking in our data set.

In testing these theories one also needs to control for the complexity of migration decision making within the household context. One of the complexities refers to the networks which migrants maintain with the country of origin. Network externalities (cf. Bauer et al. 2002; Epstein and Gang 2005) influence whether, when and where new emigrants migrate to. For instance, the presence of emigrated relatives abroad generally lowers the costs and risks of migration for family and friends who stayed behind because emigrants in the destination countries may provide relevant information on travel to and arrival in places of destination, they may provide temporary housing, loans and be of help in finding paid work (Boyd 1989; Massey et al. 1999; Rotte and Vogler 2000). Thus, size, nature and quality of the migrant-network determines the effect that networks have on emigration intentions in migrant-sending households in origin countries and the likelihood of receiving remittances (Bauer et al. 2000).

Data and method

The data that are used to answer our research questions come from a multi-country study investigating determinants and mechanisms of international migration to the European Union. Five sending countries (Ghana, Senegal, Morocco, Egypt, and Turkey) and two receiving countries (Spain, Italy) were included, countries belonging to the same migration system (cf. Kritz and Zlotnik 1992), that is, migration to the European Union from Africa and the Mediterranean region.

For this study Egypt, Morocco and Turkey were selected because remittances constitute a major source of income in these countries. Regionally representative rather than nationally representative sample designs were developed because of financial and logistic reasons. In each country, four (Egypt, Turkey) or five (Morocco) study regions

were purposively identified using a combination of the following criteria: (1) level of economic development (relatively high vis-à-vis relatively low development), and (2) experience with international migration (long-standing history of migration vis-à-vis recent history). For each region specific sampling frames were developed. The samples taken were stratified, multistage cluster samples of non-migrant and migrant households, whereby the latter were over-sampled (see for a more extensive description of the sampling methodology, Groenewold and Bilsborrow 2004)

[Here Table 2]

Table 2 summarises survey statistics and the typology of households that was used as the basis for the analyses. In principle, all persons between 18 and 65 years old in the household were interviewed, including all emigrants living abroad (so-called ‘shadow’ household members). To increase the likelihood of interviewing an emigrant in person in a sending household, the timing of data collection was carefully chosen, for instance during vacation periods when many emigrants return to the sending country visiting their family. Otherwise, a proxy person answered a selected number of questions of the absentee emigrants.

Models

In testing the relevance of the self-interest and altruism models in the receipt of remittances we will use the *migrant-sending household in the country of origin* as the principal actor. This sub-population has been explicitly chosen as our focus, and not other

sub-populations as listed in Table 2, because decisions will not be influenced by household members who have a migration history as would be the case if we included return-migrant households or mixed migrant households. The effects, especially with respect to emigration intentions, will not be contaminated by the inclusion of return migrants, who are known to have higher probabilities of emigration (see Schoorl et al. 2000).

Most studies examine determinants of remittances from the perspective of the emigrant who has to decide how much to remit (Hoddinott 1994; Funkhouser 1995; Agarwal and Horowitz 2003; and VanWey 2004). However, because the surveys conducted in the countries of origin generated information on both the migrant-sending household as well as their shadow household members abroad, we examine the determinants of remittances from the perspective of these migrant-sending household. With respect to the question whether remittances are inspired by altruism or enlightened self-interest we focus on the likelihood that such migrant-sending households receive remittances from their shadow household members, although it is not known exactly from which shadow household members the remittances come from. The following equation is used to examine the probability that a household receives remittances:

$$R_i = \beta_H H_i + \beta_E E_i + \varepsilon_i \quad (1)$$

where $R_i = 1$ if anyone in the household received money in the past twelve months from household members living abroad, and the variable takes on the value zero if the household did not receive any money from migrant household members. The likelihood

depends on a vector of household characteristics (H_i), representing its net earnings capacity and wealth of the household, and a vector of characteristics (E_i) describing the net earnings capacity of the emigrant(s) linked to the household and the strength of the link between emigrants and their household, and a normally distributed error term ε . Of course, estimating remittance models can be hindered by the problem of sample selection as emigration itself is a highly selective process and the returns from those migrants sent home should also generate some selectivity in observation. However, most remittance decision models refer to the *level* of remittances and not to the *likelihood* of receiving remittances, so that selectivity in our set-up is expected to be negligible.

With respect to the question whether remittances encourage or discourage migration we will use stated emigration intentions of non-migrants in migrant-sending households to test this idea, and the following equation will be estimated:

$$M_i = \beta_R R_i + \beta_I I_i + \beta_H H_i + \beta_E E_i + v_i \quad (2)$$

where $M_i = 1$ if the non-migrant has an intention to emigrate and zero if the non-migrant has no intention to emigrate, E_i and H_i are the vectors of relevant characteristics of the emigrant and the migrant-sending household, and v_i is the error term. We focus on household members, between the age of 18 and 65 years, who have no prior international migration experience and who are part of a migrant-sending household (i.e. non-migrants). Because of the focus on *individual* household members a vector of individual characteristics (I_i) is added to the model to control for the effects that age, sex, marital status, work status and education may have on the formation of emigration intentions.

The main focus is, of course, on the coefficient β_R representing the trigger effect of remittances. If remittances perform their function well the coefficient should be $\beta_R \leq 0$, whereas if the trigger or signal function is working it should be the reverse case: $\beta_R > 0$.

Descriptive statistics

The mean characteristics of the migrant-sending households, the emigrant or shadow family members and individual members of migrant-sending households in Egypt, Morocco and Turkey are summarised in Table 3. Although most of the statistics and variable definitions are self-explanatory, a few comments about the context of migration and remittances are given in order to understand these statistics and the subsequent estimation results.

[Here Table 3]

The context of migration is quite different in the three countries. Prior analysis of the data (Schoorl et al. 2000) shows that most Egyptian emigrants move to the oil-producing states in the Middle East: Saudi Arabia, Iraq and Kuwait. They are mainly migrant-workers, contracted by firms in these countries. Conversely, Moroccan and Turkish emigrants move to European countries with the purpose of staying there on a more permanent basis, legal or illegal, following in the footsteps of family and friends. About two third of the migrant-sending households receive remittances. Between 75 and 90 per cent of the households in Egypt, Turkey and Morocco report that remittances are mainly used to finance the daily costs of living, such as food, clothing, rent, etc. The median

value of remittances received by these households in the twelve months period preceding the surveys is \$423 in Egypt, \$1352 in Morocco, and \$401 in Turkey. However, it should be noted that the non-response in reporting the level of remittances received was high: Egypt 45 per cent, Morocco 32 per cent, and Turkey 62 per cent.

The majority of migrant-sending households are headed by women, most of whom have no education or, at the most, have a primary level of education. Female headship in these Islamic countries is often due to the fact household members who emigrated are (married) men who leave their spouse behind with, or without, children. On average, households have between one and two shadow household members living abroad. More specifically, 87 per cent of the migrant sending households in Egypt have one emigrant, and 98 per cent of such households have at the most two emigrants. Figures for Morocco and Turkey are 68 per cent and 90 per cent, and 70 per cent and 93 per cent, respectively.

Perceived income status of the household is obtained from answers of heads of household on whether the financial situation of the household is insufficient, barely sufficient, or sufficient to buy all their basic needs. Migrant-sending households in Egypt and Morocco generally perceive their current household's financial situation as satisfactory contrary to such households in Turkey. The bias towards a negative perception of the financial situation in Turkish sending households may be a reflection of the general pessimistic mood in the society, at the time of the survey, as the economy went through several recessions and two serious monetary crises between 1994 and 1997. Besides this income variable we have also constructed a wealth variable to test the self-interest model of remittances (derived from the strategic inheritance motive). A

household wealth-score was derived from the possession of ten household assets (to wit: possession of radio, television, bicycle, cooking stove, lounge suite, sewing machine, car/jeep or truck, telephone, video player, refrigerator) and eight indicators of housing quality (number of persons per room, piped water, flush toilet and quality of walls, floors, roof, ceiling, windows and doors). The method of principle component analysis was used to derive weights for each asset and housing quality indicator and an overall household wealth-status index score (Filmer and Pritchett 1999; Filmer and Pritchett 2001; Bollen et al. 2002). To complement the net earnings position we have included a dummy variable to see whether rural-urban differences reflect differences in economic opportunities, aspirations and values, resulting from differential access to information, infrastructure and income.

With respect to emigrant characteristics one can see that emigrants are mostly men, usually married and most of them have a paid job. In all countries, an emigrant is often a spouse or a child of the head of the migrant-sending household. Most migrants have left their family for quite some years, although there is considerable variation in the duration of stay abroad. Moroccan emigrants left their family far earlier than emigrants from households in the other two countries: the average duration is about 10.3 years, whereas Egyptian and Turkish emigrants have left their country 4.5 and 5.6 years ago. Egyptian emigrants generally have a higher level of education and more often hold paid jobs than emigrants from Morocco and Turkey.

It comes as no surprise to find women over-represented among non-migrants, as heads of migrant-sending households are often women whereas emigrants are mostly men. Regarding education and work the main contrast is between Moroccan and Egyptian

non-migrants. Among Moroccans, two thirds do not have any form of education and only one in five has a paid job. Among Egyptians a majority has no education but a major group of non-migrants attained a secondary or higher level of education, categories which are rare among Moroccan and Turkish non-migrants.

The survey contains some information on the type of relationship between the emigrant and the head of the migrant-sending household. The number of persons among emigrants who are spouse, children, parents, or brothers or sisters. Marital status of emigrants is included (i.e. number of emigrants who are married) because married emigrants will have different and more types of loyalties to the migrant-sending household than unmarried emigrants. Married emigrants who left a spouse and children behind are expected to remit money to them, but they may also need to remit to more distant kin since marriage involves expansion of the kinship group.

Results

Remittances: inspired by self-interest or altruism?

To answer the question what drives the flow of remittances, we estimated model (1) by means of logistic regression analysis. The estimation results are presented in Table 4 where we consider the individual country estimates as well as a sample in which the experiences of the three countries are pooled.

[Here Table 4]

In Egypt, the profile of a recipient of remittances is determined by both household and emigrant characteristics. Households with the highest likelihood of receiving remittances are households headed by women, who perceive the financial status of the household as 'barely sufficient'. Moreover, the likelihood for such (Egyptian) women to receive remittances is highest if a spouse or brothers are among the emigrants. Unfortunately, the data do not allow determining whether the spouse of a married emigrant is living in the sending household or elsewhere. However, this is supported by indirect evidence. In Egypt, 76 per cent of the sending households headed by married women report that remittances abroad come from their spouse.

The profile of households in Morocco with the highest likelihood of receiving remittances is fully determined by characteristics of their emigrants: male spouses and brothers, who generally have none or only a primary level education but who have paid work, primarily situated in Europe. In Turkey, households with the highest likelihood of receiving remittances are households of which the perceived income situation is poor. If their emigrants have paid work this will significantly increase the likelihood of receiving remittances. However, if these emigrants are situated in Europe this will significantly decrease receipt of remittances. Higher cost of living in Europe compared to other countries of destination may explain this finding. Such a destination effect is also visible in the case of Moroccan migrants but the coefficient is not significantly different from zero.

The results in Table 4 do not give a clear verdict on which theory of remittances is relevant. The theory of altruism seems to be applicable when one looks at those migrant-sending households with a 'barely sufficient' income position. They are compensated for

this status in Egypt and Turkey by the receipt of remittances and this is in line with what one would expect from altruistic migrant family members. However, the income position of the household also gives contradictory outcomes. One would expect that households with insufficient income are compensated by remittances, but apparently this is not the case. On the contrary, those poor households are even less likely to receive remittances compared to households with sufficient income. This seems to be especially relevant for the Egyptian case. An alternative possible explanation for this paradoxical finding is that at the time of the interview, heads of household perceived the current financial situation as satisfactory but that the household financial situation only improved in recent years. The data provide some circumstantial evidence for this. For a relatively small number of sending households, information is available on the perceived financial situation of the household at the time of emigration of the first emigrant leaving the household. Some background analysis shows that in Turkey and Morocco remittances-receiving households show more often a significant improvement in their perceived financial situation of the household than non-receiving households. In Egypt, such significant improvements were not observed.

Contrary to conventional wisdom, migrant-sending households are less likely to receive remittances from emigrants with a secondary or higher level of education. This effect seems to be especially relevant to the case of Egypt. The self-interest model of remittances suggests that this relationship should be the opposite: higher educated household members are sent abroad to generate income for the family in the country of origin. Although this result may perhaps not be in line with theory, it is in line with results of recent cross-country panel study (Faini 2003) on the link between skilled

migration and remittances. Faini concludes that migrants with a higher education, in spite of their potentially larger earnings and propensity to generate remittances, remit less because their move more often reflects a permanent move. Their attachment to the household becomes progressively weaker and so does their willingness to remit. The latter is not corroborated by our findings. On the contrary, as time goes by, emigrants may come in a position to generate sufficient income and live up to (financial) expectations of those who remain behind. There are some signs, most notably in Turkey, that time abroad has a small but positive effect on the possibility of receiving remittances.

Another conspicuous finding is that household wealth does not affect the likelihood of receipt of remittances. Coefficients are mostly negative suggesting that the altruism model is applicable but the effect is statistically insignificant. It certainly suggests that the model of 'self-interest' – captured by the strategic inheritance motive – as put forward by, e.g., Lucas and Stark (1985) is not applicable.

What does seem clear is that the strength of ties between emigrants and sending households is important as well as the earning capacity of the emigrants as measured by their employment status. The effect of family ties seems to be especially relevant when emigrants are spouses or children of the head of the migrant-sending household. However, the effect is different across countries. In Egypt, the spousal relation is very important, in Morocco it is the relationship with the children staying abroad who are important, and, oddly, the strength of the family relationship plays no role at all in Turkish migrant sending households. The difference between Egypt and Morocco may be explained by the type of migration in these two countries. In Egypt, migration is dominated by men who work abroad for some fixed duration, their employment is mostly

found in the oil producing states of the Middle East, and it is the (social) norm in deciding to move abroad that the wife stays behind. In Morocco, migration is mostly directed at Europe and of a permanent nature and the relation between the family at home and the migrants is mostly a parent-child relation.

In summary, one cannot clearly pinpoint altruistic motives or motives of self-interest as sole driving forces behind the receipt of remittances. Each country tells a different story and within a country both motives can be defended as driving forces. However, we can say that for the explanation of receipt of remittances the characteristics of emigrants are far more important than the characteristics of migrant-sending households. More specifically, the strength of family ties between emigrants and the migrant-sending household and the employment status of emigrants increase the probability of receipt of remittances.

Remittances: signals of migration benefits?

Does receipt of remittances encourage or discourage emigration intentions of potential emigrants in sending households? A simple cross-tabulation in Table 5, with emigration intentions split up by individuals who live in households that did and did not receive remittances, suggests that this is so for each country but that it is most clearly so for Morocco and Turkey.

[Here Table 5]

In Morocco, the intention to emigrate doubles: 7 per cent of the non-migrants living in non-recipient households state they want to emigrate, whereas 14 per cent of the non-migrants living in households that received remittances express such an intention. In Turkey the corresponding percentages are 24 per cent and a staggering 36 per cent. The main question is, of course, whether these significant differences in emigration intentions are driven by characteristics of non-migrants and their relationship with emigrants, or by the signalling function of remittances. To test the hypothesis that remittances convey the message to those staying behind that it would be profitable to also move abroad a model of emigration intentions - equation (2) presented earlier - is estimated by means of logistic regression analysis. Table 6 presents the estimation results.

[Here Table 6]

Before we discuss the relevance of remittances as signals, we first look at some of the most notable estimation results describing the emigration intentions of non-migrants. Previous studies of emigration intentions show that age, sex, marital status, level of education and work status of non-migrants are important predictors of emigration intentions (e.g., De Jong 1994; Puri and Ritzema 2000; Taylor 1999; Van Dalen et al. 2005). Regarding the household characteristics, these studies also show that emigration intentions of non-migrants are highest in households with high financial dependency on emigrated members, with a low to moderate level of economic welfare, and with a relatively high number of household members living abroad. In particular, a number of studies report that emigration is not considered an option by the poorest households

(Taylor 1999; Bilsborrow et al. 1997). The estimates presented in Table 6 corroborate these earlier findings. For the pooled sample one can say that the profile of a potential emigrant is that of a person who is young, male, single, with a relatively high level of education. Such a person is most likely living in a remittances-receiving rural household in which young children are present and in which the financial situation of the household is insufficient. It is most likely that in such households a (male) spouse is among the emigrants.

However, the profiles of a person with high emigration intentions differ in the three countries. In Egypt, such a person is typically a man with a relatively high level of education with a paid job, a profile that fits well with that of the high-skilled Egyptian emigrants in the oil-producing nations of the Middle East, the main destination area of Egyptian emigrants. The dominant role played by men in migration also fits in well with the social norms about migration that persist in Egypt (Van Dalen et al. 2005). In Morocco, the person with high emigration intentions is most likely a man in a household in which children are living, and where the household financial situation is perceived to be insufficient. However, such households are most likely to have members living abroad with a paid job. When they have children who live abroad their migration intentions are clearly dampened, which could indicate that remittances are effective in that it stops parents from joining their children abroad. In Turkey, non-migrants with emigration intentions are men living in households in rural areas, households of which the current financial status is perceived to be insufficient, and where migrant household members are persons with a relatively high level of education. The strong pulling force of family ties is apparent when we look at Table 6: for those individuals living in households where the

male spouse of the head of migrant-sending household lives abroad the intention to migrate is 3.2 times higher than those persons who do not have this connection.

The main focus of this section is, of course, the alleged signalling effect of remittances in relation to the formation of emigration intentions. The main conclusion to be derived from the pooled sample is that receipt of remittances exerts a clear positive effect on emigration intentions of non-migrants in migrant-sending households. The likelihood that non-migrants in remittances-receiving households state emigration intentions is about 1.4 times the likelihood of such persons in non-receiving households. This means that emigration intentions in sending households are not only a reflection of the quality of the relationship between senders and receivers of remittances. Remittances can also be interpreted as signals of financial attractiveness of destination countries. Our findings point to significant differences between the three countries. In Egypt and Turkey, the effect of remittances on emigration is positive but not significantly different from zero, and only in Morocco one can say that remittances have a clear signalling effect. In the case of Morocco, non-migrants in receiving households have emigration intentions which are about 2.7 times higher than that of non-migrants in non-receiving households. However, running separate regressions *without* the emigrant variables (E_i) shows that also in Egypt and Turkey remittances have a positive influence on migration intentions. The inclusion of emigrant variables, as done in Table 6, completely neutralises the effect of remittances on emigration intentions in the case of Egypt and Turkey. This suggests that in the latter two countries, emigration intentions of potential emigrants are determined by the strength of family ties between emigrants and migrant-sending households, whereas in Morocco, in addition to network effects, receipt of remittances

has a positive effect on emigration intentions. In Morocco, remittances are apparently interpreted as signals of financial success of those who emigrated and therefore worth following by those remaining behind.

Although one cannot make a firm case for Turkey and Egypt that remittances have a signalling function, one can also not reject the reverse position stated by Stark (1999) that remittances imply that the intention to emigrate should be significantly lower among remittances-receiving households than the intentions in non-receiving households.

Conclusion and discussion

Which factors determine the receipt of remittances? Is it the income position of the households staying behind or is it the net earnings capacity of migrants? We examined the effects of a number of migrant-sending household and emigrant characteristics on the probability that such households received remittances. Net earnings capacity of migrants and their commitment to live up to promises of emigrants appeared to be important determinants and not so much the net earnings capacity and wealth of the sending household residing in the country of origin. Thus, the ability of emigrants to generate remittances and the strength of family ties are more crucial to the explanation of receipt of remittances than the economic needs of households. However, the estimation results do not yield unambiguous conclusions about whether these remittances are inspired by altruism or enlightened self-interest. Each country tells a different story and within each country there are signs that both altruism and self-interest are at work. To some extent this is inherent to the various roles which remittances play in actual practice. In their extensive review of the causes and consequences of remittances Rapoport and Docquier

(2005) mention a host of motives behind the sending of remittances, such as plain altruism, remittances as a family loan arrangement, and more intricate motives such as insurance, strategic bequest and the use of remittances to buy a wide range of services taking care of the migrants' assets or relatives at home. Their conclusion is that the main short-coming of the richness of models of remittances is that discriminating tests require a large number of variables. In this paper we have used quite a large number of theory-based variables but the empirics of remittances still offers puzzles. The fact that one cannot unambiguously pinpoint the character of remittances is something that also comes across in the empirical contribution by VanWey (2004). In part, the inconclusive nature of empirical research is understandable. First of all, one cannot expect remittances to be driven by a single motive. Secondly, the inconclusiveness may be connected to the difficulties in modelling altruism and the resulting transfers within the family. Even someone who is purely led by altruistic motives may still act in accordance with some social contract. The main divergence between models of altruism and self-interest then becomes a distinction between implicit and explicit contracts. And testing the predictions of both models and pinpointing the true altruist among remitters seems to resemble a mission impossible.

Our second contribution deals with the real effects of remittances on decisions made by non-migrants of migrant-sending households. We argued that, on the one hand, remittances contribute to household income and, if sufficient, the effect might be that it discourages emigration intentions of potential emigrants. On the other hand, remittances may be interpreted as messages of financial success of those who emigrated and this may stimulate potential emigrants to also emigrate. Which of these opposing lines of thought

is now supported by empirical evidence? A novel finding was that, overall, the receipt of remittances does have a positive effect on emigration intentions.

The finding that remittances can bring about such perverse effects merits some additional concluding comments. Policy makers in less developed as well as developed countries have used the implicit assumption that remittances are beneficial for the countries of origin, and some less developed countries, such as Morocco, have even used these possible benefits to underpin their emigration policy. Recent macro-economic research by Chami et al. (2005) points out that remittances may not be so beneficial for the countries at large. Although the present research is micro-economically oriented, the findings of this study point to an important consequence of remittances that may explain the negative macro-economic effects of remittances: remittances may trigger additional emigration. In other words, remittances may contribute to new flows of emigration and possibly in the direction of the countries where the remitters reside. Remittances thereby strengthen the phenomenon of chain migration, or - to rephrase this with more care - remittances certainly do not weaken the chain.

Notes

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Table 1 Predictions for the Effects of Explanatory Variables on the Receipt of Remittances¹

Explanatory variables	Altruism model	Self-interest model
Migrant's characteristics		
Income	+	+
Education	No prediction	+
Time since arrival	-	0
Recipient's characteristics		
Long-run income	-	±
Adverse short-run income shocks	+	+
Wealth (land, cattle, real estate, etc.)	-	+
Family ties between migrant and household	+	+

¹ The predicted signs are primarily based on the review of Docquier and Rapoport (2005), who make a finer distinction in models. In our table the insurance, investment and strategic inheritance motives are summed up under the heading self-interest model. NB: the predicted effects refer to level effects, although most of these effects carry over to probability effects.

Source: Docquier and Rapoport (2005) and authors' interpretation of cited references in text.

Table 2 Timing and distribution of screened, sampled and interviewed households and of eligible persons, according to migration status of households, in Egypt, Morocco and Turkey

	Egypt (April-May 1997)	Morocco (June-October 1997)	Turkey (July-September 1996)
Households screened	27,438	4,512	12,838
Households in the sample	2,588	2,030	1,773
Households interviewed, of which:	1,943	1,952	1,564
Non-migrant households ¹	617	493	735
Migrant sending households ²	490	1,179	414
Return-migrant households ³	675	177	291
Mixed-migrant households ⁴	161	103	124
Persons interviewed, of which:	6,430	3,588	4,680
Non-migrant	4,630	1,913	3,445
Current-migrant	776	1,421	760
Return-migrant	1,024	254	475

¹ *Non-migrant households* are households which consist only of persons without international migration experience (i.e. non-migrants) and dependants (i.e. persons below age 18 or above age 65).

² *Migrant-sending households* consist of emigrants and of non-migrants and dependants.

³ *Return migrant households* are households which consist of members who were once migrant but who returned to the sending household (i.e. return migrants), whereas non-migrants and dependants may also be part of the household.

⁴ *Mixed migrant households* include both emigrants and return migrants, whereas non-migrants and dependants may also be part of the household.

Source: Push and Pull Factors of International Migration (PPFIM) data files (see Schoorl et al. 2000 for extensive description of the data files).

Table 3 Descriptive statistics

	Egypt	Morocco	Turkey
Variables characterising the household			
Migrant sending households having received remittances from abroad (%) (received nothing in the past year = 0)	56.9	78.3	57.9
Presence of persons below age 18 (%) (none = 0)	83.4	79.8	83.6
Presence of persons above age 65 (%) (none = 0)	24.3	17.0	21.8
Household size, excluding emigrants (in persons)	5.8	5.0	5.3
Age head of household (in years)	42.4	39.9	41.7
Female head of household (%) (male head = 0)	74.8	59.7	63.6
Level of education head of household (%)			
No education (= 0)	65.5	76.3	46.1
Primary education	13.8	15.8	48.2
Secondary education	12.7	5.1	4.3
Higher than secondary education	8.0	2.8	1.4
Perceived income situation (%)			
Sufficient (= 0)	77.2	72.3	28.3
Insufficient	4.0	3.6	25.0
Barely sufficient	18.8	24.1	46.7
Wealth index ¹	-0.14	0.26	-0.07
Rural (%) (urban residence = 0)	63.6	33.5	65.7
Variables relating to emigrant(s) tied to households			
Average age of emigrants (in years)	35.5	33.6	30.0
Number of emigrants who are related to reference person as:			
Spouse	0.44	0.44	0.38
Children	0.45	0.47	0.57
Parents	0.03	0.15	0.02
Brother/sisters	0.13	0.21	0.18
Number of married emigrants	0.82	1.00	0.90
Number of emigrants in:			
Europe	0.15	1.50	1.24
Asia/Middle East	0.82	0.03	0.04
Average duration of residence abroad (in years)	4.5	10.3	5.6
Number of emigrants with secondary education or higher	0.7	0.5	0.5
Number of emigrants with paid job	1.1	1.1	0.9
N =	448	253	285
Individual household member variables			
Intention to emigrate (%) (no intention = 0)	13.1	12.5	30.7
Age (in years)	34.4	33.7	35.8
Sex, male (%) (female = 0)	37.5	36.3	36.1
Married (%) (not married = 0)	62.0	48.8	64.5
Education (%)			
No education (= 0)	53.5	67.8	38.1
Primary education	13.3	21.0	50.1
Secondary education	23.6	8.8	9.2
Higher than secondary education	9.6	2.4	2.6
Having a paid job (%) (no job = 0)	33.4	20.2	27.1
N =	1180	615	665

¹Mean factor scores based on principal components analysis.

Source: Authors' calculations from PPFIM data files.

Table 4 Explaining the likelihood of receiving remittances among migrant-sending households (by means of logistic regression)

Explanatory variables: Household variables	Dependent variable: likelihood of receiving remittances							
	Pooled sample		Egypt		Morocco		Turkey	
	odds ratio	t-value	odds ratio	t-value	odds ratio	t-value	odds ratio	t-value
Presence of persons below age 18	1.35	1.26	1.68	1.48	0.78	0.49	1.18	0.34
Presence of persons above age 65	1.04	0.17	1.04	0.16	0.93	0.15	1.07	0.20
Household size (excluding emigrants)	0.97	1.16	0.97	-0.87	1.18	1.54	0.88*	1.84
Age – head of household	0.99	1.48	1.01	0.95	0.95**	2.25	0.99	0.81
Female head of household	1.28	1.18	2.02**	2.26	1.52	0.72	0.69	0.94
Level of education – head of household								
Primary education	1.35	1.38	1.91*	1.83	0.88	0.23	1.43	1.01
Secondary education	0.97	0.10	1.66	1.28	0.22*	1.90	1.36	0.40
Higher than secondary education	0.95	0.12	1.76	1.20	0.93	0.07	0.61	0.40
Perceived income situation								
Insufficient	0.49**	2.54	0.25**	2.33	0.53	0.69	0.77	0.64
Barely sufficient	1.24	1.08	1.66*	1.75	0.62	1.15	2.23**	2.24
Household wealth	0.87	1.30	0.91	-0.56	1.08	0.34	0.76	1.56
Rural	1.28	1.23	1.31	0.98	3.28*	1.92	1.11	0.29
Emigrant variables								
<i>Family ties</i>								
Number of emigrants who are:								
Spouse of reference person	1.95**	2.21	3.65**	2.34	0.99	0.01	1.99	1.28
Children of reference person	1.43*	1.67	1.32	0.68	3.71**	2.28	1.00	0.01
Parents of reference person	1.23	0.38	5.28	1.57	0.89	0.21	- ¹	-
Brother/sisters of reference person	1.37	1.05	2.44*	1.64	0.77	0.52	1.88	1.34
Number of married emigrants	1.06	0.40	1.54*	1.80	0.87	0.41	1.31	0.93
<i>Earnings capacity</i>								
Average duration of stay abroad	1.03*	1.75	1.02	0.85	0.98	0.53	1.08**	2.14
Number of emigrants in:								
Europe	0.67**	2.28	1.47	0.98	0.67	1.06	0.48**	1.99
Asia/Middle East	1.12	0.50	1.55	1.40	- ¹	-	1.05	0.06
Number of emigrants with secondary education or higher	0.76*	1.77	0.50**	2.78	0.70	1.10	1.14	0.51
Number of emigrants with paid job	2.77**	5.25	1.24	0.51	3.67**	3.36	3.52**	4.31
Average age of emigrants	1.01	0.84	0.96*	1.82	1.07*	1.94	1.02	0.79
Country variables:								
Morocco	4.79**	5.28	-	-	-	-	-	-
Turkey	2.23**	2.81	-	-	-	-	-	-
N	986		448		253		285	
Loglikelihood	-538.1		-266.7		-104.1		-150.9	
Nagelkerke Pseudo R ²	0.26		0.22		0.30		0.35	
McFadden Pseudo R ²	0.16		0.13		0.21		0.22	

** Significance at 5% level, * significance at 10% level. The pooled results are weighted to correct for different sample sizes. McFadden Pseudo R² is defined as: $1 - (\ln L_A / \ln L_0)$, where is L₀ the likelihood of the zero model and L_A is likelihood of the alternative model. Nagelkerke Pseudo R² is defined as: $[1 - (-2L_0 / -2 L_A)]^{(2/N)} / [1 - (-2L_0)]^{(2/N)}$. See, e.g., Verbeek (2004) and Nagelkerke (1991).

¹ Variable dropped because of lack of sufficient observation.

Source: As for Table 3

Table 5 Average emigration intentions by households receiving remittances¹

Individuals living in migrant-sending households, who:	Emigration intentions in (no = 0, yes = 1):		
	Egypt	Morocco	Turkey
Received remittances	0.14 (0.01)	0.14* (0.02)	0.36** (0.03)
Did not receive remittances	0.12 (0.01)	0.07* (0.02)	0.24** (0.02)

¹ Standard error of means in brackets. * denotes the fact that means are significantly different at 5% level of statistical significance; ** idem but significance at 1% level.

Source: As for Table 3.

Table 6 Testing the role of remittances in emigration intentions among non-migrants in migrant sending households (by means of logistic regression)

Explanatory variables: Remittances variable	Dependent variable: intention to emigrate (no = 0, yes = 1)							
	Pooled sample		Egypt		Morocco		Turkey	
	odds ratio	t-value	odds ratio	t-value	odds ratio	t-value	Odds ratio	t-value
Having received remittances	1.41**	2.45	1.39	1.53	2.65**	2.18	1.32	1.24
Individual household member variables								
Age	1.09**	2.17	1.17	1.35	1.12	1.00	1.09	1.64
Age squared	0.99**	3.45	0.99*	1.96	0.99	1.57	0.99**	2.41
Men	2.67**	6.11	3.62**	4.79	6.71**	4.83	1.56*	1.77
Married	0.65**	2.48	0.58*	1.80	0.61	1.00	0.74	1.23
Education								
Primary	1.27	1.39	2.34**	2.39	0.59	1.29	1.32	1.04
Secondary	1.42*	1.78	3.12**	3.66	0.35*	1.75	1.20	0.43
Higher than secondary	1.78**	1.99	4.47**	3.91	1.21	0.26	0.51	0.92
Having a paid job	1.27	1.51	1.71**	2.21	0.97	0.08	1.32	1.11
Household variables								
Presence of persons below age 18	1.57**	2.18	1.45	1.04	2.47*	1.93	1.50	1.19
Presence of persons above age 65	1.12	0.75	1.29	1.02	0.28**	2.69	1.58*	1.87
Household size, excluding emigrants	0.97	1.18	1.02	0.73	0.87*	1.71	0.96	0.84
Perceived income situation								
Insufficient	1.95**	3.02	1.16	0.24	4.00**	2.00	1.69*	1.90
Barely sufficient	1.96**	4.64	1.34	1.04	3.58**	3.71	1.65**	2.10
Household wealth	1.03	0.35	1.20	1.14	0.83	0.96	0.92	0.63
Rural	1.55**	2.68	1.15	0.54	0.39**	1.99	1.63**	1.98
Emigrant variables								
<i>Family ties</i>								
Number of emigrants who are:								
Spouses	1.78**	2.40	0.90	0.23	1.34	0.64	3.15**	3.02
Children	0.90	0.64	0.85	0.59	0.43**	2.30	1.14	0.65
Parents	0.70	1.16	0.74	0.42	0.48	1.55	0.30	1.11
Brother/sisters	1.03	0.16	0.61	1.26	1.31	0.66	1.09	0.30
Number of married emigrants	1.09	0.63	1.26	1.16	1.09	0.29	1.18	0.91
<i>Earnings capacity</i>								
Average duration of stay abroad	0.99	0.63	1.00	0.02	0.95**	1.96	1.01	0.22
Number of emigrants in:								
Europe	1.03	0.25	1.35	0.90	1.01	0.03	0.78	1.12
Asia/Middle East	0.97	0.19	1.26	0.94	0.90	0.09	0.67	0.63
Number of emigrants with secondary education or higher	1.04	0.40	0.84	0.80	0.82	0.70	1.44**	2.21
Number of emigrants with paid job	1.23	1.49	0.68	1.10	1.85*	1.84	1.07	0.36
Average age of emigrants	1.01	1.21	1.02	1.05	1.02	0.94	1.01	0.31
Country variables:								
Morocco	0.93	0.29	-	-	-	-	-	-
Turkey	3.29**	5.03	-	-	-	-	-	-
N	2460		1180		615		665	
Loglikelihood	-943.5		-320.7		-167.4		-343.1	
Nagelkerke Pseudo R ²	0.30		0.38		0.36		0.25	
McFadden Pseudo R ²	0.21		0.30		0.28		0.16	

** Significance at 5% level, * significance at 10% level. The pooled results are weighted to correct for different sample sizes.

Source: As for Table 3.