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Motives to remit: some microeconomic evidence from Pakistan

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Abstract

Using household economic survey data for the years 2005-06 and 2007-08, we examine the economic, demographic and geographical characteristics of remittance receiving households in Pakistan. We find that altruism is the most likely motive behind the remittances sent back by Pakistanis living abroad. However, co-insurance and investment may also have played some role. Gender of the household head, household size, family income and urban/rural setting appear to be the remittances' main determinants, whereas education and family wealth play a minor role.

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1. Introduction

Remittances, the portion of income that international migrants send back home, are playing an increasingly important role in the developing countries. In some small developing countries such as Tajikistan, Tonga and Moldova, remittances make up as high as a third to half of the national output (World Bank, 2011). The volume of remittance transfers to many developing countries exceeds that of foreign private capital and official development assistance combined. Pakistan is one such country. In the last three decades, officially recorded remittances to the country made up close to 5 percent of the GDP as compared to 2.2 percent for the ODA and 1 percent for the FDI. During the second and current major hike in remittance inflows that began in 2002, the country's remittance receipts have multiplied, crossing $11 billion in the financial year 2010-11 (State Bank of Pakistan, 2011), making it one of the top ten remittance receiving countries in the world.

Remittances are considered a stable source of foreign exchange, much less responsive to business cycles and economic shocks than the FDI and foreign portfolios (see for example Bugamelli and Paterno, 2009; Mughal and Makhlouf, 2011; Ratha and Mohapatra, 2007). The impact of remittances on the economic growth is also often found to be higher than that of Foreign Direct Investments and Official Development Assistance (Mughal and Makhlouf, 2010). Given such significance, it is important to study the motives behind these remittances, and the economic impact they entail.

Extant literature proposes five major motives for remitting: altruism, risk insurance, loan repayment, exchange and inheritance (Rapoport and Docquier, 2006). These motives range from purely altruistic to purely self-interested. Those in between the two extremes can be termed as “tempered altruism” or “enlightened selfishness” (Andreoni, 1989; Lucas and Stark, 1985). In the presence of altruistic motives, a migrant sends money back home to financially support his family (Johnson and Whitelaw, 1974; Lucas and Stark, 1985). Such remittances are therefore higher in the case where the receiving household is poor, and go down as the household income rises. Poor households diversify their income sources by sending their members abroad. This serves to reduce risks to family income and acts as insurance against local economic shocks (Stark, 1991; Gubert, 2002).
Remittances can also be considered the result of implicit contract between the members of a household. Households invest in the education and cost of the migration process. The migrant sends remittances to the family to repay this implicit and informal loan (Johnson and Whitelaw, 1974; Lucas and Stark, 1985; Stark and Lucas, 1988; Ilahi and Jafarey, 1999). The money sent by the migrant can also be due to the exchange motive. The family back home takes care of the migrant’s children, physical assets and other financial and social interests, and receives remittances as payment for these services (Cox, 1987; Cox, Eser and Jimenez, 1998). Finally, remittances can be sent with the desire to inherit. The migrant aspiring for a share in inheritance sends money in order to maintain good relations with the family members back home.

These motives have been widely studied for different countries using both macro and microeconomic data. On the microeconomic level, factors such as migrant and family income, household size, age and sex of the head of the household, family wealth and level of education have been found to be important indicators of these motives.

In the context of Pakistan, previous studies have shown a muddled picture. For instance, Nishat and Bilgrami (1993) found migrants' earnings, household size and income to be important factors behind the likelihood of remitting money, while Pasha and Altaf (1987)

found investment motive to be influential in the migrants' decision to remit. Ilahi and Jafarey (1999), using the ILO-ARTEP (1987) survey data found that informal loan repayment was important in the case of returning Pakistani migrants.

The Pakistani migrant community, whose numbers range from 3.5 million (United Nations, 2009) to 7 million (Government of Pakistan, 2010), is highly diverse in level of education and income, and is spread around the world. The Arab states of Persian Gulf host about half of the worldwide Pakistani diaspora, whereas North America and Europe share the remaining half. The major concentrations of the diaspora are found in Saudi Arabia, the United Kingdom, the United States, the United Arab Emirates and Canada. Pakistanis resident in these five countries constitute more than 80 percent of the overseas Pakistani population Oda (2009), and account for over 80 percent of Pakistan's remittances.

At the time of the above mentioned studies, the source of Pakistan's remittances was overwhelmingly the Persian Gulf states, where most Pakistani migrants are temporary workers. This has changed in recent years, with the rise in importance of the North American remittance corridor. Pakistani migrants in the U.S and Canada, in contrast, are often permanent migrants (Najam, 2006), and may thus have different remittance motives than those from the Middle East. In recent times, remittances to Pakistan have been associated both with poverty reduction and more costly real estate and stocks. Therefore, both altruistic and investment motives may be at play. The aim of this study is to investigate the motive that may be dominant in Pakistan. We employ two recent household economic surveys carried out in 2005-06 and 2007-08. With these representative datasets, we study the recipient side determinants of remittances, and assess the motivation behind their incidence. The paper is organized as follows. Section 2 presents the model and the theoretical underpinning behind the variables included. Section 3 gives some key findings and looks at possible explanations. Section 4 concludes.

2. Data description and empirical strategy

Pakistan Social and Living Standards Measurement Surveys (PSLMs) are carried out every two or three years in order to obtain representative household socioeconomic data on household level. The 2005-06 and 2007-08 PSLM surveys used in this study consist of 15453 and 15512 households respectively.

In this study, we examine various economic, demographic and geographical factors observed in the surveys that affect the likelihood of remitting. These variables correspond to one or more motives to remit. Household income, for instance, can be a clear indicator of altruistic motive as opposed to the investment motive. Low-income households are more likely to receive remittances, given higher unmet basic needs (Funkhouser, 1995). This negative relationship can also occur in the presence of implicit intra-familial contracts insuring the household against adverse economic conditions. A positive relationship will however correspond to either bequest or investment motive. Similarly, there may be a negative relationship between family wealth and remittance incidence in the presence of altruistic motive. Migrants from poorer households may feel morality or custom bound to help their families and those from richer households may not find much need for their participation. However, migrants from wealthier households may instead remit for bequest, investment or exchange motives, which may imply a positive correlation with family wealth. Share in inheritance may be a strong motivation for remitting if the household is wealthy (Lucas and Stark, 1985). Likewise, the probability of receiving remittances could increase if the migrant intends to return permanently, as in this case, he transfers his savings back home to buy land or property. The aforementioned three motives could dominate the altruistic motivation to

remit. Consequently, the correlation of income and wealth with remittances may diverge depending on the socioeconomic circumstances of the migrants.

The level of education of the household is another factor determining remittances (Amuedo-Dorantes and Pozo, 2006). Incidence of remitting is positively correlated with education level if remittance is seen as return to household's investment on education. Household spending on education therefore takes place as an informal loan agreement (Johnson and Whitelaw, 1974; Lucas and Stark, 1985), and the educated migrant remits to repay the implicit loan incurred. However, the education - remittance incidence correlation can be negative if the migration is of a permanent nature (Faini, 2007). If the migrant intends to settle abroad, he will be more likely to spend and invest his savings in the adopted country.

This effect is also evident in the presence of a spouse or children back home. If the head of the household is female, it may imply higher probability of receiving remittances. Whether the female is the migrant's spouse or mother, pure altruistic motive may come into play. Similarly, higher number of family members or more dependants at home may be related to higher likelihood of remittances (Banerjee, 1984), regardless of whether the motive be altruistic or co-insurance. In the former case, it may reflect concern for high family needs, whereas in the latter case, remittances may be the payment for a Pareto superior strategy of co-insurance by sending some household members abroad.

The signs found in the literature for the above mentioned variables are given in table A1. In addition to these demographic and economic indicators, we add two geographical variables, pertaining to the household's location. The province variable describes which of the four provinces of Pakistan (Punjab, Sindh, Khyber Pakhtunkhwa (KP) and Balochistan) in which the household lives. Most of the country's migrants come from Punjab. Hence, a higher remittance incidence probability can be expected for the province. However, the more rural and less developed provinces of KP and Balochistan may also expect higher remittance likelihood for altruistic motives. Similarly, the type of migration from Pakistan differs depending on whether the household location is rural or urban. Therefore, a proxy for rural/urban setting is also included in the model.
The empirical model estimated in the present study is expressed as follows:

$$\begin{aligned} \text{RemittancesBinary} = {} & \alpha + \beta_1\,\text{countHH} + \beta_2\,\text{fem} + \beta_3\,\text{NLincome} + \beta_4\,\text{NLSaving} \\ & + \beta_5\,\text{ResidentionalBLDG} + \beta_6\,\text{HighestEducation} + \beta_7\,\text{province} \\ & + \beta_8\,\text{region} + \mu_i \end{aligned}$$

Table A2 gives the definitions of these variables used in our model, where their summary statistics are described in table A3. All the variables in the model pertain to the household back home, given that no migrant-related variable exists in the two surveys. Subsequently, potentially important drivers such as migrant's education, marital status, length of stay abroad etc cannot be examined in this study. The 2005 and 2007 datasets contain a maximum of 121932 and 121212 individual observations respectively. Both household income and savings are taken in logarithmic form, and zero values have been replaced with one for both variables to allow logarithmic transformation. We alternatively replace our demographic indicators (household size and female household head) by number of dependents and number of male adults, and head and female head age respectively.

We use household savings and home ownership as indicators of the household wealth. The PSLM datasets also contain other potential wealth indicators such as car ownership,

agricultural land ownership, livestock, commercial property, etc, but are not included in the study due to small number of observations for these variables. Given the dichotomous nature of dependent variable and the characteristics of the variables selected, all model specifications are estimated using Probit model. All standard errors in our specifications are robust to control for unobserved heterogeneity.

3. Key findings

Results given in table 1 show that demographic factors are possibly the most important determinants of remittances to Pakistan. A family with a female head of the household has a 30 percent higher likelihood of receiving remittances as compared to the households headed by a male. This points to the probable presence of a strong altruistic motivation behind money remitted to the country. The positive sign for household size implies the presence of either altruistic or co-insurance motive. Household income shows a negative sign, again indicating the presence of altruistic or co-insurance motives.

Table 1. Determinants of remittance incidence (2005-06 and 2007-08)

EQUATION	VARIABLES	2007	2005
RemittancesBinary	countHH	0.140***	0.102***
		(0.00318)	(0.00292)
	fem	0.302***	0.310***
		(0.0823)	(0.0829)
	NLincome	-0.137***	-0.126***
		(0.00317)	(0.00346)
	NLSaving	0.0370***	0.0353***
		(0.00338)	(0.00278)
	ResidentionalBLDG	0.155***	0.0167
		(0.0433)	(0.0399)
	HighestEducation	0.0261***	0.0241***
		(0.00318)	(0.00303)
	province	-0.107***	-0.0969***
		(0.0118)	(0.0117)
	region	-0.112***	-0.195***
		(0.0247)	(0.0237)
	Constant	-1.814***	-1.300***
		(0.0652)	(0.0612)
	Observations	**33,134**	**31,976**

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Given that most of the Pakistani migrants go abroad to improve their and their households' economic situation, both these motives are likely in action. It is not possible to distinguish between the two in a cross-sectional setting. In a panel study however, the difference can be observed as growing household incomes could lead to fewer altruistic motivated remittances, while those due to co-insurance motive would continue unchanged. A similarly strong piece of evidence for altruistic motives is found using other demographic indicators (Table 2). Replacing household size with number of dependent members at home does not change the positive sign associated with the altruistic motive. The number of male adults is likewise positively related, probably reflecting the co-insurance motive behind remittance incidence.
Another possible manifestation of the altruistic motive is the positive sign for the age of household head (results are not shown to conserve space). Older heads of the households have a slightly higher probability of receiving remittances, which may be due to migrant's

concern for the family head's health or work capacity. The age of the female head of household, however, does not appear to have any effect on the incidence of remittance (results not shown). The migrant may feel it necessary to remit regardless of whether the household head is his spouse or mother. This observation points to the fact that in the absence of male migrant workers (who are commonly the primary bread winners of the family), Pakistani women often must carry out household responsibilities, and receive remittances to sustain the family expenses.

Table 2. Determinants of remittances with other demographic indicators

EQUATION	VARIABLES	2007	2005	2007	2005
RemittancesBinary	dep	0.0543***	0.0415***		
		(0.00419)	(0.00413)		
	maleadult			0.0197***	0.00436
				(0.00511)	(0.00499)
	fem	0.308***	0.297***	0.286***	0.247***
		(0.0698)	(0.0731)	(0.0697)	(0.0735)
	NLincome	-0.122***	-0.115***	-0.126***	-0.114***
		(0.00316)	(0.00339)	(0.00325)	(0.00346)
	NLSaving	0.0492***	0.0429***	0.0501***	0.0442***
		(0.00304)	(0.00253)	(0.00302)	(0.00252)
	ResidentionalBLDG	0.242***	0.0900**	0.252***	0.103***
		(0.0414)	(0.0385)	(0.0411)	(0.0383)
	HighestEducation	0.0252***	0.0225***	0.0221***	0.0186***
		(0.00314)	(0.00305)	(0.00313)	(0.00302)
	province	-0.0563***	-0.0516***	-0.0412***	-0.0347***
		(0.0112)	(0.0112)	(0.0112)	(0.0112)
	region	-0.111***	-0.188***	-0.145***	-0.211***
		(0.0241)	(0.0235)	(0.0239)	(0.0233)
	Constant	-1.138***	-0.822***	-0.957***	-0.688***
		(0.0659)	(0.0620)	(0.0638)	(0.0611)
	Observations	**33,134**	**31,976**	**33,134**	**31,976**

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The wealth indicators, however, tell a different story. Both the two wealth variables (savings and home ownership) show a positive and significant though rather weak relationship with remittance incidence. This suggests the presence of bequest, investment or exchange motives behind some of the remittances. Given the diverse nature of migration from the country, this difference between the behavior of income and wealth variables, and their respective probable motives, is not surprising. Pakistani Diaspora in North America, for instance, is highly educated, prosperous and mostly permanently settled in the adoptive countries (Oda, 2009). The motives behind remittances from this community are thus partly investment or bequest related and partly altruistic. The Pakistani American community, for instance, is active in philanthropic endeavors in Pakistan, establishing and running various humanitarian and human development projects (Najam, 2006). At the same time, anecdotal evidence suggests the community's strong participation in Pakistan's real estate and stock market boom of the 2000s. On the other hand, as mentioned earlier, the large Pakistani community in the Persian Gulf is mostly comprised of temporary workers from a poor, rural background, with varying degrees of qualifications. Money sent by these workers, as a result, may be

primarily for altruistic purposes, whether for the household's basic alimentary needs, education or healthcare.

The small positive association of the completed education variable supports the implicit loan agreement between the family members. When the education variable is examined by decomposing it into 4 schooling levels, primary (5 years of education or less), middle (6 - 8 years), secondary (9 -12 years) and high (12 years or above), the households with secondary level education are found to show the highest probability of receiving remittances (Table A4).

This significant impact is not present for families with higher education, corroborating our other results supporting the altruistic hypothesis. Families with college or university education in the country are often financially well off, and have thus fewer incentives to send their members abroad. The strongest probability found for the secondary level suggests that households with below secondary education find it hard to obtain remittances. Foreign labor markets require a certain level of qualification, which in Pakistan's case, appears to be secondary education.
Province-wise results show that households from Punjab have the highest probability of receiving remittances, followed by those in KP. The regional dummy shows a negative sign implying that rural areas have a higher probability of receiving remittances from abroad. This is in line with the observation that most Pakistani migrants, especially those going to the Gulf countries, come from rural areas.

The robustness of our findings is reflected in the identical signs and very similar magnitudes and levels of statistical significance across various specifications for both the 2005-06 and 2007-08 datasets. Here, it must be mentioned that remittance incidence in our survey data are based on both formal and non formal money receipts from abroad. Consequently, our results provide a more complete picture of remittance scenario than the macroeconomic analyses based on officially recorded remittances. Informal means of remittances are widespread in Pakistan, and the amount of money brought through hand carry and Hundi/Hawala constitutes a sizeable proportion of the total remittances (World Bank, 2006; ILO-ARTEP, 1987). Therefore, our findings may or may not concur with those based on aggregate formal remittance data.

4. Concluding remarks

In sum, our findings indicate the possibility of a strong altruistic motive behind Pakistan's remittance incidence. This is evident from high remittance probability for demographic and income variables. The weaker likelihood of remitting owing to wealth and education indicates support for implicit interfamilial exchange and loan repayment arrangements. Our findings back the argument of Dustmann and Mestres (2010) that the motivation to remit depends, in part, on the form of migration. As migration from Pakistan is of a temporary as well as a permanent nature, and migrants' destinations are spread across different regions of the world, it is but natural to find evidence for such diverse motives to remit.

Nevertheless, we are unable to distinguish between the altruistic and co-insurance motives on the one hand, and the loan repayment, exchange and investment motives on the other. This is because the inter-temporal aspects of remittance motives cannot be studied, given the cross-sectional nature of the data. A longitudinal study on migration and remittances would help better discern the motives to remit.

References

Agarwal, R. and Horowitz, A. (2002) "Are international remittances altruism or insurance? Evidence from Guyana using multiple-migrant households" World *Development* **30**(11), 2033-2044.

Amuedo-Dorantes, C. and S. Pozo (2006) "Remittances as Insurance: Evidence from Mexican immigrants" *Journal of Population Economics* **19**, 227-254.

Andreoni, J. (1989) "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence" *Journal of Political Economy* **97**(6), 1447-58.

Banerjee, B. (1984) "The probability, size and uses of remittances from urban to rural areas in India" *Journal of Development Economics* **16**(3), 293-311.

Bugamelli, M. and Paterno, F. (2009) "Do Workers' Remittances Reduce the Probability of Current Account Reversals?" *World Development* **37**(12), 1821-1838.

Chavez, P. (2004) "Remittances as a Strategy to Cope With Systemic Risk: Panel Results from Rural Households in El Salvador." PhD diss, Ohio State University, Columbus.

Cox, D. (1987) "Motives for Private Income Transfers" *Journal of Political Economy* **95**(3), 508-46, June.

Cox, D., Eser, Z. and Jimenez, E. (1998) "Motives for private transfers over the life cycle: An analytical framework and evidence for Peru" *Journal of Development Economics* **55**, 57-80.

Durand, J., Kandel, W., Parrado, A., and Massey, S. (1996) "International migration and development in Mexican communities" *Demography* **33**(2), 249-264.

Dustmann, C. and J. Mestres (2010) "Remittances and Temporary Migration" *Journal of Development Economics* **92**(1), 62-70.

Faini, R. (2007) "Remittances and the brain drain: Do more skilled migrants remit more?" *World Bank Economic Review* **21**, 177–191.

Funkhouser, E. (1995) "Remittances from International Migration: A Comparison of El Salvador and Nicaragua" *Review of Economics and Statistics* **77**(1), 137-146.

Germenji, E., Beka, I., and Sarris, A. (2001) "Estimating remittance functions for rural-based Albanian emigrants" Working paper, ACE research project, P97-8158-R.

Government of Pakistan (2006) "Pakistan Social and Living Standard Measurement Survey 2005-06" Federal Bureau of Statistics, Islamabad.

Government of Pakistan (2008) "Pakistan Social and Living Standard Measurement Survey 2007-08" Federal Bureau of Statistics, Islamabad.

Government of Pakistan (2010) Economic survey of Pakistan, Ministry of Finance, Pakistan.

Gubert, F. (2002) "Do migrants insure those who stay behind? Evidence from the Kayes area (Western Mali)" *Oxford Development Studies* **30**(3), 267-287.

Hoddinott, J. (1994) "A Model of Migration and Remittances Applied to Western Kenya" *Oxford Economic Papers* **46**(3), 459-476.

Holst, E., & Schrooten, M. (2006) "Migration and money- What determines remittances? Evidence from Germany" Institute of Economic Research, Hitotsubashi University discussion paper series number 477.

Ilahi, N. and Jafarey, S. (1999) "Guest worker migration, remittances and the extended family: evidence from Pakistan" *Journal of Development Economics* **58**, 485-512.

ILO/ARTEP (1987) "Impact of Out and Return Migration on Domestic Employment in Pakistan." Volume II, Re-absorption of Return Migrants in the Domestic Economy. International Labour Organization and Asian Regional Team for Employment Promotion, New Delhi.

Itzigsohn, J. (1995) "Migrant Remittances, Labour Markets, and Household Strategies: A Comparative Analysis of Low-Income Household Strategies in the Caribbean Basin" *Social Forces* **72** (2), 633-655.

Johnson, E. and Whitelaw, E. (1974) "Urban–rural income transfers in rural Kenya: an estimated remittance function" *Economic Development and Cultural Change* **22**, 473–479.

Lucas, B., and Stark, O. (1985) "Motivations to Remit: Evidence from Botswana" *The Journal of Political Economy* **93**(5), 901-918.

Mughal, M. and Diawara, B. (2010) "Does every dollar count? Macro and micro evidence of remittances' impact on poverty and inequality in Pakistan" 11th Nordic Conference in Development Economics, HECER/WIDER, Helsinki, Finland.

Mughal, M. and Makhlouf, F. (2010) " Remittances as development strategy: Stepping stones or slippery slope?" 20th CEDIMES conference, Development Models of Emerging Countries: Characteristics, Scope and Challenges, University Laval, Québec, Canada.

Mughal, M. and Makhlouf, F. (2011) "Volatility of Remittances to Pakistan: What do the Data Tell?" *Economics Bulletin* **31** (1), 605-612.

Najam, A. (2006) *Portrait of a giving community: philanthropy by the Pakistani-American diaspora*, Harvard University Press.

Nishat, M. and Nigat B. (1993) "The Determinants of Workers. Remittances in Pakistan" *The Pakistan Development Review* **32**(4), 1235-1245.

Oda, H. (2009) "Pakistani migration to the United States: An economic perspective" IDE Discussion Paper No. 196 March, Institute of Developing Economies, Japan.

Osaki, K. (2003) "Migrant remittances in Thailand: Economic necessity or social norm" *Journal of Population Research* **20**(2), 203-222.

Pasha, A., and Altaf, A. (1987) "Return Migration in a Life-Cycle Setting—An Exploratory Study of Pakistani Migrant in Saudi Arabia" *Pakistan Journal of Applied Economics* **6**(1), 1-21.

Rapoport, H. and Docquier, F. (2006) "The Economics of migrants' remittances" in "handbook on the economics of giving, altruism and reciprocity" J. Mercier-Ythier et S.C. Kolm Eds. edited by Kenneth Arrow and Michael Intriligator, Elsevier-North Holland, chapter 17.

Ratha, D. and Mohapatra, S. (2007) "Increasing the Macroeconomic Impact of Remittances on Development", Development Prospects Group, The World Bank, Washington D.C. 20433.

Schrieder, G. and Knerr, B. (2000) "Labour Migration as a Social Security Mechanism for Smallholder Households in Sub-Saharan Africa: The Case of Cameroon" *Oxford Development Studies* **28**(2), 223-236.

Stark, O. (1991) *Migration in LDCs: Risk, Remittances, and the Family*" Finance and Development, International Monetary Fund, 1991.

Stark, O. and Lucas, R. (1988) "Migration, remittances and the family" *Economic Development and Cultural Change* **36**, 465–481.

State Bank of Pakistan (2011) "Country-Wise Workers' Remittances" accessed on May 19, 2011, http://www.sbp.org.pk/stats/survey/index.asp.

United Nations (2009) "Trends in International Migrant Stock: The 2008 Revision" United Nations database.

World Bank (2006) "Global economic prospects: Economic implications of remittances and migration" Washington, DC: World Bank.

World Bank (2011) "Migration and Remittances Factbook 2011", World Bank Group.

Zanker, H. and Siegel, M. (2007) "The determinants of remittances: A review of the literature" Working Paper, Maastricht University

Appendix

Table A1. Empirical effects found for probability to remit

Effect of … on probability of remittances	HH income	HH wealth	No. HH members/ dep. ratio	Age HHH	Education HHH
Agarwal & Horowitz (2002) Guyana, Altruism model	-	-	-	X	X
Banerjee (1984) India			+		
Durand, Kandel, Parrado, Massey (1996) Mexico, [Remittances & savings]		-(1)	X		
Germenji, Beka & Sarris (2001) Albania	-	X	X	X	X
Hoddinott (1994) Western Kenya		+	X		+
Holst & Schrooten (2006) Migrants in Germany		_ (2)	X		
Itzigsohn (1995) Jamaica, Haiti, Dominican Republic & Guatemala	/+/- X (3)		+	x	+/ X(3)
Osaki (2003) Thailand, [internal migration]	-	-	- (4)		
Chavez (2004) El Salvador	-	+		X	
Schrieder & Knerr (2000) Cameroon		+(5)/ -(6)		+	

We include those variables that are common to most papers. The explanation to the above table is:

+: positive effect
-: negative effect
X: included in regression but not significant
1: business owned
2: real estate owned
3: depends on country
4: no. children
5: property
6: other wealth variables

Source: Zanker and Siegel (2007)

Table A2. Description of the Variables

Variable	Description of the Variable
RemittancesBinary	= 1 if any member of the household received overseas remittances during last 1 year (money received which will not be repaid) = 0 otherwise
countHH	number of family members in the household
fem	= 1 if the head of the household is female = 0 otherwise
dep	number of household members above under 18 and above 65 years
maleadult	number of male household members between 18 and 65 years of age
NLincome	Natural logarithmic of total income **(**earned in Rs. by household members through first /second occupation or through pension during the last one year)
NLSaving	Natural logarithmic of total savings (total value in Rs. of net savings of the household at present or during the last 1 year. Also the total value in Rs. of gold, silver etc. including jewelry, stones sold during the last 1 year
ResidentionalBLDG	= 1 if any of the HH members own or had owned a residential building (Completed / under construction) during the last 1 year = 0 otherwise
HighestEducation	Highest level of education completed by any member of the household
province	= 1 if remittance recipient household lives in Punjab = 2 if remittance recipient household lives in Sindh = 3 if remittance recipient household lives in the NWFP = 4 if remittance recipient household lives in Balochistan
region	= 1 if a urban household receives remittances = 0 otherwise

Table A3. Summary statistics

	2007					**2005**				
VARIABLES	**Obs**	**mean**	**sd**	**min**	**max**	**Obs**	**mean**	**sd**	**min**	**max**
RemittancesBinary	120,301	0.0684	0.252	0	1	121,837	0.0708	0.257	0	1
countHH	121,123	8.662	2.913	2	20	121,744	8.846	3.090	4	20
fem	121,212	0.0157	0.124	0	1	121,932	0.0143	0.119	0	1
NLincome	121,212	10.70	2.804	0	16.14	121,932	10.49	2.668	0	15.32
NLSaving	121,212	7.719	4.626	0	17.22	121,932	6.423	4.861	0	16.81
ResidentionalBLDG	121,212	0.881	0.324	0	1	120,789	0.887	0.317	0	1
HighestEducation	33,382	8.545	3.824	0	23	32,331	8.322	3.875	0	23
province	121,123	2.087	1.102	1	4	121,744	2.073	1.083	1	4
region	121,123	0.395	0.489	0	1	121,744	0.399	0.490	0	1
dep	121,212	4.509	2.594	0	15	121,932	4.624	2.653	0	16
maleadult	121,212	4.098	2.215	0	14	121,932	4.219	2.243	0	15

Table A4. Determinants of remittances with provincial and education classification

EQUATION	VARIABLES	2007	2005
RemittancesBinary	countHH	0.135***	0.0954***
		(0.00221)	(0.00212)
	fem	0.219***	0.255***
		(0.0375)	(0.0398)
	NLincome	-0.128***	-0.116***
		(0.00163)	(0.00181)
	NLSaving	0.0453***	0.0479***
		(0.00161)	(0.00152)
	ResidentionalBLDG	0.182***	0.0835***
		(0.0243)	(0.0232)
	1.cateduc	0.161***	0.0602
		(0.0327)	(0.0557)
	2.cateduc	0.196***	0.187***
		(0.0331)	(0.0409)
	3.cateduc	0.0299	0.0307
		(0.0251)	(0.0349)
	2.province	-1.126***	-0.652***
		(0.0341)	(0.0247)
	3.province	0.381***	0.358***
		(0.0148)	(0.0152)
	4.province	-0.917***	-0.709***
		(0.0302)	(0.0272)
	region	-0.0215	-0.0173
		(0.0145)	(0.0143)
	Constant	-2.027***	-1.671***
		(0.0418)	(0.0474)
	Observations	**120,212**	**107,079**

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1