

Remittances and Educational Outcomes: Evidence for Moldova*

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Abstract

This paper analyzes the impact of remittances on education outcomes in Moldova, a country characterized by high levels of both migration and remittances flows. The idea is to understand whether remittances can be considered, from a political point of view, as a useful channel in order to foster the increase of education and so improve economic conditions in the origin countries of migration. We use household data coming from the 2008 *CBSAXA Moldovan* Household Survey provided by the Kiel Institute. By using probit and IV probit estimation, we show that being in a family receiving remittances increases the probability of attaining higher education of around 34 percentage points. Moreover the migrant education level has a strong, positive and significant impact on family members' education.

JEL Classification: I21, F22, F24.

Keywords: Migration, Remittances, Education.

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1. Introduction

This paper analyzes the impact of remittances on education outcomes. We focus on Moldova since it represents a suitable case study to analyze this relationship. In fact, Moldova is a country characterized by a consistent share of migration on total economically active population (around 25% in 2008 respectively)¹ and where migration is relatively more of temporary nature, rather than permanent, compared to a traditional migrating country (Piracha and Saraogi, 2011). This in turn influences the motivations of sending remittances (Dustmann and Mestres, 2010) and proves to be relevant for the analysis since the likelihood of using remittances to invest on the general welfare of the origin country is likely higher for a temporary migrant than for a permanent one. Moreover, Moldova is a country which heavily relies on remittances since the flow of remittances constitutes around 30% of the GDP.²

This paper aims at understanding whether remittances can be considered, from a political point of view, as a useful channel in order to foster the increase of education and so improve economic conditions in the origin countries of migration. In the literature there have been advanced two channels through which remittances could increase education level in origin countries. One direct channel acts through the fact that by increasing available income, remittances can be used to buy education and health. Another indirect channel points out that remittances help families to buy better housing or creating business that enhance general welfare of the state, which can be translated to a different use of resources by the government in direction of education facilities (schools, etc.) (Kanaiaupuni and Donato, 1999). Empirically, there is also a quite overwhelming evidence of this positive relationship (Zunhio, Vishwasrao and Chiang, 2012, Edwards and Ureta, 2003, Lopez-Cordova, 2005, Hanson and Woodroff, 2003), even if some studies points out to an opposite outcome (Mc Kenzie and Rapoport, 2006). In the case of Moldova, Pinger (2010) looks at the determinants of long and short-term migration, as well as, of remittances, showing that temporary

¹ In particular it has been estimated that the total migration from Moldova accounts for around 324.100 individuals in 2008, where the economically active population is equal to 1.3 million in 2008 and the total population is equal to 3.6 million in 2008 (National Bureau of Statistics of Moldova). Nonetheless, according to the World Bank that estimates total migration from Moldova equal to 770,000 individuals in 2010 and to the UNPD that estimates total migration in 2010 equal to 408,319 individuals (as opposed to 325,700 according to the NBS of Moldova), the share of migration on total population may actually be also underestimated.

² In particular the share of remittances over GDP has increased until 2006 (35%) and then slightly declined over time (31% in 2008 and 23% in 2010). Source: World Bank Migration and Remittances data and UNdata.

migrants, though generally based in countries with lower average wages, send 30% per year more remittances than their permanent counterparts. Nonetheless, this paper does not explicitly explore the relationship between remittances and education in origin countries, which is in fact the focus of this paper.

We use household data coming from the 2008 *CBSAXA Moldovan* Household Survey provided by the Kiel Institute. We focus on household members of age comprised between 16 and 30, since 16 in Moldova is the age of compulsory education, while 30 represents a suitable age limit for the analysis on the impact on education. As variables of interest, we use as main independent variable a dichotomous variable which indicates whether a family receives remittances and, as main dependent variable, the education attendance of household members. We apply probit and IV probit estimation, in order to estimate the probability of attending higher education (from secondary to university education) due to remittances, taking also into account the endogeneity of this relationship. Our first results show that being in a family receiving remittances increases the probability of attending a high level of education of around 6%. Moreover the migrant education level has a strong, positive and significant impact on the estimation. When taking into account the endogeneity of remittances decisions (performing an IV strategy), estimates show that not considering endogeneity causes an underestimation of the relationship between remittances and education. In particular, IV estimates show a marginal effect of around 34, meaning that being in a family receiving-remittances increases the probability of attaining higher education of around 34 percentage points.

The paper is organized as follows. Section 2 reviews the literature of reference. Section 3 describes the data and presents descriptive evidence. Section 4 shows the empirical analysis. Section 5 concludes.

2. Related Literature

The relationship between remittances and human capital formation is one of the topics at the core of the literature on migration. Why should remittances represent an input for human capital formation in home countries? The literature has pointed out two different channels. One direct channel acts through the fact that by increasing available income, remittances can be used to buy education and health. Another indirect channel points out that remittances help families to buy better housing or creating business that enhance general welfare of the state, which can be translated to a different use of

resources by the government in direction of education facilities (schools...) (Kanaiaupuni and Donato, 1999). On the other hand, it has been also suggested that the relationship between remittances and human capital formation could be negative since the migration of the household head can disrupt the family life and have a negative impact on children school performance (Hanson and Woodruff, 2003). Therefore getting a clear understanding of the relationship between remittances and human capital formation requires an empirical investigation.

At the empirical level there is evidence of a positive relationship between remittances and human capital formation in origin countries. At the macro-level, Zunhio, Vishwasrao and Chiang (2012) using data for 69 low and middle-income countries, analyze the relationship between remittances and education attendance. By using different econometrics methodologies (random effect GLS; Hausman and Taylor estimator and IV estimation), they find out a positive relationship between remittances and increasing education attendance for primary and secondary education. In particular, using coefficients from the IV estimates they point out that a 1% increase in real remittances per capita results in a 0.12% increase in children enrolled in secondary education and in a 0.09% increase of those enrolled in primary education. Hence they stress the role of remittances for improving educational outcomes in recipient countries as a means of development.

At the micro-level, there are several studies analyzing this relationship using different methodologies and proxies for education.

Edwards and Ureta (2003) study the case of El Salvador using household data and applying a Cox proportional hazard model. Their findings show that remittances reduce the hazard of leaving schools in both urban and rural areas. Moreover, they point out that income from remittances, compared to other sources of income, decreases more the level of retention rate at school, since household receiving remittances have a higher propensity to spend on education out of remittances than out of other sources of income.

Lopez-Cordova (2005) using cross sectional data for 2000 on Mexican municipalities and controlling for endogeneity finds also a positive relation between remittances and education. In particular he shows that received remittances lead to a decrease in illiteracy and an increase of school attendance for children between 6 and 14 years old. In a related study on rural Mexico, Mc Kenzie and Rapoport (2006), by assuming that

emigration should have a positive effect on education through remittances, do rather find a negative correlation between emigration and school attendance.

Mansour et al. (2011) look at the impact of remittances on education attendance and attainment of youth in Jordan. Using household data and probit techniques (normal and IV), they show that migrant remittance receipt has a positive effect on education attendance, a result which is robust to endogeneity bias. De Haas (2006) use household data for a small town (Todgha oasis) in Morocco to analyze international migration (as opposed to internal migration) and the role of remittances as a source of development. He finds out that international migrant households invest more than others in housing, agriculture and other enterprises. Moreover, remittances have been used most to increase productivity in the agriculture sector through investments. This result could be linked to the above-cited indirect channel of increasing education that act through enhancing productivity and stimulating business. An interesting report for Egypt carried out from the International Organization for Migration (IOM, 2010) analyzes remittances from different point of view. Considering the part that concerns the use of remittances the study points out that the second most used way to spend remittances is to buy education (just after general household expenditures).³

As for Moldova, Pinger (2010) using household data, looks at the determinants of long and short term migration, as well as, at remittances. She shows that the determinants of permanent or temporary migration are influenced by the economic conditions at home and abroad and that the number of family members in home countries acts as pull factor for the migrant to come back. As for remittances, the paper shows that the behavior on remittances changes depending on the kind of migrant: temporary migrant, though generally based in countries with lower average wages, send 30% per year more remittances in absolute terms than their permanent counterparts.⁴

3. Data description

The data for 2008 are constituted by 14,785 individual observations, which account for 5,230 households. In order to run the empirical analysis we define two estimation

³ Other studies are Bansak and Chesum (2011) for Nepal, Calero et al.(2009) for Ecuador, Hanson and Woodruff (2003) for Mexico.

⁴ On the case of Moldova there are also very detailed summary reports on migrants' characteristics and remittances based on previous and current version of the household data (Lücke et al., 2007, and Lücke et al., 2009).

samples. The first one is formed by 5,045 individuals who either have a member of the family abroad (or that has been abroad in the last year) or receive remittances from other people. Within this sample 3,505 individuals receive remittances (988 households) and 1,540 do not receive remittances (453 households).

The second sample is a reduction of the first one and considers only individuals for whom we have identified a member of the family abroad or who has been abroad in the last year.⁵ This sample provides to be very useful since we have information concerning the migrant member and in particular on the residence country of the migrant. This subsample is constituted by 3,874 individuals, of whom around 2,334 individuals receive remittances (734 households). This is also the sample we use for the IV analysis since we will exploit the information on the host country of the migrants.

In order to address the relationship between remittances and human capital formation we focus the analysis on household members of age comprised between 16 and 30, since 16 in Moldova is the age of compulsory education, while 30 represents a suitable age limit for the analysis on the impact on education. This leaves us with around 1,187 individuals for the first sample (the broader) and 995 for the second sample.

The dataset is very rich for what concerns the kind of information provided. We have information about the household characteristics (number of members, age, gender, properties, etc...) as well as detailed information about the education level of the family members. In particular, we focus on education attendance that indicates the kind of education currently pursued. The variable education is coded in three modalities depending on whether an individual has reached at maximum the gymnasium level of education (educ=1), a secondary level of education (educ=2) or a university level of education (educ=3). Nonetheless, we will use a dichotomic classification for the variable, which will take the value of 1 if an individual is currently pursuing a level of education at least equal to the secondary education. Figure 1 shows for education attendance the percentage of individuals (in the broader sample) who are receiving a level of education at least equal to the secondary school in remittances-receiving and no remittances-receiving families. As we can see the picture clearly

⁵ In particular the sample of migrants has been identified considering the following questions and answers of the survey. A family was considered has having a migrant abroad within a year of the survey -2007 to 2008- whether: 1) a member of the family (ID) answers "I am already abroad" to the question: "Does ID plan to migrate abroad in the next future?" 2) a member of the family, who has been abroad, answers to the question: "year of last return to the RM" either 2007 or 2008. In fact the question regarding remittances consider as reference period one year from the survey year.

shows that the level of education attendance of remittances-receiving families is generally higher than the level of education attendance for the no remittances-receiving families.

[Figure 1 around here]

As for remittances, we have information on whether the family receives remittances and of its amount. However, we do not use the information on the amount of remittances received since this is likely to be miss-measured and it is available for a very few number of individuals (around $\frac{1}{4}$ of the individuals in the sample who declares to receive remittances provides this information).

As for the other control variables, we will focus on a list of variable that concerns the family characteristics such as the number of family members, the number of children below 5, the number of adults, whether the family owns a car, a land or a pc, the income class of the family, the average education level of the family, the household head and spouse levels of education and the urban status of the family. As for individual characteristics we take into account information such as age, gender, citizenship, marital status, education attendance and attainment. As for migrant characteristics (when this information is available) we consider both its education level and the host country – for IV estimation -.

Table 1 provides some summary statistics of the variables of the analysis. As we can see the sample is composed by 60% of females and 40% of males in both kinds of families, with age on average equal to 22. Moreover education attainment, as well as the education attendance is slightly higher in remittances-receiving families than in no remittances-receiving families. Further, the sample is mainly composed by Moldavian, generally single (68%) or married with a Moldovan person (28%). As for household characteristics, the size of the receiving remittances families is slightly lower than that of the no-receiving remittances ones. Moreover, they are constituted by a relatively less number of young children and male adults. Further, the level of education of remittances-receiving families is on average similar to that of the no remittances-receiving families, even if it is higher for what concerns the household head and the migrant level of education. As for wealth variables the differences are essentially concentrated in the income class level of the families.⁶ Also the percentage of those

⁶ In particular, the income class variable is coded as follows. Income class=1 if income is less than 500 Lei, income class=2 if income is higher than 500 Lei and lower than 1000 Lei, income class=3 if

owning a car is higher among remittances-receiving families, while the one of those owning a land is higher among the no-remittances receiving families. Finally, generally remittances receiving families are located in urban areas. We have also look at the proportion of migrants sending remittances located in EU countries with respect to those who are not. According also to official statistics, migrants who send remittances and are located in a EU country account for about 30% of total migrants.

[Table 1 around here]

4. Empirical Analysis

The empirical analysis focuses on the probability of attending higher education (from secondary to university education) due to remittances. To this aim we will use probit estimation and IV probit estimation in order to take also into account the endogeneity of the relationship. We first make use of the broader sample, while for the IV analysis we consider the reduced one that provides information on migrant's characteristics. We estimate the following regression:

$$\Pr(E_{ij} = 1 / H_j, X_i, R_{ij}) = \phi(\alpha_0 + \alpha_1 H_j + \alpha_2 X_i + \alpha_3 R_{ij} + \varepsilon_{ij}) \quad (1)$$

Where subscripts i and j refer to the individual and the household respectively. H_j stands for a set of household and migrant characteristics such as size, number of young children and adults, members' education level, income class, wealth variables, urban status, as well as, migrant education for IV estimation. X_i stands for a set of individual characteristics such as gender, age, age squared, marital status and citizenship. R_{ij} is the dummy variable indicating whether the individual i lives in a family j that receives remittances and E_{ij} is the dummy variable of education attendance taking on a value of 1 if the individual i is currently pursuing a level of education at least equal to secondary education.

Table 2 presents the probit estimates on the impact of remittances on education attendance. As we can see estimates for remittances are general significant and decrease in magnitude as more controls are added to the estimation. In particular, the highest drop occurs when we introduce the migrant education level in the estimation,

income is higher than 1000 and lower than 2000, income class=4 if income is higher than 2000 and lower than 5,000, income class=5 if income is higher than 5,000 and lower than 10,000 Lei, income class=6 if income is higher than 10,000 Lei and lower than 15,000 Lei, income class=7 if income is higher than 15,000 Lei and lower than 25,000 lei, income class=8 if income is higher than 25,000 Lei.

where the marginal effect for the remittances passes from 0.083 to 0.054.⁷ This means that being in a family receiving remittances increase the probability of attending a high level of education of around 6 percentage points.⁸ As for the control variables it is interesting to note that females have a higher propensity to being attending a higher level of education. Moreover this probability decreases with age -following a convex pattern-, and with being married to a Moldavian compared to be single or married with a foreign spouse. As for the urban residence of the family, estimates are not significant, while when considering the other household characteristics the following patterns emerge. The size of the household entails a negative impact on the probability of attending higher education, as well as, the number of very young children. On the other hand the number of adults in the family increases this probability. As for the variable related to the wealth of the household only the dummy for having a pc in the house increases the probability of attending higher education, while both the income level and the dummy related to owning land or a car do not appear to have a significant impact. Finally, the migrant level of education has a strong, positive and significant impact.

[Table 2 around here]

However, these estimates do not take into account that remittances decisions are endogenous and therefore we need to control for it in order to be able to get reliable estimates of the relationship between remittances and education. We therefore perform an IV estimation. As instruments we consider the following:

- The unemployment level and the productivity of the host country of the migrant in 2007. The idea is that these represent exogenous factors (exogenous shock) that influence the migrant's decision on sending remittances to its origin family.
- The number of older members of the family. The idea behind is related to the concept of altruism as a motive for sending remittances as stated in Cox et al. (1997)

⁷ This drop is mainly justified by the reduction in the sample size when including the information on the migrant. This estimate is nonetheless important in order to be able to make a comparison with the following IV estimates based on the reduced sample.

⁸ We have also performed the same estimates adding an interaction term between the remittances dummy and a dummy indicating whether the migrant member of the family is located in a EU country. Results indicate that there is no statistical difference between being or not settled in a EU country. Moreover, it is worth noting that for some households there is more than one migrant abroad, something which makes difficult to determine a single destination country. However, this problem affects only 6% of the sample and results do not change in the case we do not consider these observations.

and in Mansour et al. (2011). Therefore, having a family with a relatively high number of old members can influence the decision on sending remittances due to the need of medical cares for these members and to the declining productivity of the family.

- The historical migration rate which has been heavily used as an instrument for remittances (see Mc Kenzie and Rapoport, 2006, or Lopez-Cordova, 2005) due to the rationale that the historical rate of migration represents an indicator for the presence of network that lower the cost of migration for future members of the communities. These networks then influence both migration and remittances decision today, and at the same time past migration flows cannot influence education decision apart from the channel of remittances. We use the values provided in the census of Moldavian population in 2004 where the migration rate is classified by districts (38).⁹
- A dummy for families having a bank account (Mansour et al., 2011), which represents one of the means through which remittances can be received and therefore because of easing the process of sending remittances, influence the remittance decisions.¹⁰

In Table 3 we provide a probit estimation of the impact of instruments on education attendance and on remittances. The idea is to first test the joint significance of the instruments on remittances to look at whether they have a good explicative power for the variable they have to instrument. Second, by performing the estimation on education attendance, we test whether the instruments do not directly impact the outcome of interest, which is another condition for instruments in order to be reliable. Table 3 shows that the instruments impact the remittance variable, while on the other hand they do not directly impact the education attendance. Therefore we use them jointly for the IV analysis.

[Table 3 around here]

⁹ The definition of migrants adopted in the census is “Temporarily absent population, went abroad in territorial aspect” that we have then divided by the resident population in territorial aspect. These data are provided by the National Bureau of Statistics of the Republic of Moldova, <http://www.statistica.md/pageview.php?l=en&idc=295&id=2359>.

¹⁰ We have also tried to use as instrument the percentage of families holding a bank account, but the instrument did not turn out to be powerful. Moreover, the definition for families holding a bank deposit is related to having either a current account or a saving account.

Table 4 shows the IV estimation using all available instruments, which turn out to be valid according to the Sargan test. Results clearly point out that the impact of remittances was underestimated in previous regression (as also in Lopez-Cordova, 2005). Therefore endogeneity was causing an attenuation bias of the estimates of the relationship between remittances and education attendance. Moreover, the marginal effects are around 34, which means that being in a family receiving remittances increases the probability of attaining higher education of around 34 percentage points.^{11 12}

[Table 4 around here]

5. Conclusions

In this paper we have analysed the role of remittances in enhancing human capital. By focusing on the case of Moldova and using IV probit estimate to take into account the endogeneity of this relationship, we have shown that living in a family receiving remittances increase the probability of attending high level of education by 34 percentage points. This is an important result that highlights the importance of remittances in compensating the brain drain due to migration. Moreover, previous studies have shown that temporary migration stimulates a higher flow of remittances. This finding points out that temporary migration should be generally encouraged in order to stimulate development in origin countries of migration. In fact, not only the amount of remittances is higher, thus favouring the increase in human capital in origin countries, but also by being short-term is better to both fulfil the demand for labour in host countries and to bring back to origin countries the human capital acquired in foreign countries, while at the same time, limit the brain drain due to migration.

¹¹ We also run IV estimates using subsets of these instruments. Results are generally robust to the one provided. These estimates are available upon request.

¹² We also run estimates considering as dependent variable the education attainment (completed level of education) of individuals. In this case coefficients are always positive, but generally not precisely estimated. Nonetheless, it is worth noting that using as dependent variable education attainment is not properly suitable for the purpose of this paper since, in order to correctly evaluate the influence of remittances on the completion of a highest level of education in 2008, we should know if families were receiving remittances also before 2007—something that could have implied a push factor toward attaining education in general-. For this reason we rely on results based on the use of education attendance as main dependent variable.

References

- Bansak C. and B. Chesum, (2009), "How Do Remittances Affect Human Capital Formation of School-Age Boys and Girls?", *The American Economic Review*, 99(2), pp.145-148.
- Calero C., Bedi A.S. and R. Sparrow (2009), "Remittances, Liquidity Constraints and Human Capital Investments in Ecuador", *World Development*, 37 (6), pp.1143-1154.
- Cox, D., Eser Z., Jimenez E., (1997), "Motives for Private Transfers Over the Life Cycle: an Analytical Framework for Peru.", *Journal of Development Economics*, 55, pp.57-80.
- De Haas H., (2006), "Migration, remittances and regional development in Southern Morocco", *Geoforum*, 37(4), pp.565-580.
- Dustmann C. and Mestres, J., (2010), "Remittances and Temporary Migration", *Journal of Development Economics*, 92(1), pp.62-70.
- Edwards A.C. and Ureta, M., (2003), "International migration, remittances and schooling: evidence from El Salvador", *Journal of Development Economics*, 72, pp.429-461.
- Hanson G. and C. Woodruff, (2003), "Emigration and Educational Attainment in Mexico", *International Migration Review*, 36, pp-746-765.
- IOM, (2010), "A study on remittances and investment opportunities for Egyptian migrants", International Organization for Migration report.
- Kanaiaupuni S.M., Donato K.M., (1999), "Migradollars and Mortality: The Effects of Migration on Infant Mortality in Mexico", *Demography*, 36(3), pp.339-353.
- Lopez-Cordova, E., (2005), "Globalization, migration and development: the role of Mexican migrant remittances", *Economia: Journal of the Latin American and Caribbean Economic Association*, 6(1), pp.217-256.
- Lücke, M., T. Omar Mahmoud, P. Pinger (2007), "Patterns and Trends of Migration and Remittances in Moldova", prepared for International Organization for Migration (IOM).
- Lücke, M., T. Omar Mahmoud, A. Steinmayr (2009), "Labor Migration and Remittances in Moldova: Is the Boom Over?", prepared for International Organization for Migration (IOM).
- Mansour W., Chaaban J. and Litchfield J., (2011), "The Impact of Migrant Remittances on School Attendance and Education Attainment: Evidence from Jordan", *International Migration Review*, 45(4), pp.812-851.
- McKenzie D.C. and Rapoport, H. (2006), "Migration and education inequality in rural Mexico", INTAL-ITD, Working Paper No.23, Inter-American Development Bank, Washington, DC.
- National Bureau of Statistics of Moldova, Labour Force Survey, www.statistica.md.

- Pinger P.R., 2010, "Come Back or Stay? Spend Here or There? Temporary versus Permanent Migration and Remittance Patterns in the Republic of Moldova," *International Migration*, 48(5), pp.142-173.
- Piracha M. and Saraogi A., (2010), "Motivations for Remittances: Evidence for Moldova", IZA *Discussion Paper* n. 5467.
- Zhunio M.C., Vishwasrao S. and Chiang E.P. (2012), "The influence of remittances on education and health outcomes: a cross country study", *Applied Economics*, 44(35), pp-4605-4616.
- United Nations Population Division (UNPD), (2009) "International Migrant Stock: The 2008 Revision", New York, UN Department of Economic and Social Affairs.
- United Nations (UN) data.
- World Bank Migration and Remittances Factbook 2011.
- World Bank Migration and Remittances Data, Annual Remittance Data, Inflows.
<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:22759429~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>.

Tables and Figures

Figure 1

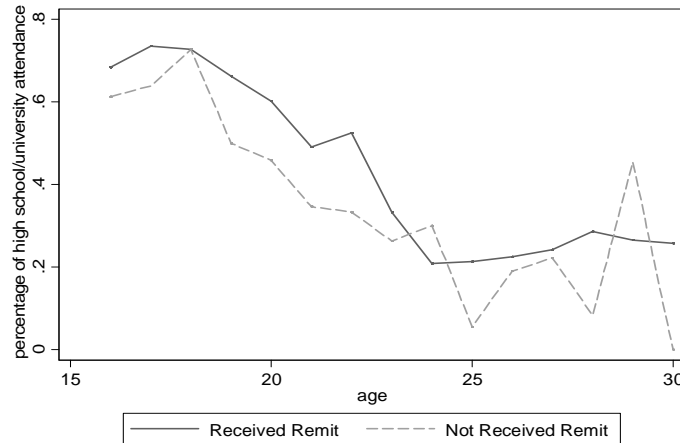


Table 1: Descriptive Statistics of the Variables of the Analysis.

	Remittance Family		No-Remittance Family		
Variable	Obs.	Mean	Obs.	Mean	Type of Variable
Individual characteristics:					
age	853	21.81	334	21.57	discrete
gender (=2 female)	853	1.60	334	1.57	binary
education attainment	838	2.03	330	1.95	ordered
education attendance (dicotomic)	853	0.48	334	0.40	binary
citizenship	852	1.08	332	1.03	discrete
marital status:					
- single	852	0.68	332	0.69	binary
- married with spouse from RM	852	0.28	332	0.28	binary
- married with foreign spouse	852	0.02	332	0.02	binary
- widow	852	0.00	332	0.00	binary
- separate/divorced	852	0.02	332	0.01	binary
- cohabiting	852	0.01	332	0.00	binary
Household characteristics:					
- Composition					
size of the household	853	5.08	334	5.46	discrete
n. child <5 years old	853	0.29	334	0.37	discrete
n. adults	853	2.36	334	2.29	discrete
n. of male adults	853	0.87	334	0.98	discrete
- Education					
average education attainment of the household	853	1.62	334	1.65	ordered
education level household head	853	1.95	334	1.86	ordered
education level household spouse	853	1.57	334	1.67	ordered
education level of the migrant	652	2.14	332	2.05	ordered
- Wealth					
car	853	0.33	334	0.24	binary
land	853	0.74	334	0.81	binary
pc	846	0.25	334	0.21	binary
incomeclass	829	3.79	321	3.18	ordered
- Location					
urban	853	0.29	334	0.20	binary

Table 2: Probit Estimates of the Impact of Remittances on Education Attendance. Marginal Effects.

	(1)	(2)	(3)	(4)	(5)
Remittances	0.078** [0.034]	0.087*** [0.032]	0.083*** [0.031]	0.054* [0.032]	0.056* [0.031]
Dfemale		0.068** [0.027]	0.067** [0.027]	0.048* [0.029]	0.045 [0.028]
Age		-0.127*** [0.039]	-0.144*** [0.039]	-0.127*** [0.045]	-0.124*** [0.044]
Agesq		0.002** [0.001]	0.002*** [0.001]	0.002* [0.001]	0.002* [0.001]
Married with spouse from RM		-0.221*** [0.039]	-0.101** [0.048]	-0.130** [0.052]	-0.154*** [0.045]
Married with foreign spouse		0.390*** [0.089]	0.389*** [0.087]	0.370*** [0.118]	0.372*** [0.113]
Widow		-0.104 [0.189]	-0.188 [0.257]		-0.203 [0.191]
Separate/Divorced		-0.198** [0.100]	-0.102 [0.119]	-0.046 [0.138]	-0.067 [0.128]
Cohabiting		-0.334*** [0.110]	-0.304*** [0.114]	-0.278** [0.133]	-0.273* [0.147]
Urban			-0.047 [0.039]	-0.056 [0.042]	-0.044 [0.036]
Size of the household			-0.024* [0.013]	-0.029** [0.014]	-0.036*** [0.012]
N. Children <5			-0.077** [0.037]	-0.032 [0.039]	
N. Adults			0.042** [0.019]	0.050** [0.022]	0.060*** [0.018]
N. Male adults			0.049 [0.033]	0.021 [0.039]	
Average household education			0.082** [0.036]	0.022 [0.047]	
Education household head			-0.047* [0.027]	-0.051* [0.030]	
Education household spouse			-0.001 [0.017]	0.014 [0.018]	
Income class			0.077 [0.056]	0.076 [0.062]	
Income class squared			-0.009 [0.008]	-0.009 [0.008]	
Dpc			0.126*** [0.036]	0.119*** [0.038]	0.126*** [0.036]
Dland			-0.015 [0.041]	-0.021 [0.046]	
Dcar			0.011 [0.031]	0.034 [0.032]	
Education of the migrant				0.082** [0.034]	0.083*** [0.029]
Observations	1,187	1,177	1,133	935	970

Notes: ***, ** and * denote significance at the 1%, 5% and 10% level respectively. Other control variables are dummies for citizenship.

Table 3: Analysis of the Instruments.

	Education Attendance	Remittances Receipt
Instrumental variables	(1)	(2)
Unemployment rate 2007	-0.949 [5.272]	12.138* [6.198]
Average productivity 2007	0.000 [0.000]	0.000** [0.000]
Migration_rate_2004	1.536 [2.243]	5.376** [2.604]
Dummy for bank account	-0.040 [0.132]	0.453** [0.190]
N. old members	-0.108 [0.068]	-0.197** [0.083]
Chi_sq		25.37
P-value		0.0001

Notes: ***, ** and * denote significance at the 1%, 5% and 10% level

Table 4: Instrumental Variable Probit Estimation (All Instruments). Marginal Effects.

	(1)	(2)	(3)	(4)
DRemittances	0.337*** [0.125]	0.361** [0.146]	0.361*** [0.129]	0.340*** [0.127]
DFemale	0.055 [0.037]	0.060 [0.038]	0.047 [0.037]	0.046 [0.038]
Age	-0.125** [0.052]	-0.154*** [0.056]	-0.136** [0.053]	-0.149*** [0.054]
Agesq	0.002 [0.001]	0.002* [0.001]	0.002* [0.001]	0.002* [0.001]
Married with spouse from RM	-0.237*** [0.049]	-0.148*** [0.056]	-0.173*** [0.051]	-0.166*** [0.051]
Married with foreign spouse	0.409*** [0.110]	0.422*** [0.110]	0.413*** [0.109]	0.431*** [0.104]
Widow	-0.250 [0.211]		-0.246 [0.213]	-0.225 [0.223]
Separate/Divorced	-0.151 [0.159]	-0.099 [0.170]	-0.146 [0.159]	-0.109 [0.166]
Cohabiting	-0.338*** [0.106]	-0.358*** [0.098]	-0.346*** [0.107]	-0.324*** [0.115]
Urban		-0.070 [0.055]	-0.070 [0.045]	-0.080* [0.045]
Size of the household		-0.031* [0.017]	-0.041*** [0.016]	-0.039** [0.015]
N. children <5		-0.024 [0.047]		
N. adults		0.071*** [0.025]	0.065*** [0.023]	0.066*** [0.023]
Average household education		0.081 [0.050]		
Education household head		-0.106*** [0.038]	-0.059* [0.032]	
Education household spouse		0.027 [0.023]		
Income class		0.030 [0.080]		
Income class squared		-0.008 [0.009]		
Dpc		0.204*** [0.047]	0.191*** [0.047]	0.161*** [0.047]
Dland		-0.010 [0.055]		
Dcar		0.022 [0.044]		
Education of the migrant				0.079* [0.041]
Test overidentifying conditions_P value	0.577	0.648	0.257	0.378
Observations	968	929	961	950

Notes: ***, ** and * denote significance at the 1%, 5% and 10% level respectively.