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Determinants of Romanian International Migrants' Remittances

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Abstract. In the past few years, there has been a renewed interest in remittances of international migrants, and this topic is particularly important for Romania as one of the top European emigration countries and an important remittance recipient country as well. Responding to the need to better understand the determinants of remittances, our paper examines the significance of selected economic, social and demographic factors associated with the remittance behavior of Romanian international migrants, as characterized by the propensity to remit and the amount remitted. In particular we address the question of the role played by the geographic distance, as potentially affecting the immigrants’ ties with their homeland and consequently the remittance decisions. The present work builds on a database of 1514 Romanian immigrants from 55 destination countries, resulting from our online survey conducted during August-December 2010. We developed several multivariate models to study the determinants of remittances by employing regression analysis. Among the main findings are that the remittances are mainly affected by the migrant’s income and intention to return to homeland, and that geographic distance is not related to the remittances.

Key words: international migration, economic performance, remittances, Romania
JEL Classification: J61, Z12, C20

Introduction

In the past few years, there has been a renewed interest in remittances of international migrants, as their strong recent increase shed more light on the effects at both micro and macro level. The remittances not only contribute to the well-being of the receiving households, but are also a large source of external financing, second only to FDI.

The migrant remittances are particularly important for Romania as, according to the World Bank data, it is on the 5th place in the European top of emigration countries and on the 4th place as remittance recipient country, receiving $4.5 bn of remittances in 2010, that represented 4.4 percent of GDP in 2009. According to some experts, without remittances the current account deficits in Romania would have been over 50% higher. Therefore the determinants of remittance behavior are important and need to be better understood. Following increasing interest and significant public debate on migration in Romania, our paper examines the significance of selected economic and demographic factors associated with the remittance behavior of
Romanian international migrants, as characterized by the propensity to remit and the amount remitted. In particular we address the question of the role played by the geographic distance, as potentially affecting the immigrants’ ties with their homeland and consequently the remittance decisions. Through this paper, we fill a gap in remittance literature by analyzing the behavior of Romanian emigrants, one of the largest new migrants’ communities in Europe. According to data issued by the National Institute of Statistics of Romania, there are about 2.7 million Romanians abroad.

We exploit a recent source of data on Romanian out-migration resulting from our online survey conducted during August-December 2010. The database contains a variety of information including income, employment, remittances, regions of origin and destination, graduated studies both in Romania and in emigration country, length of migration and intention to return to Romania, allowing our study on the determinants of remittances by employing regression analysis.

The structure of this paper is as follows. The next section briefly reviews the literature. Section 3 describes the methodology we employ in the analysis, alongside the variables and the database. Section 4 comments the results from the two econometric models on the decision to remit and the amount remitted, while section 5 concludes.

**Literature review**

Neoclassical models assigned to migration a major role in ensuring economic equilibrium. Thus, Barro and Sala-i-Martin (2004) showed that migration increases the rate of economic growth in poor regions, thereby contributing to convergence. The effect is still not clearly defined when the migration change not only the number of workers, but the regional distribution of human capital as well. If the change occurs in the direction of human capital growth in poor regions and decline in the rich ones, the convergence effect of migration is positive. In contrast, if migration increases the human capital in rich regions and decreases it in poor ones, it is expected a negative influence of migration on the convergence process.

The mainstream of the literature on migration issues is focusing on receiving countries (Sassen, 1988), while the migrant-sending countries perspective is getting lesser attention. The economic factors are considered to be the main drivers of migration flows, with poverty as the
main causality of out-migration (Skeldon, 2005) and the labour needs of developed countries as favorable factor (Sassen, 1988). From an economic point of view, the strongest impact on sending countries is conveyed through remittances. Migration and remittances do undoubtedly relieve pressure on the sending countries, compensating for underemployment and generating new opportunities, helping alleviate poverty and improving life in poor countries.

In this context the money sent home by the migrant workers have a key role both for the receiving households and for the economy as a whole. The constant growth in the volume of remittances should be reflected in large effects on income distribution but the empirical evidence is mixed so far. Some studies report an equalising effect on income distribution in the receiving countries (for instance, Ahlburg, 1996 and Taylor, 1999), while others contradict such findings on the grounds that the poorest families cannot afford the costs of migration (Straubhaar and Vadean, 2006). Nevertheless it remains an important factor of economic development that attracts constant attention in the empirical studies.

Money sent by emigrants to their families is increasing their quality of life and positively impacts on the family relations. Remittances are also an important source of external funding for developing countries. They rank only behind foreign direct investment and are much higher in magnitude than total official development assistance and private non-FDI flows. Therefore, it can be identified an increasing interest in the literature in studying such aspects.

As emigrants usually remain linked to sending community, migration also impacts the communities in places of origin and the existence of strong links of the immigrants with the homeland was long documented through the history of migration. Although such connections are expected to fade in time and in space, modern instant communication and fast travel create new forms of transnational links, proved to be very resilient. Therefore geographic distance does not necessarily have an adverse impact on remittance flows, as documented by the migration literature. In contrast, De Sousa (2010), analysing the official remittance flows (send through banks or money transfer companies) from OECD countries to Romania, found that remittances tend to increase non-linearly with geographic distance. He explained this by long-distance migrants needs to use mainly formal transfer channels that make them more visible in statistics, compared to short-distance migrants.
The estimations of the determinants of remittances are either based on household surveys that include remittance-receiving households (Gubert, 2002), or specific surveys of the migrants themselves either in the home country (Amuedo-Dorantes & Pozo, 2006) or in the country of destination (Holst & Schrooten, 2006). The type of survey sometimes limits the nature of the analysis that can be conducted, for example, household surveys often do not have much information on the migrant. Most studies focus on Latin-American and African countries, and some Pacific and Asian countries as well, while Eastern and Central Europe countries are less studied, although there is an increasing interest in remittances received by Moldova and Albania (see, for instance, Gjermenji & Swinnen, 2005).

There are only a few studies devoted to Romanian migration, remittances and the corresponding economic effects. Nicolae (2007) states that if the EU countries will continue to attract human capital from Romania, then their economies will evolve faster, and the Romanian economy will lag behind and on long term the EU’s and the Romania’s economic growth will have different configuration. Silasi and Simina (2008) analyze migration and mobility issues in the context of an enlarged European Union (EU-27). They consider that Romania, a country with a labour market that faces distortions, will benefit from migration on short term, but will need to import labour force in order to maintain the development trend. Constantin et al. (2004) analyze migration from a regional perspective and in connection with European Union integration. Goschin et al. (2009) approach some collateral effects of migration, such as human trafficking. More recently, De Sousa (2010) analysed the bilateral remittance flows from OECD countries to Romania over the period 2005-2009, focusing on the impact of the geographic distance on remittances. The latest study on Romanian migration (2011) was developed by Soros Foundation Romania, in partnership with the International Agency for Source Country Information, and is aiming to explain the savings and remittance behaviour of long-term migrants and trans-national households in a regional context.

**Methods, variables and data**

Most previous studies on migration have examined the determinants of the decision to migrate and the subsequent decision to remit in connection to migrants characteristics and the family profile. They were employing probabilistic models, namely probit or logistic model (e.g. Holst
and Schrooten, 2006) as the most common techniques to estimate models with a dichotomous dependent variable.

Following the main methodological trends in recent literature, our empirical analysis discriminates between the decision to remit and the subsequent decision on how much to remit. Separate multivariate models are estimated for the volume of remittances and for the probability of remitting. Linear regression was applied in the case of the first variable, while a binary logistic regression model is employed in order to identify the impact of economic, social and demographic factors on the probability of sending money to Romania.

The binary logistic regression model is used to identify the factors that influence the probability of sending money to Romania. In this model, the binary dependent variable is the decision of the emigrant to send money to Romania or not, specifically 1 denotes that a person is remitting and 0 denotes otherwise. The regression model will be predicting the logit, that is, the natural log of the odds of having made the remittance decision or the opposite:

$$\ln(\text{ODDS}) = \ln\left(\frac{\hat{Y}}{1-\hat{Y}}\right) = a + bK$$

(1)

where $$\hat{Y}$$ is the predicted probability of the event which is coded with 1 (decision to remit) rather than with 0 (not to remit); $$1-\hat{Y}$$ is the predicted probability of the other decision; K represents the exogenous variables.

The remitted amount was analyzed through a multi-linear regression model that expresses the value of the predicted variable as a linear function of several predictor variables and an error term. The multiple regression model is specified by the following general equation:

$$Y_i = \beta_0 + \sum_j \beta_j K_{ij} + \epsilon_i,$$

(2)

where $$Y_i$$ represents the dependent variable (the total annual amount remitted by an emigrant i), $$K_{ij}$$ are the exogenous variables, $$\beta_j$$ are the parameters that summarize the j factor contribution to the dependent variable and i stands for the individual. Last, $$\epsilon_i$$ is an independently and identically distributed error term for i, with zero mean and constant variance $$\sigma^2$$. 
Variables involved in the econometric analysis. An important economic result of migration is the remitter quality of migrants, which is the variable of interest in our research, as being one of the positive outcomes of the economic activity of emigrants. We use both the volume of the remittances REMIT, representing the total annual remittances of the emigrant, measured in USD for comparability reasons and calculated as natural logarithms, and a binary variable REM conveying the propensity towards remitting money to home country (it gets the value 1 if the migrant is sending money to Romania and 0 otherwise). They are the effect variables in our regression models.

The control variables are the remittance determinants, representing factors that affect either the decision to remit or the amount remitted. Such factors include the income, the characteristics of the individual (occupation, age, gender, and education), the family-level factors (e.g., the size of the family, number and age of children, the presence of children in the emigration country), the degree of integration in destination country, the intention to return to homeland, etc. The selected economic and socio-demographic predictors used as control variables are described below.

The variable INCOME is the net monthly income at the moment of filling the questionnaire and is expressed in USD for comparability reasons. It is measured as a scale variable ranging from less than 500 USD to more than 5000 USD, with interval length of 500. In the regression model the income values were used as natural logarithms. Romanian emigration for labor is rather young as the vast majority (90%) emigrated less than 15 years ago. Therefore most of the Romanian emigrants are employed and they have an income, so we prefer to consider the income level as the most appropriate outcome in our study, compared to other variables used in the literature, such as employment.

According to the literature, the age of the remitting person plays an important role (eg, Merkle & Zimmermann, 1992) and the remittance-age relationship appears to be non-linear. In our sample, AGE ranges between 17-76 years, averaging about 37 years.

The gender is documented in the literature as a significant influence factor for the remittance behaviour, women being more altruistic and having a higher propensity to remitt, compared to men. We use the dummy variable GENDER, coded 1 if female and 0 if male.
The number of minor children living in receiving country (CHILD) should correlate negatively to remittances, as it lessens the motivation to send money to homeland. We also account for the presence of the spouse (SPOUSE), the parents (PARENTS) and brothers and sisters (BROTHER/SISTER) in the migration country, by employing corresponding binary variables. We expect these variables to correlate negatively with the decision to remit and with the amount remitted as well.

The level of education attended is another factor that may influence the remittance behaviour. Some studies revealed that higher educated migrants remit more (Bollard et al, 2009). Education (EDU) is a scale variable ranging from 1 to 8 and coded as follows: 1- primary school, 2- vocational school, 3-secondary education (high school), 4- second level of secondary education, 5-first level of tertiary education, 6- higher education, 7-master degree, 8-doctoral studies. In Romania, there is a clear upward trend in average education of permanent migrants, and in our database the education level of the migrants is high, the average of 5.07 corresponding to the first level of tertiary education.

The variable DISTANCE is defined as the geographical distance between Bucharest and the capital city of each one of the 55 countries in our database and was determined in accordance to NASA data.

Considering that religion provides a motivation for helping others and immigrants remit for altruistic motives, we also included the binary variable RELIGION on the grounds that immigrants who are religious are more likely to remit (Connor, 2010).

The level of integration in the labour market from receiving country is evaluated through the number of years spent in migration country (TIME). Time spent in receiving country is a significant factor that determines in a negative way the propensity to remit. We expect the remittance amount to decline as TIME variable increases, given that the ties with the country of origin become weaker as time goes on and the migrant becomes better integrated in the society of the host country (see for instance Holst and Schrooten, 2006).

Additionally, the intention of returning to Romania (RETURN) was included in our econometric approach as a binary variable coded 1 if the emigrant has the intention to return and 0 otherwise. Studies such as Glytsos (1997) stressed the importance of the intentions of returning
in the country of origin in determining the remittance behavior, by highlighting the fact that temporary migrants remit more than permanent ones.

To compensate for the lack of official statistical data on the remittance behavior of Romanian migrants, an online survey was conducted during August-December 2010 and our present work builds on the resulting database. Due to limited financial resources and lack of data on spatial dispersion of Romanian immigrants, the online questionnaire was preferred to direct or postal survey methods. Moreover, the online format is the cheapest and quickest way to build an extensive, various and territorially dispersed database. Respondents were asked questions on a variety of topics including income, employment, graduated studies both in Romania and in emigration country, length of migration, remittances and intention to return to Romania. Therefore, our survey represents a recent source of data on immigrant cohort and contains all necessary economic, social and demographic information to test the influence of individual characteristics on migrants’ propensity to remit and volume of remittances. The final database consisted of 1514 respondents from 55 countries and is referred henceforth as Romanian Emigrants’ Study (RES).

Table 1. Descriptive statistics for the variables in the models

<table>
<thead>
<tr>
<th>Variables</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>17</td>
<td>76</td>
<td>35.81</td>
<td>9.937</td>
</tr>
<tr>
<td>GENDER</td>
<td>0</td>
<td>1</td>
<td>0.63</td>
<td>0.482</td>
</tr>
<tr>
<td>CHILD</td>
<td>1</td>
<td>5</td>
<td>0.45</td>
<td>0.843</td>
</tr>
<tr>
<td>EDU</td>
<td>1</td>
<td>8</td>
<td>5.07</td>
<td>1.795</td>
</tr>
<tr>
<td>TIME</td>
<td>1</td>
<td>61</td>
<td>7.42</td>
<td>6.611</td>
</tr>
<tr>
<td>DISTANCE</td>
<td>294</td>
<td>17254</td>
<td>3076</td>
<td>292.165</td>
</tr>
<tr>
<td>RELIGION</td>
<td>0</td>
<td>1</td>
<td>0.91</td>
<td>0.291</td>
</tr>
<tr>
<td>RETURN</td>
<td>0</td>
<td>1</td>
<td>0.33</td>
<td>0.471</td>
</tr>
<tr>
<td>INCOME</td>
<td>1</td>
<td>11</td>
<td>5.77</td>
<td>3.110</td>
</tr>
<tr>
<td>REM</td>
<td>0</td>
<td>1</td>
<td>0.54</td>
<td>0.498</td>
</tr>
</tbody>
</table>

Source: processed by the authors using RES data, 2010

All these factors that may impact the remittance decisions were accounted for in our regression analysis. The descriptive statistics of the selected variables (Table 1) show that the
average Romanian migrant in our database is young (35.8 years), well educated (the first level of tertiary education) and religious. About half of the migrants have children and are remitting. The mean income is 5.77, corresponding to an average monthly earnings of 2385 USD and men prevail (52%).

Results and comments
In this section, we present the results of running the regressions specified in the equations (1) and (2) using the RES data on Romanian emigrants.

While the literature on the determinants of remittances is well documented and there are several studies on economic and social behaviors, there is little empirical evidence in Romania on the relationship between individual characteristics and remittances sending propensity. We firstly run a binary logistic model in order to identify the main individual and family characteristics of the migrant that affect the decision to remit. The results presented in Table 2 show that there are eight statistically significant factors in the model.

Table 2. Logistic regression coefficients for model 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>0.014*</td>
<td>0.007</td>
<td>1.014</td>
</tr>
<tr>
<td>GENDER</td>
<td>0.298***</td>
<td>0.118</td>
<td>1.347</td>
</tr>
<tr>
<td>CHILD</td>
<td>-0.181</td>
<td>0.134</td>
<td>0.83</td>
</tr>
<tr>
<td>SPOUSE</td>
<td>0.726***</td>
<td>0.181</td>
<td>2.066</td>
</tr>
<tr>
<td>PARENTS</td>
<td>-0.027</td>
<td>0.195</td>
<td>0.978</td>
</tr>
<tr>
<td>BROTHER/SISTER</td>
<td>-0.049</td>
<td>0.187</td>
<td>0.960</td>
</tr>
<tr>
<td>TIME</td>
<td>-0.018*</td>
<td>0.010</td>
<td>0.982</td>
</tr>
<tr>
<td>DISTANCE</td>
<td>0.000*</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>EDU</td>
<td>-0.193***</td>
<td>0.034</td>
<td>0.824</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.673***</td>
<td>0.083</td>
<td>1.959</td>
</tr>
<tr>
<td>RETURN</td>
<td>0.639***</td>
<td>0.120</td>
<td>1.895</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.676***</td>
<td>0.629</td>
<td>0.009</td>
</tr>
<tr>
<td>No. of observations</td>
<td>1514</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


As it was expected, the main factors that directly affect the remittance decision are the income and the intention to return to homeland. Additionally, a very strong positive factor is the presence of the spouse in the immigration country, which probably allows for higher incomes to consume and to remit as well. The age also has a positive but less powerful influence on the decision to remit, while the gender variable indicates that the women have a higher propensity to remit. The data in our sample do not support the hypothesis that emigrants belonging to a religious group are more likely to remit. Among the main findings is that the geographic distance is weakly related to the remittances (the level of significance is very low and the coefficient is close to zero). This is not surprisingly, as modern instant communication and fast travel are supporting strong and resilient transnational links despite geographic distance and money transfer costs are low.

The remittance propensity is negatively affected by the education level and also by the number of years spend in the emigration country. As the period spent by the emigrants in destination country and consequently their degree of integration increases, the probability to remit slightly decreases. This is in line with other studies (see for instance Holst and Schrooten, 2006) proving that the remittance propensity may decline following the integration in the receiving country. As expected, the size of the family in the destination country correlates negatively with the decision to remit, as the migrants having the children and parents with them are less likely to remit, but these factors were not significant and were consequently excluded from the model.

Following the objectives of our research, the next question we consider is if Romanian emigrants’ economic, social and demographic characteristics impact the remitted amount. The second model considers migrants’ total annual remittances as being the effect variable. The parameters of the model were estimated using Ordinary Least Squares (OLS) and the regression coefficients, alongside their corresponding standard errors and the values of standard econometric tests, are shown in Table 2. The regression results from the first model indicate that

<table>
<thead>
<tr>
<th>Nagelkerke R Square</th>
<th>0.125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox &amp; Snell R Square</td>
<td>0.093</td>
</tr>
</tbody>
</table>

Significance: ***p<.01; ** p<.05; * p<.10

Source: processed by the authors using RES data, 2010
the amount remitted is positively influenced by income, intention to return, religiosity and the presence of the spouse with the migrant and is negatively linked to the time spent in the emigration country and gender. Although more inclined to remitt, the amount women remitt is smaller, presumably based on lesser earnings compared to men.

Table 3. OLS regression coefficients for model 2

<table>
<thead>
<tr>
<th>Effect variable: the amount remitted</th>
<th>Unstandardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>Constant</td>
<td>1.901***</td>
</tr>
<tr>
<td>GENDER</td>
<td>-0.325***</td>
</tr>
<tr>
<td>TIME</td>
<td>-0.017**</td>
</tr>
<tr>
<td>RETURN</td>
<td>0.355***</td>
</tr>
<tr>
<td>RELIGION</td>
<td>0.481***</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.651***</td>
</tr>
<tr>
<td>SPOUSE</td>
<td>0.618***</td>
</tr>
<tr>
<td>Observations</td>
<td>1514</td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td>0.34</td>
</tr>
<tr>
<td><strong>F statistic</strong></td>
<td>15.53</td>
</tr>
<tr>
<td>Durbin-Watson test</td>
<td>2.11</td>
</tr>
</tbody>
</table>

Significance: *** p < .01; ** p < .05; * p < .10

Source: processed by the authors using RES data, 2010

Family-related factors, such as the presence of the members of the family in the migration country, are not significantly affecting the remittances, except for the spouse, although the coefficient signs are as we hypothesized. The presence of the spouse significantly increases the amount remitted, probably on the grounds that it provides additional earnings to the migrant family and higher resources are available for consumption and remittances.

We also have controlled for the age of the migrant and the level of education, but these factors were not significant and were consequently excluded from the model.
The model is statistically significant and the selected factors explain 34% of the variability of individual monthly remittances across migrants ($R^2=0.34$). The standard econometric tests also yield good results (see Table 3).

**Conclusions**

The present work builds on our database on immigrant cohort resulting from an online survey conducted during August-December 2010.

We developed several multivariate models to study the determinants of remittances by employing regression analysis. The results stemming from the logistic regression indicate that income and the intention to return to homeland are the most powerful factors that determine the remitting behavior of Romanian emigrants. Education also exert a certain influence, but in a negative manner. The more educated is the migrant the less is the probability to remit, although the amount remitted is not affected by the education level.

Among the main findings is that the geographic distance is not related to the remittance decision or to the amount remitted, probably on the grounds that modern instant communication and fast travel are supporting very strong and resilient transnational links despite geographic distance.

It is likely that the uneven territorial changes through international migration will continue to impact the future responses of economic, political and social development, which emphasizes the need to deepen and widen our understanding of this phenomenon through both theoretical and empirical analyses.

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The authors are grateful to the Romanian emigrants that have filled in the questionnaire and have provided valuable information for Romanian migration analysis.

**References**


World Bank, Migration and Remittances Factbook 2011, 

**Notes**


ii Ibid., 17.


v For example, as long as one hundred years ago, immigrants to the United States maintained contact with relatives in their origin countries, remitted money, and even supported homeland political groups. See Nancy Foner, “What’s new about transnationalism? New York immigrants today and at the turn of the century”, *Diaspora* 6, 3 (March 1997): 355-75.

vi Foner, 369: “Modern technology, the new global economy and culture, and new laws and political arrangements have all combined to produce transnational connections that differ in fundamental ways from those maintained by immigrants a century ago.”

vii Ibid 63.