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AN ANALYSIS OF RETURN MIGRATION USING BINARY MODELS

A ROMANIAN PERSPECTIVE

Elena-Maria Prada¹

¹Bucharest Academy of Economic Studies
(ROMANIA)
Email: elena.prada@gmail.com

ABSTRACT

Migration is the phenomenon that has always been along the human being, people searching for better places to live. Reasons of migration have been evolved along the greatest discoveries of man. Nowadays, the concept of migration is just different in terms of the factors which determinate it.

The paper explores the database from Statistical Institute of Spain on Spain's migrants from the perspective of return migration. The econometric models involved are PROBIT and LOGIT with the dependent variable of the intention to return to the origin country of the Romanian migrants. The results showed that the most important variables that confirm the initial hypothesis of returning to their country are: the unemployment in the host country and the fact that they are remitting.

Keywords: returnee, migration, probit, logit, Romania.

1. INTRODUCTION

Migration is the phenomenon that has always been along the human being, people searching for better places to live. Reasons of migration have been evolved along the greatest discoveries of man. Nowadays, the concept of migration is just different in terms of the factors which determinate it.

The actual socio-economic context has been affected by the financial recession started in 2007 and has an impact on developed countries and this fact could determine the return migration. According to the studies provided by Eurostat in the EU Member States, the median age of those who return to their home country was over 30 years in 2008 (Herm, 2008). In Hungary half of the migrants returned in 2008 until 2010 were aged between 30 and 45 years and only 20% of those over 45 have returned. Same trend is observed in Romania for the Romanians returning from Spain and only 15% of those aged over 45 years are coming back to their homes (Iglicka et al, 2012).

The paper explores the database from Statistical Institute of Spain on Spain's migrants from the perspective of return migration. The econometric models involved are PROBIT and LOGIT with the dependent variable of the intention to return to the origin country of the Romanian migrants. The results showed that the most important variables that confirm the initial hypothesis of returning to their country are: the unemployment in the host country and the fact that they are remitting.

The literature on migration is very rich, being made many studies that studying the determinants of migrants, the aspects and the repercussions on the macro economical and micro economical level of both the sending and receiving countries.

Devesh Kapur considers that remittances became an important source of external financing and their purpose is to reduce poverty into the sending countries (Kapur, 2004).

Most of the work-related migrants have entered the host country illegal or with a temporary work contract usually thereby they don't have a high social status and they always face lower conditions than the residents although they are more trained (ILO, 2010).

The most common method of analysing the influence of remittances to GDP is linear regression model. This analysis is usually made on determining the influence factors of the migration, the pull and push factor. Investigating the determinants of migration for EU countries was confirmed that the employment rate and the Gross Domestic Product are directly influencing the migration into that country, so it was confirmed that the level of development of a country and the better paid jobs are a pull factor for migrants (Prada, 2013).

An analysis on remittances and household consumption instability for a large sample of developing countries in the period 1975-2004 and after controlling endogeneity of remittances, showed that countries receiving remittances instability presents low consumption expenditure of households and insurance plays a role especially for countries with low financial system developed (Combes și Ebeke, 2010).

METHOD AND DATA

Advanced econometric models most common on the analysis of opinion surveys are those models in which the dependent variable takes discrete values. Depending on the type of the independent variable we can distinguish the following two types of discrete choice model (Andrei and Bourbonnais, 2008):

- the binary models, the dependent variable is binary (generally accepted values that we take with this variable are 0 and 1). These models estimate the probability p_i attempting characteristic binary value equal to 1. The most popular models for binary variables are probably LOGIT, PROBIT and logistic regression model.
- models with multiple responses are those models in which the dependent variable has more than two discrete variables. In this case, the dependent variable can be nominal or ordinal type.

An econometric model using a binary LOGIT model intend to analyse the return to Romania of Romanian migrants with higher education, using the data collected by an on-line survey, shows that along with the increasing of the age the intention to return reduces. Also, having a job in the host country negatively affects the plans of returning to the origin country. On the other hand, situations such as national identity, that of being proud that he is Romanian, but the existence of a relative (husband / wife / child) in the country determine the return to their home country (Predosanu et al., 2007).

The binary models are models for dichotomous data. The general form of PROBIT and LOGIT models are represented by the following equation:

$$v_i^* = a_0 + a_1 x_{1i} + \dots + a_p x_{pi} \quad (1)$$

The LOGIT model error has a logistic distribution and is defined through the following equation:

$$p_i = \frac{e^{v_i^*}}{1 + e^{v_i^*}} \quad (2)$$

The PROBIT model error distribution is a normal distribution, unlike standard LOGIT model whose partition function is the logistic type (Pecican, 2009). Under these conditions define the probability $p_i = P(y_i = 1)$ through the following equation (Andrei and Bourbonnais, 2008):

$$p_i = \int_{-\infty}^{v_i^*} \frac{1}{\sqrt{2\pi}} e^{-\frac{t^2}{2}} dt \quad (3),$$

Where:

$$v_i^* = a_0 + a_1x_{1i} + \dots + a_px_{pi}$$

With:

$$v_i = 1 \text{ if } v_i^* > 0$$

$$v_i = 0 \text{ otherwise}$$

The data used in the application of PROBIT and LOGIT models come from the research done by the Statistical Institute of Spain on their immigrants in 2007 Encuesta Nacional de Inmigrantes, and contains 1331 Romanian respondents.

Table 1. Descriptive statistics

Gender	Male	Female	Total
Age category			
<i>0 to 14 years</i>	0,54%	0,89%	1,43%
<i>15 to 19 years</i>	1,15%	1,64%	2,78%
<i>20 to 34 years</i>	25,15%	30,98%	56,13%
<i>35 to 55 years</i>	19,50%	15,86%	35,36%
<i>56 to 97 years</i>	2,26%	2,03%	4,29%
Total	48,6%	51,4%	100%

We observe that the respondents are equally distributed by gender, but according to the age category the most of the respondents are between age 20 and 34 years and 35 and 55 years. Obviously, those categories represents the working population, this confirm that people migrate to obtain a better job.

To obtain the data regarding Romanians migrants I have filtered the database on immigrants in Spain by the variable "nationality" obtaining a sample of 1331 of Romanian respondents.

The dependent variable of the model, referring to the intention of returning of the respondents, was built after the question: "What are your plans for the next 5 years":

1. I don't know
2. I am returning to my origin country
3. I stay in Spain
4. I am considering another country

The dependent variable was coded from the question above as it follows:

$$v_i = \begin{cases} v_i = 1 (\text{Yes, they want to return into Romania}) & \text{if } v_i^* = \text{response option 2} \\ v_i = 0 \text{ otherwise, if } v_i^* = \text{response options 1, 3, and 4} \end{cases}$$

As dependent variables I have chosen: if they sent money back home (REMS), if they have invested into a property in Spain (IMOB), if working at the time of interview (TRAB1), gender dummy variable (sex1 = Male), dummy variables related to marital status (single = stare_civ1; stare_civ2 = married, widowed or divorced = stare_civ3), education level dummy variable (divided by three categories: no studies, lower studies, and high studies), age dummy variable (referring to those 5 age categories).

RESULTS

Regarding the method I applied several test on the variables obtained from the questionnaire provided by the ENS 2007.

By analysing the question about their plans for the next five years I observed that the sample of persons that want to return to their country is small related to the whole sample of Romanians, about 8,33% have answered that they are willing to return to Romania.

“What are your plans for the next 5 years”:	Frequency
- I don't know	166
- I am returning to my origin country	111
- I stay in Spain	1046
- I am considering another country	8
Total	1331

Models results are shown as it follows on Table 2. Probit models and Table 3. Logit models.

Table 2. Probit models

	Model Probit I	Model Probit II
Constant	-1.143(*)	-1.148(*)
IMOB	-0.153	-0.178
REMESA	0.292(*)	0.293(*)
TRAB1	-0.219(*)	-0.210(*)
Education level (educat1)	-	0.332
Gender (sex1)	-	-0.635
Marital status(stare_civ2)	-	0.125
Age (agedum2)	-	0.270
Log likelihood	-375.39	-373.74
Pseudo R2	0.0172	0.0211
LR chi2	13.17(*)	16.13(*)
Number of observations	1331	1329

(*) are significant at 5%

Table 3. Logit models

	Model Logit I	Model logit II
Constant	-2.506(*)	-2.615(*)
IMOB	-0.323	-0.378
REMESA	0.594(*)	0.597(*)
TRAB1	-0.437(*)	-0.421(*)
Education level (educat1)	-	0.066
Gender (sex1)	-	-0.128
Marital status(stare_civ2)	-	0.262
Age (agedum2)	-	0.525
Log likelihood	-	-373.626
Pseudo R2	0.0173	0.0214
LR chi2	13.22(*)	16.35(*)
Number of observations	1331	1329

(*) are significant at 5%

To analyse the return intention were built two models for each Probit and Logit regressions. First, I wanted to see if there is any influence over the decision of returning into the origin country only by analysing if the Romanians from Spain where remitting into their home country, if they are willing to return even they have a job in Spain and also they have invested into a home. Secondly, I have introduced to the analyses four dummy variables to see if the main variable are also determined by the socio-demographic variable such as gender, age, marital status and education level.

Given this results, we must consider that the year of data base is 2007, when most of people weren't willing to return, mostly because of the economic boom.

It is obvious that there is more likely to return for the individuals who remit their home and also less likely to return if they have a stable job in Spain. Although not all the coefficients were significant we can say that regarding the socio demographic variables there is no influence on the intention of returning to their origin country, mainly because the 2007 year was highly economical and financial developed.

CONCLUSIONS

We can see that the two most important variables that to remit to their home country and the lack of a job, are statistically significant and confirms the initial hypothesis to return to the country. The question is too small sample of those who want to return (111 cases) as opposed to those who want to stay (1220 cases), because in 2007 the financial crisis has not yet made its effects felt.

It is important that the study considering the intention of returning to be made after 2007, as the intention it has increased with the economic decline of the host countries. Also, the small sample on those who wish to return home makes the results to not provide statistical significant results. However, we observe that the two most important variables, to remit to their home country and not being employed, are statistically significant and confirm the initial hypothesis to return to the country.

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REFERENCES

Andrei, T., Bourbonnais, R., 2008. Econometrie. Ed Economică, Bucharest, pp.

Herm, A, *Recent migration trends: citizens of EU-27 Member States become ever more mobile while EU remains attractive to non-EU citizens*(Eurostat, 2008).

Iglicka (scientific advisor), Barcevičius, Repečkaitė, Žvalionytė *Labour mobility within the EU: The impact of return migration*, Public Policy and Management Institute (PPMI), (Lithuania, 2012)

Kapur D., *Development and Migration-Migration and Development - What comes first?* Social Science Research Council Conference, (New York City and Geneva, 2004).

International Labour Organization (ILO), *A rights-based approach*(2010). Available on: http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_208594.pdf

J.L. Combes and C. Ebeke. Remittances and Household Consumption Instability in Developing Countries. CERDI, Etudes et Documents. Available on: <http://publi.cerdi.org/ed/2010/2010.15.pdf>, 2010.

Predosanu, Zamfir, Militaru, Mocanu, Vasile (Econometric modeling of return migration intention (2007) Available on: <http://www.wseas.us/e-library/conferences/2011/Corfu/ASM/ASM-34.pdf>

Pecican, E. Ș., *Econometrie pentru .. economiști.* , Ed. Economică, (Bucharest, 2007).

Prada E., "Economic development and migration in European Union", The international conference present issues of global economy - 10th Edition 1 (XIII), (Constanța, 2013), pp. 259-264.

SHORT BIO-NOTE OF THE AUTHOR

I have studied Statistics and Econometrics at Bucharest University of Economic Studies, Romania, faculty of Cybernetics, Statistics and Economic Informatics, and I am currently on my last year of Ph.D. studies. My thesis theme refers of the return migration intention of romanian migrants through European Union. Also, I am Assistant Professor at the department of Statistics and Econometrics of the faculty of Cybernetics, Statistics and Economic Informatics and the statistician of a NGO that implements projects financed through the European Social Fund Human Resources Development.