A Regional Analysis of Romanian Migration Determinants

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Abstract

This paper analyses the determinants of Romanian emigration considering two perspectives: first, the perspective of business environment and labour market and, second, the perspective of social and economic conditions. The analysis uses data from National Statistical Institute and Romanian Register of Commerce for all 42 counties of Romania for the year 2011 and consists of three linear regression models whose dependent variable was the total number of Romanian emigrants declared at 2011 Romanian Census. Results have shown that international migration is strongly correlated with national labour policy. The fact that newly created enterprises have a positive influence on migration show that Romanian business environment is not able to offer competitive salaries and/or working conditions.

Keywords

Business environment, cluster analysis, regression analysis, romanian emigration

JEL code

C38, F22, M20, O10, R10

INTRODUCTION

In the first years after the fall of the iron curtain emigration was mainly driven by ethnic considerations. Subsequently, the Romanians started to migrate to Spain, Canada and the United States (Chindea et al., 2008). Once the Schengen visas were removed in 2001 and Romania joined the European Union in 2007 the emigration took off. The main destination countries for the Romanian emigrants were still Italy, Spain and Germany.

Romania is the biggest workers' remittances recipient within the EU and approximately 80% of these funds originate from the EU, of which more than half comes from Italy and Spain (Comini and Faes-Cannito, 2010). These funds make a substantial contribution to balancing negative current account, support national household consumption and represent an important source of foreign exchange. Although their

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level decreased dramatically (in 2012 workers' remittances represented 2% of GDP compared to 5% in 2004), these flows of funds proved to be more resilient than foreign direct investments funds during the recent economic crisis.

Another negative outcome of emigration is faster ageing of population. According to the data obtained from the Romanian National Institute of Statistics in the past 11 years the medium age of the resident population has risen to 40.9 years in 2013 from 37.8 years in 2002, most of the emigrants being aged between 25–64 years. Also, for the first time after 1968 the Romanian total population has fallen below 20 million inhabitants. Until 2009 the decrease of inhabitants occurred in proportion of 75% due to emigration and 25% due to the negative natural increase, which after 2009 became the most predominant factor.

Ratha (2013) observes that the number of registered foreign citizens in 2012 was about 100 thousands, approximately 0.5% of the total population. From the data obtained from the Romanian Immigration Office most immigrants come from Moldavia, Turkey, Italy, Germany, France and China. Albeit this, from 2010 to 2013 immigration in Romania rose by 4.8 %, the biggest increase in Eastern Europe and Central Asia (Ratha et al., 2013).

The remainder of the paper is organised as follows. Section 1 summarizes some of the literature on migration and section 2 presents the method and data used for analysis. In section 3 it is described the econometric analysis along with main empirical results, while in the last part of the paper are summarized the results and draw conclusions of this analysis.

1 BRIEF LITERATURE REVIEW

The literature on determinants of Romanian migration to Europe reported by the Romanian NUTS 3 regions is scarce. Most of the studies that deal with regional aspects of migration refer to internal migration, for example, using panel data technique Bunea (2012) tried to investigate on the potential determinants of internal migration in Romania using county data for the period 2004–2008 (NUTS 3 level). The dependent variable used was gross migratory flows from the origin country to the destination, while the independent variables consisted of: real GDP per capita, unemployment rate, employment rate, private dwelling rate, degree of urbanization, criminality rate, population density, amenities index, etc. The main results pointed out significant impacts of population size, real gross product per capita, amenity index, road density and crime rate from a static point of view, and significant effects of previous migration ratio, population size and amenity index from a dynamic point of view.

In another study, Martinho (2011) analysed the determinants that affect the labour mobility in Portugal between 1991–2001 at NUTS 3 level and also tested for conditional convergence. The results of OLS estimates with cross section data show that for the level of NUTS 3 and for years considered, the evolution of net migration is explained solely by the availability of housing. The positive sign of the regression coefficient (as expected) means that higher the rate of growth in the number of houses in a region compared with the average of other regions the higher the labour migration into that region. Also, testing for conditional convergence, the OLS estimates show that there is net migration towards the littoral of Portugal and divergence between the continental regions.

In a related study, Kirdar and Saracoglu (2006) examined whether internal migration in the last decades in Turkey has had any effect on the speed of convergence across Turkish provinces. According to the results, contrary to the predictions of the standard neoclassical theory, for 1975–2000 period, internal migration is not conducive to faster convergence across provinces in Turkey. The authors concluded that one possible reason for this outcome is that marginal returns to capital in most net outmigration provinces and regions are relatively lower than those in the net in-migration provinces and regions in Turkey.

Accordingly, the incentives to invest in capital into net-out migration regions may well be less than those in the net in-migration regions. Poot, Ozgen and Nijkamp (2010) measured the impact of the size, skills and diversity of immigration on innovativeness of host regions. For this purpose they

constructed a panel of data of 170 regions in Europe (NUTS 2 level) for the period 1991–2001. The authors found that an increase in patent applications in a region is associated with (i) net immigration; (ii) the share of foreigners in the population of the region; (iii) the average skill level of the immigrants; and (iv) the cultural diversity of the immigrants. The results show that a 1 percentage point increase in the share of foreigners increases patent applications by 0.23% and similarly, a 1% increase in GDP per capita leads to a 1% increase in patent applications. A population increase by 1% increases patent applications by 0.30%.

Kubis and Scheneider (2007) examined the regional patterns and determinants of migration flows of young women. The econometric analysis of determinants of regional migration flows gives evidence of the importance of labour market, family-related and educational migration motives. Generally speaking, young women tend to choose regions with good income and job opportunities; in addition they seem to be attracted by regions enabling an appropriate balance between family and career. Furthermore the existence of excellent educational facilities is a significant influence for young women's migration. The German internal migration flows of the year 2005 were explored at the NUTS-3 regional level, i.e. the district level (the sample contained 438 districts).

Focusing on regional unemployment dynamics in Italy over the 1995–2007 period, when a strong flow of out-migration from the South to the North occurred, Basile, Girardi and Mantuano (2010) tried to find out if interregional migration equilibrates regional labour market performances. The panel data results (estimation method of two-stage least square/generalized method of moments) documented that migration flows exerted a strong negative effect on regional unemployment growth rates. In order to assess the effect of migration on regional unemployment disparities in local labour markets, the authors used longitudinal data for 103 NUTS3 Italian regions and four periods (1995–1998, 1998–2001, 2001–2004 and 2004–2007) to construct the dependent variable which measures the three-year dynamics of the provincial unemployment rate.

Using small Italian regions (i.e. provinces) Bratti and Conti (2014) examined the causal effect of foreign immigration on innovation during 2003–2008. Using instrumental variables estimation (based on immigrants' enclaves), they found that the overall stock of immigrants did not have any effect on innovation. However, decomposing the overall effect into the contributions of low and high-skilled migrants shows that an increase of 1 percentage point in the share of low-skilled migrants on the population reduces patent applications by about 0.2 %. By contrast, the impact of high-skilled immigrants on innovation is positive, in line with the previous literature, but cannot be precisely estimated. The dataset contained information on demographic and economic indicators for 103 Italian provinces (NUTS 3 level) for the 2002–2009. In their study, Liebig et al. (2014) found that recent migration flows have reacted quite significantly to the EU enlargements in 2004 and 2007 and to changes in labour market conditions, particularly in Europe.

In contrast to the pre-crisis situation and the findings of previous empirical studies, there is tentative evidence that the migration response to the crisis has been considerable in Europe, in contrast to the United States where the crisis and subsequent sluggish recovery were not accompanied by greater interregional labour mobility in reaction to labour market shocks. The OLS estimates suggest that, if all measured population changes in Europe were due to migration for employment purposes – i.e. an upper-bound estimate – up to about a quarter of the asymmetric labour market shock would be absorbed by migration within a year. The number of observed NUTS-2 regions in the EU-27/EFTA and Eurozone estimations was 265 and 167, respectively, with an average of about 1.2 million working-age inhabitants per region for each of the two areas under consideration (Jauer et al., 2014).

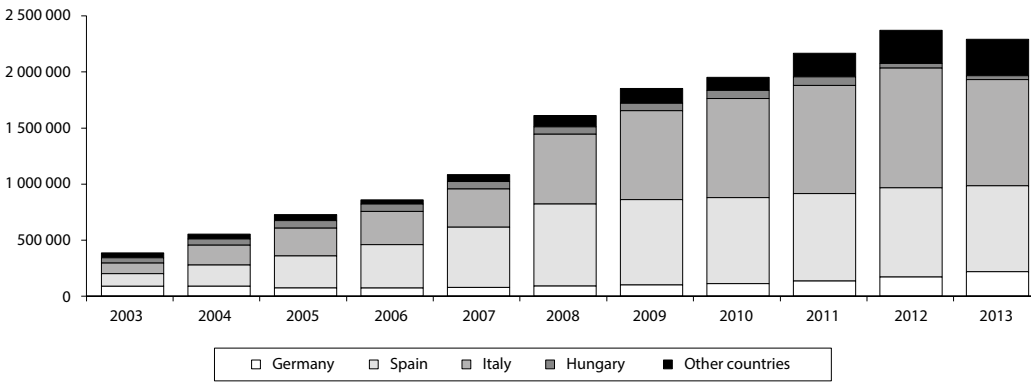
2 METHOD AND DATA

The Romanian citizens represent the biggest foreign community in Italy and Spain. While their number has grown significantly after the Romanian accession to the EU, in the last few years their influx diminished considerably due to the economic and financial crisis. However, according to data obtained from the Italian

National Institute of Statistics, in 2012 the Romanian immigrants to Italy (82 thousands) outnumbered the number of Romanians that left the country (9 thousands), mainly because of the registration policies on migration in Romania which generate inconsistent and non-harmonised data. Also, the Romanians immigrants represented the most mobile foreign community in 2012 (i.e. 64 thousands Romanian immigrants changed their residency across Italy, 18% more than in the previous year). Against this background at the beginning of 2013 in Italy were 951 104 registered Romanian immigrants.

In the past few years due to a high level of unemployment and poor economic conditions Spain became an emigration country. According to data obtained from the Spanish Statistical Office, during 2012 and 2013 more Romanian citizens emigrated than immigrated in Spain, the number of Romanian immigrants reaching 730 340 at the beginning of 2014, with 5% less than in the previous year.

Figure 1 The evolution of Romanian migrants stock within the EU



Source: Eurostat

The data from Figure 1 should be treated with cautious due to the fact it refers only to the registered Romanian citizens across EU Member States and data is missing for some of the countries (e.g. France). On the other hand, according to data obtained from the last census (2011) the number of Romanian emigrants across the World is around 2.3 million persons, a figure well below data obtained from the World Bank and Eurostat.

There are many studies that discuss the determinants of migration regarded from multiple perspectives such as economic or social issues, if macroeconomic determinants of migration are considered. Heid and Larch (2012) showed that migration negatively influences unemployment rate by analysing a panel data set of 24 OECD countries from year 1997 to 2007. Goschin and Roman (2012) showed that there are a series of factors that trigger people to migrate, the most important being that people react positively when they get a better paid job.

In order to analyse what are the main determinants of Romanian emigration the method used was Ordinary Least Squares Multiple Regression Analysis estimated with Stata 12.1, and represented mathematically as:

$$Y' = \varepsilon_i + \alpha + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \beta_3 \cdot X_3 + ... + \beta_k \cdot X_k \quad (1)$$

where: Y' is the endogenous variable;

X_k are the exogenous variables;

ε_i is the error term;
α is the constant term.

The data used in our analysis was provided by the Romanian Register of Commerce and by the Romanian National Statistical Institute (INS): the tempo on-line database and data obtained from the 2011 census. All the variables included into analysis are for 2011, so as to match census data.

The 2011 census offers two types of variables, each at the county level:

- temporary international emigration (referring to the total number of Romanians left abroad for less than one year);
- long term international emigration (the total number of persons established abroad for a period greater than one year).

The sum of these two variables as total international emigration registered in 2011 was also included in this analysis.

A survey conducted by Stoiciu et al. (2011), that had the purpose to determine the impact of the economic crisis on Romanian emigration, determined that the main reasons for Romanians to migrate were finding better jobs and the socio-economic situation in Romania. Therefore, emigration determinants were analysed from the perspectives concerning the labour market and social conditions in Romania.

Considering that there are some limits regarding available data, the following variables were chosen:

- Gross Domestic Product per capita as a measurement of development of the county;
- rate of employment for emphasizing the importance of the lack of jobs on people's decision to migrate;
- retirement income which is not included into social protection expenditures;
- social protection expenditures for unemployment (as % of GDP) that includes unemployment benefits, expenditures on professional training, amount paid to employers who have hired graduates for indefinite period;
- newly established enterprises as a sign for the Romanian business environment and also for the labour market;
- inhabitable area regarding social conditions, which is a variable computed as:

$$\textit{Inhabitable area} = \frac{\text{The living area built (mp)}}{\text{The stable population in Romania (number of persons)}}$$

The selected variables are for all 42 Romanian counties, in order to show how the Romanian economic system influences migration at a regional level.

Cluster analysis was also included for total migration variable using the dendrogram to design a cartogram of Romanian emigration. Ward's method or Ward's linkage were used, that is based on the sum of least squares of each cluster and selects clusters that minimize the increase of the sum of squares errors (Ward, 1963).

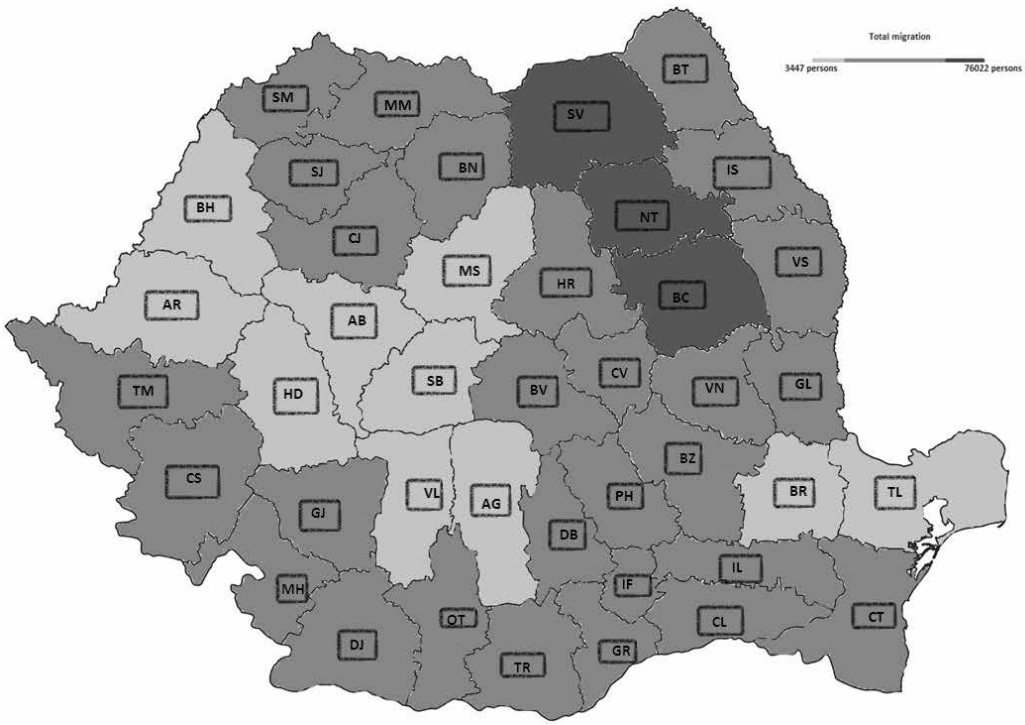
3 EMPIRICAL RESULTS

Based on the data provided by 2011 census an emigration cartogram was designed based on dendrogram analysis of the total migration variable in order to observe whether there are any differences regarding migration between the counties of Romania and pinpoint similarities across regions. Cluster analysis was used for its descriptive nature regarding total migration in Romania.

From the cartogram, designed after the cluster analysis using the Ward's method on the total international migration, it can be can conclude that most migration comes from both poor and rich regions

of Romania and that the level of development, usually measured by GDP per capita, of a county correlate at national level with migration moderately. Not all of the poor regions have the propensity to migrate, for example counties as Mehedinți and Călărași where low GDP per capita does not concur with a high number of people who emigrate. Although, it can be observed that the top migration region are Moldova, Nord-West and Nord-East development regions, well known for the poor living standards compared with the rest of the country and also confirmed by the GDP per capita level.

Figure 2 Romanian international migration cartogram



Source: Authors design based on dendogram analysis usign data from Romanian Census 2011

Secondly, our main concern was to measure the effects of labour market and social factors on Romanian emigration. Therefore, linear regression to explore the relation between migration and a series of variables offering information regarding its direction and intensity was used.

The analysis was focused on three regression models. The dependent variables were extracted from the 2011 census: short-term and long-term migration and the total number of Romanian emigrants which was obtained by summing up the short-term and the long-term migration. The regression models results regarding short-term and long-term migration show that there are differences with respect to employment rate and social protection expenditures. Also, the employment rate, in the case of long-term migration model is not statistically significant whilst the social protection expenditures variable is not statistically significant in the case of short-term migration model.

For the third regression model which has total migration as a dependant variable the employment rate and the social protection variables become statistically significant. The results show that Romanian

emigration is mainly driven by the labour market conditions; i.e. the higher the demand of jobs the lower the emigration rate. Also, the results show that the higher the social protection expenditures the lower the emigration rate.

Labour market conditions are the main reasons of migration, as the rate of employment and the benefits granted to unemployed persons have a strong negative impact on migration. Also, the rate of employment has a negative impact on migration which confirms the new economics of migration theory (people migrate for maximizing their incomes by finding a better paid job). As for retirement income it can observe that it has a positive impact on migration, so people will tend to migrate even though the retirement income will increase. This fact can be interpreted twofold: first, due to the low retirement income and secondly, as it is well known, the retirees persons are not usually migrating and they are a continuously growing number in Romania which will reach to an extent that the social system will not be able to cope with this demographic evolution. So this has an effect on emigration of the young due to social protection for retirement income. a variable regarding the influence of inhabitable area rate over migration was also included in our analysis. The results of this variable were not statistically significant.

Table 1 OLS for labour market factors

	Temporary international migration	International Migration on long term	Total Internatinal Migration
Constant	– 3 059.250	–1 172.628	–4 231.878
GDP per capita	–1.166***	–1.094**	–2.260***
Retirement income	29.705**	66.451**	96.156**
New enterprises	2.425***	4.130**	6.555***
Rate of employment	1 562.513	–125 979.984*	–124 417.470*
Inhabitable are rate	1 150.723	2 225.633	3 376.357
Social protection expenditures (for unemployment as % of GDP)	–19 256.827***	–12 289.279	–31 546.105*
R Square	0.454	0.403	0.478
Durbin-Watson	2.529	1.992	2.311
F	4.703***	3.828***	5.191***
Observations	42		

Significance: ***p<0.01; ** p<0.05; * p<0.10.
Source: Processed by authors using data provided by INS

Even though new companies are created, Romanians will still tend to migrate. This can be explained by the fact that the Romanian business environment is not competitive enough to offer a reasonable income and better working conditions that can decrease emigration in a sustainable manner.

The result of the regression models as well as the cartogram have been obtained by using SPSS 16 software.

Regarding the fit of the three regression models it can be observed that F statistic is significant for all the models. With respect to Durbin Watson, the residuals are not auto correlated for the short-term and long-term migration models, whilst for the total emigration model there is no evidence of no autocorrelation or positive or negative autocorrelation.

Analysing the results of the R2, the independent variables influences the variation of the dependent variable in proportion of 40%, the biggest influence being observed on total migration (47.8%). Therefore, it can be concluded that the labour market conditions in Romania are the main determinant of Romanian emigration.

CONCLUSION

Migration is and will be a major concern among researchers. The analysis regarding Romanian emigration concerns the factors that determine Romanians to emigrate. An OLS model referring to the business environment, labour market conditions, and living conditions in Romania was employed.

The results show that the business environment has serious shortcomings, so even though new companies are being created, the labour conditions and the wages offered are not sufficient as expected and people will further tend to migrate from Romania. Also, another factor that might influence Romanian emigration is the lack of housing, which shows that the low incomes obtained in the country are insufficient for investing in real estate. The cluster analysis shows that the influence is stronger for the East part of Romania.

As a final conclusion, the Romanian Government should promote new strategies to improve the labour market conditions and bolster competitiveness of the business environment. Only starting up new businesses does not retain people in their own country. Also, one should consider that on the long term an immigration policy should be put in place in order to attract either skilled labour force from other countries or to create incentives for return migration (re-migration). This policy will have to overcome the brain drain and the demographic dynamics that negatively influence the pension system.

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