

Return migration in an economic crisis context. A survey on Romanian healthcare professionals

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Abstract. The international migration of health professionals is for the last decades an issue that affects many developing countries, rising in some cases alarming consequences and inequalities in health services distribution. Romania is also confronted with this phenomenon, which started to appear more and more often on the political agenda of decision makers, but the issue of migration of young people from top areas as medicine has not been sufficiently addressed. In this context, the scope of our paper is to provide a profile of migrant health professionals from Romania and to assess their intentions to return home. To this aim we have conducted an analysis based on a dataset produced through our 2010 online survey on Romanian migrants. The findings of our paper raise concerns regarding the return migration of health care staff, only 24 % of the interviewees being willing to return at some point in the future to Romania. Our approach takes into account the differences between doctors and nurses and the study revealed that nurses are more willing to return to homeland compared to doctors. The demographic characteristics of migrant health professionals, such as age, gender, family status, are similar to those of Romanian migrants, but this particular professional category is characterised by higher income and more developed human capital.

Keywords: emigration, health professionals, economic crisis, Romania

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1. Introduction

The international migration of healthcare professionals from Eastern European and African countries to Western European countries or USA is well documented. As regards Romania, lacks a rigorous analysis regarding the international migration of health care personnel.

During the last decade, but mostly after 2007 when Romania became a European Union's member, there has been a major out-flow of physicians and nurses to certain countries that allowed them to being hired without requiring additional medical exams. Health care is therefore one of the sectors of the labor market severely affected by external migration. Thus, Romania ranks first in Europe, followed by Ireland, in the number of migrant doctors.

According to the president of The Romanian College of Physicians, prof. dr. Vasile Astarastoaiie, in the last six years have left Romania more than 20,000 medical specialists, whose tuition costs raised to over 226 million euro (CMR, 2013). Although in most cases it is not a permanent migration, but a temporary one, triggered by poor wages in this area of employment, it is nevertheless a major loss for society. On one hand, the lack of medical personnel is affecting the availability and quality of health care services in Romania and on the other it represents loss of the money invested in human capital formation. Despite emigration of medical staff being a matter of concern frequently discussed in media and within medical associations, Ministry of Public Health and other public authorities don't have a specific strategy aimed at addressing this issue.

Several studies concerning the brain drain have been conducted in Romania, but there is to date no systematic assessment of the magnitude of the phenomenon, and the issue of migration of young people from top areas as medicine has not been sufficiently addressed. In this context, the scope of our paper is to provide a profile of migrant health professionals from Romania and to assess their intentions to return home. Our contribution to the existing literature is underpinned by new data, generated through the online survey on Romanian migrants that we have conducted between July 22nd and December 11th 2010, in the context of the economic crisis. The database contains a variety of information on Romanian emigrants worldwide, including their intentions to return home.

2. Literature review

Migration of health care professionals is largely recognized as a major problem of the health sector in many developing countries (Bach, 2003). This phenomenon had also severely affected the former communist countries in CEE, following their EU accession and consequent recognition of national medical studies. Therefore, this topic attracted a lot of interest and empirical research on the increasing medical emigration flows from Eastern to Western Europe (e.g. Balaz et al, 2004; Buchan, 2005; Buchan and Perfilieva, 2006; Wiskow, 2006; Garcia-Perez et al, 2007; Gerlinger and Schmucker, 2007; Krieger, 2007; Boboc et al, 2011; Driouchi et al, 2012).

Factors driving migration have been identified in the literature as either "push" (rejection) factors that cause migrants to leave their country of origin, or "pull" factors that attract migrants to the host country. The migrants might be „pulled“ by prospects of higher wages, better working conditions and career opportunities, grants/scholarships, medical knowledge differentials, advanced medical training and increased standard of living. Sometimes direct recruitment¹ is made by organisations from developed countries (Buchan et al, 2003). The main push factors indicated in the literature are economic and sometimes politic and social insecurity, low educational opportunities, poverty, unemployment, etc.

Developed countries that have medical personnel shortages can benefit from migration inflows, while sending countries might face problems related to decrease in health care workforce (Buchan and Perfilieva, 2006), especially when migration is permanent.

In the same register, the problem of doctors' out-migration has been addressed by Boboc et al. (2011), who identified its determinants (such as better medical education abroad, the desire for higher incomes, safety and better prospects for the family, etc.), as well as the negative implications on the country of origin.

Empirical research also stressed the obstacles faced by migrant health care personnel. They are often treated as outsiders and may find hard to be integrated in the established work groups, frequently being assigned to peripheral positions (Raghuram & Kofman, 2002). Also, cultural differences and weak language skills can be significant barriers to their medical practice in the destination country and they might need a lot of time and effort to adapt to new standards and procedures and to integrate into the professional structures in the destination country (Simmgen, 2004).

¹ For instance UK and Germany conduct a policy of active international recruitment.

Some positive effects may also occur in the country of origin, such as knowledge transfer via return migration. Such benefits might also become significant since temporary migration tends to increase. Remittance inflows are another positive result of migration (Dustmann and Weiss, 2007).

Researchers found difficult to draw a general profile of the health care migrants, as they differ considerably in purpose and duration of their stay abroad, their countries of origin and destination, specific qualifications and experience acquired, employment in private or public sector, age, family status, etc. Moreover, insufficient or unreliable data and frequent data gaps in long time series limit the research (Buchan and Perfilieva, 2006).

In Romania, migration of health care professionals is usually analyzed in the broader context of the brain drain phenomenon. The size and implications of external migration, which has continuously increased since the opening of borders in 1990, and especially the consequences of skilled out-migration, has made it a matter of general interest for the Romanian society, fueling extensive empirical research. Romanian researchers focused on the determinants, aims and effects of migration (Constantin et al, 2004; Silas and Simina, 2008; Roman, 2010; Sandu 2010; Soros Foundation Romania, 2011; Goschin and Roman, 2012; Roman et al., 2012), as well as on return expectations (Serban, 2009; Goschin and Roman, 2012). Some studies have shown the existence of a negative correlation between the rate of return migration and migrants' education level (Sandu, 2005; Ghita et al., 2007; Roman and Goschin, 2012).

Analyzing long-term brain drain, Zaman and Sandu (2004) found a decline in the share of physicians and pharmacists in total highly-educated emigration: from 15.5% in 1980 to only 9.9% in 2000.

Ailenei D. et. al (2007) developed scenarios for loss of manpower and human capital in Romania, based on patterns of migration and showed that brain-loss - brain-win ratio is disadvantageous for Romania, not only in terms of quantity but especially quality.

More recent research on Romanian migration emphasized the existence of “a fourth wave of Romanian migration” (Alexe, 2011), characterized by “the labour mobility of professionals in the context of the economic and financial crisis which seems to form the bases for the migration of qualified and highly qualified personnel”. The migration route does not seem to be circular, as was the predominant route of the previous migration waves and “the attitudes and values of this new category of migrants do not seem to be the same with those of

medium, low or unskilled workers". The doctors' migration can also turn into permanent migration, much easier than the migration of the previous waves.

Rotila (2008) describes the consequences of medical brain drain considering that "this phenomenon affects the Romanian society's need for a functioning health care system capable of ensuring quality health care services". It also generates losses of financial investment made in the training of departed staff and losses of important human resources, the training of which takes several years. At the same time, he identifies several side-effects of health care migration, connected to the knowledge transfer within the health system, such as: a decrease in the training capabilities of the new generation or a reduction in the exchange of experience between generations. One important effect that is worth to be mentioned is the overloading of the staff remaining in the country with extra tasks, which affects the quality of medical services and also might lead to an increase in migration trends. On the opposite, the effects of migration are positive in destination countries, connected with "the resolution of staffing problems without the need for extra efforts by the state or private institutions to put together the resources to train this type of staff".

Vlădescu et al. (2008) analyse the high rates of emigration, especially among young physicians and stress the need for a national strategy in order to keep the human resources from health sector in the country.

In a recent book published by researchers from Bucharest University of Economics (Roman et al., 2012) an entire chapter is dedicated to the analysis of brain drain that accompanies Romanian and international migration, based on a online survey on 1514 Romanian emigrants. Special attention was paid to highly skilled occupational categories, namely doctors, engineers, economists and teachers in the context of return migration only a small percentage of skilled migrants in the sample acknowledged the intention to return home.

Based on a qualitative study, Vlădescu et al (2008) found the following motives for medical professionals' emigration: differentials in wages, and also in living and working conditions; professional development or career opportunities; the social status of health professionals; better living conditions for the family, insecurity. In the same register, Rohova (2011) indicated some barriers facing the Romanian medical migrating professionals: poor language skills, low financial resources, difficulties in adapting to a new and very different working environment and even fear of changes and risks. Additional elements, such as family and the friends, the ongoing career and patriotism were mentioned as factors that restrain emigration propensity.

Data on the out - flows of Romanian health care personnel are incomplete and of poor quality, and the development of complete and reliable information is required (Galan et al, 2011). Romanian health care emigrants seem to prefer EU developed countries such as France, Italy, Belgium, UK and Germany, as well as USA and Australia. Some of these countries are actively engaged in recruitment of medical staff from abroad (Vlădescu et al, 2008).

Through its dimensions and implications, Romanian migration, including the migration of medical personnel, recently attracted the interest of foreign researchers: for example Driouchi et al (2009), De Sousa and Duval (2010), McMahon (2011), Rohova (2011) and the recent report of the National Institute for Economic and Social Research in the UK on the potential impact of immigrants from Romania and Bulgaria (2013).

3. Insights on the Romanian healthcare system

Although entirely public, the health care system was inefficient in communist Romania, as it lacked investments and adequate medical supplies, equipment were obsolete and salaries were very low, generating the practice of patient “out-of-pocket payment” to medical staff.

The Romanian healthcare system was reorganized, but continued to experience difficulties after 1990. These were caused by insufficient funding, weak management and workforce shortages determined by massive emigration of the medical staff, especially after 2007, when Romania accessed in EU. The quality of primary care remained low, medical equipment and drugs were often in short supply and both social and regional inequities regarding the access to health care services increased (Vlădescu et al., 2008).

During the 1990s, a new decentralized healthcare system had been built. New regulations issued by the Ministry of Public Health introduced the National Health Insurance Fund, the “family doctors” as private practitioners, and a new private health sector. The main reforms targeted primary health care, decentralization and improvement of managerial capacity. Financing, payment and management in the health care system have been changed, as well as medical training, aiming at more efficient and inclusive health care services. However, this target has not been achieved yet, owing to insufficient resources, low managerial capacity and frequent changes in the sector.

Resource constraints remained a problem for the public health care system during the transition period and even in the strong economic growth period during the 2000s. Despite recent growth in health expenditures and their share in

GDP, they are still very low. Romania spent annually 5-6 percent of GDP on health care during 2000-2010, compared to the 10-11% EU average in the same interval (Eurostat, 2013). Although per capita health care expenditure increased from 129 euro in 2003 to 310 euro in 2010, Romania is still on the last place in EU (appendix 1). The health status of the Romanian population worsened during the transition period and, despite some improvements in the last decade, it remains well below the EU average.

The health care infrastructure didn't improve much after 1990. A few new hospitals (only some of them private) emerged, but the number of beds decreased and most medical equipment is obsolete in the state-owned units, despite some recent investments. The private sector owns modern and more advanced technology.

The unbalanced territorial distribution of health facilities and professionals is another important problem of the Romanian health care system. The medical staff is numerous in the developed zones, especially large cities with universities, while in the poor rural areas shortages of health care professionals have become chronic.

Romanian health care staff is classified as follows: doctors (including dentists), nurses, pharmacists and auxiliary staff. Lacking a medical workforce strategy, the faculties determine the numbers of specialists based on their training capacity. The past two decades showed there is a constant deficit of medical personnel, especially physicians and nurses, at different levels of the health care system.

The number of Romanian physicians was relatively stable on the long-run, varying from 39000 in 1990 to 41000 in 2011 (see appendix 2). The number of nurses was on a step downward trend since 1990, declining from 125000 in 1990 to 98000 in 2011 (appendix 2), due to emigration and outflows from the health sector caused mainly by their low salaries. Another cause of dissatisfaction is their low social and professional status, as nursing professionals are considered to be doctors' assistants and not independent health workers.

Persistent problems in the health care system and low salaries of the medical staff, placed well below the national average, are fueling increased emigration. Other important motivations for leaving the country are "professional dissatisfaction, poor staff morale" (Vlădescu et al, 2008). Out-migration of Romanian medical personnel was facilitated by mutual recognition of diplomas within EU. Bilateral agreements regarding recognition of qualifications for nursing professionals favored nurses' emigration prior to other medical staff. Since 2007,

following accession to EU, the diplomas of Romanian doctors were also accepted in EU, triggering increased emigration of the physicians. Moreover, countries such as France, Germany and UK are actively recruiting medical professionals. Consequently in Romania there is a deficit of workforce in all healthcare categories, mainly for physicians and nurses.

Scarce and unreliable data make impossible a correct appraising on the number of medical staff working abroad. Estimations vary widely: according to the Ministry of Health there were 2.012 persons in 2004, but Garcia-Perez et. al (2007) indicates 4.397 persons (over 10% of the total medical staff) in 2005. According to the president of The Romanian College of Physicians, during 2007-2013 more than 20,000 medical specialists left Romania (CMR, 2013). Data on internal migration of the medical staff are unavailable as well, but there are indications that significant in-flows enter the large university cities such as Bucharest, Cluj-Napoca, Iasi, Timisoara.

4. Main characteristics of Romanian emigrant healthcare professionals

The studies on the migration of Romanian health professionals are in a small number and one of the main causes is the lack of statistical data regarding this issue. The data on Romanian migrants is limited as well. There is no official evidence on the number of doctors and nurses that migrate. The Ministry of Health collects data only about health professionals who requested the certificates for mutual recognition of their diplomas within EU. The data show that from 1 January 2007 (date of Romania's accession to EU) to 31 December 2008, 4608 nurses and midwives (3.8% of total) requested the certificate for the recognition of their diploma in the EU. Out of those, only 3525 have received their certificate, the others either were not compliant or dropped the request. It is now known if those receiving their certificates have migrated or not.

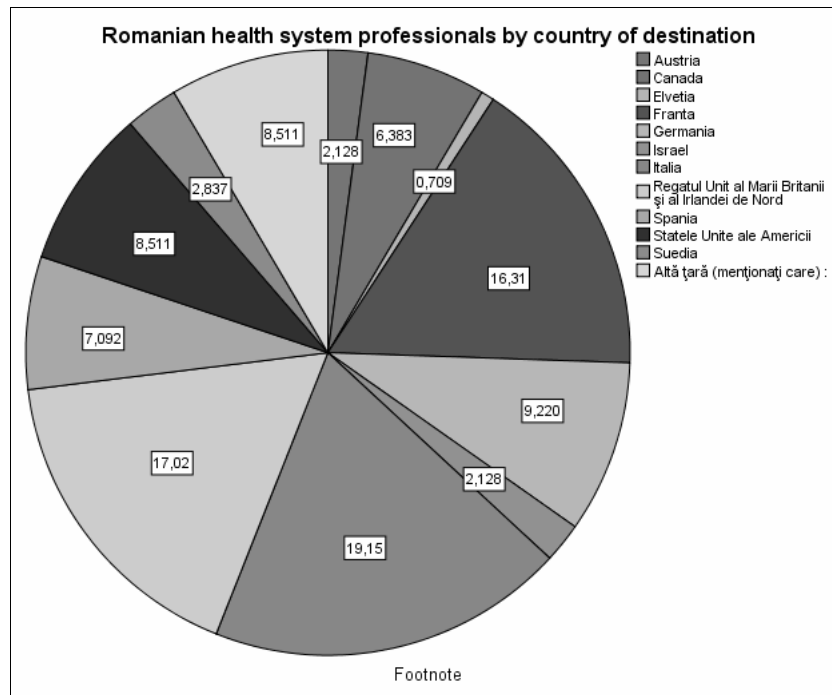
For providing a profile of migrant health professionals, we use data from our online survey: Romanian Emigration Survey (RES). The database contains a variety of information on Romanian emigrants worldwide, including individual characteristics of the migrant, data on income, employment, remittances, regions of origin and destination, educational attainment both in Romania and in emigration country, length of migration and intention to return to Romania, etc.

The migrants employed in health sector represented 9.3% of the sample, meaning 141 respondents. There are differences in migration behaviour and characteristics between doctors and nurses and midwives. The costs of training

are higher for the first category and their qualification level is higher. Therefore we conduct the analysis considering these two distinct professional categories, by dividing the sample into two groups: there are 72 doctors and 69 nurses and midwives and in our analysis.

The demographic characteristics of Romanian migrant health professionals are remarkably similar to those of Romanian migrant population in general. They are young, with an average age of 37 and provide a rather balanced gender distribution, 54% being women. The prevalence of women is more pronounced for nurses (57%) compared to doctors (52%). According to family status 53% of them are married and 8% are cohabitating, so that a large majority is involved in a stable relationship. Less than 30% are single and 8% are separated, divorced or widows. The presence of the children in the family is an important factor that counts for migrants' characteristics and data shows that 55% of nurses and 48% of doctors have at least one child.

Figure 1



Source: processed by the authors based on RES data, 2010

The Romanian migration of health system personnel is rather recent, being in accordance with Romanian migration in general. Doctors have on average 6 years of migration experience, while medium skilled staff has 8 years. The territorial distribution shows a concentration of health care professionals in the countries with large Romanian migrant communities. Therefore in Italy there are 19% while in Spain there are only 7%. Important shares are in the UK (17%), Germany (9%) and France (16%). These European countries are competing in attractiveness with Canada and United States that received 6% and 8% of Romanian migrant health professionals, respectively.

Human capital is, in the case of health professionals, more developed compared to average Romanian migrant. There are a couple of variables in our dataset that reflect such characteristics: the highest education level attended in Romania and a dummy that counts if migrant has taken any courses in destination country. The education level was quantified on a scale from one to 8, 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.

Keeping in mind that Romanian migrants have on average a medium level of education (Sandu, 2010), it seems that migrants from health sectors are higher educated. In our dataset, doctors have an average education level higher than of 6, while nurses have an average level of highest studies of 4.6.

The economic status of health care migrants is evaluated through the level of their current income. Income was described using 11 intervals, with an average of 7.83 for doctors and 5.29 for nurses, corresponding to an average monthly level of 3915 USD and, respectively 2645 USD. At the same time, as regards the remitting behaviour, 58% of migrants remit various amounts of money to their families in Romania, doctors remitting in a slightly large share compared to nurses.

In order to understand the factors that might lead to a return migration in the context of a financial and economic crisis, it is relevant to describe the reasons that initially generated the migrants' decisions to leave their native country.

The **emigrant healthcare professionals** indicated the dissatisfaction about the current conditions in the country (this reason received approximately equal weights, of over 60%, for both groups of emigrants) as the main reason for leaving Romania (Table 1). On the second place there is situated "a better life

expectancy", while the perspective of higher earnings abroad appears only on the third place, with a significantly lower frequency compared to the previous two motives for emigration.

It is noteworthy the desire for professional development as a relevant push factor, while the failure to find a satisfying job is a reason to migrate only for 10% of the respondents.

Table 1. The main reasons for leaving Romania (%) as indicated by the emigrant healthcare professionals in the RES database

	Emigrant healthcare professionals (%)
I'm dissatisfied of conditions offered to me in the country	69.6
Hoping for a better life	65
The opportunity to earn larger amounts of money	46.4
The opportunity to go into another country	42
The desire to assert myself at international level	36.2
I couldn't find a job in the country	10.1
Opportunity to join friends/relatives settled abroad	7.2
Opportunity to start a new business	4.3

Source: processed by authors based on RES database

To conclude, economic reasons, such as migrant's earnings or labor market status, that are usually associated with crisis, are not among the top most relevant factors that explain the decision to migrate in the case of Romanian healthcare professionals. The result is confirmed by the existing evidence in the literature. For instance, in a recent paper, Boncea (2014) conclude that, despite the significant wage gap existing between Romanian healthcare sector and the destination countries, "financial aspect (remuneration) was ranked third among the most important factors" that explain the brain drain.

5. Return intentions of Romanian healthcare professionals: an econometric approach

The workforce employed in health system is one of the most valuable human resources, having a crucial role in any society. The brain drain phenomenon to which Romania was exposed during the last years has dramatic consequences, as they were discussed and reviewed in previous sections of this book.

Therefore, a great challenge for health policy is to reverse the out flows and to attract at least a share of skilled health professionals back to the origin country. In this respect, we focus on the intention to return, a topic even less researched in the case of Romanian health staff. The purpose of the analysis is to find out significant differences between the two professional categories, doctors and nurses, in respect to intention to return, and also to identify the factors that significantly influence this intention.

We are aware that measures for attitudinal intentions are not perfect, but they might nevertheless provide useful information. Intentions to return have a significant effect on remitting in the case of Romanian migrants (Goschin and Roman, 2012) and worldwide (Merkle and Zimmermann, 1992). However, the lack of data on Romanian returnees as well as their small number would be important barriers on a more detailed analysis.

We use a binary logistic regression model in order to identify the impact of various factors on the probability to return to Romania. In our study, the binary dependent variable in the model is whether a person has or not the intention to return, specifically 1 denotes the individual is planning to return in the future and 0 denotes otherwise.

Therefore, the model is defined as:

$$Y = \begin{cases} 1 & \text{individual has the intention to return} \\ 0 & \text{individual doesn't have the intention to return} \end{cases}$$

$p = \Pr(Y=1 | X_1, \dots, X_k)$, where the vector X_i defines the covariates that explained the probability to return, $i=1, \dots, k$.

$$p = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)]}$$

The predicted probability to return is:

$$\hat{p} = \frac{1}{1 + \exp[-(\hat{\beta}_0 + \hat{\beta}_1 X_1 + \hat{\beta}_2 X_2 + \dots + \hat{\beta}_k X_k)]}$$

The regression model will be predicting the logit, that is, the natural log of the odds of having made one or the other decision:

$$\ln(ODDS) = \ln\left(\frac{\hat{P}}{1-\hat{P}}\right) = \hat{\beta}_0 + \hat{\beta}_1 X_1 + \hat{\beta}_2 X_2 + \dots + \hat{\beta}_k X_k$$

where \hat{p} is the predicted probability of returning to Romania, $1-\hat{p}$ is the predicted probability of the other decision and X_i is the vector of predictor variables.

The covariates in our model are the number of children migrants has, the number of years spent in destination country, the highest education level attended, current income in destination country and other three dummy variables, coded 1 if the person studied abroad, if is a nurse and if remits money to origin country.

We apply a backward variable selection and develop 2 models. In the first model there were included 7 covariates, while in the last model we employ only the statistically significant variables.

The econometric models consider migrants' intention to return to Romania as being the effect variable. The models are statistically significant and the significance of Hosmer & Lemeshow test (0.56) proves that the model fits the data. At the same time, the model explains in a good proportion the return intentions across Romanian migrants worldwide ($R^2=0.116$).

Tab 2. Results from econometric models

Variable	Model 1					Model 2				
	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)
Child	0.392	0.238	2.703	0.100	1.480	0.378	0.228	2.744	0.098	1.460
Migration duration	-0.090	0.047	3.731	0.053	0.914	-0.086	0.043	3.883	0.049	0.918
Education	-0.086	0.147	0.338	0.561	0.918	x	x	x	x	x
Studies abroad	0.175	0.451	0.150	0.698	1.191	x	x	x	x	x
Occupation (nurse=1, doctor=0)	0.850	0.510	2.784	0.095	2.340	0.999	0.426	5.485	0.019	2.715
Remitting behaviour	-0.024	0.455	0.003	0.957	0.976	x	x	x	x	x
Income	-0.019	0.079	0.056	0.814	0.982	x	x	x	x	x
Constant	-1.263	1.132	1.244	0.265	0.283	-1.816	0.537	11.452	0.001	0.163

Source: processed by the authors using RES data, 2010.

The results show that the model predicts correctly the probability to return in 76% of all cases. The regression coefficients have the signs in line with our hypothesis, though they are not all statistically significant (Table 2). Demographic characteristics, such as age and gender, do not influence the decision to return. At the same time, human capital described has no impact on intention to return. Migrant health professionals are more educated than the average migrants and they also have taken courses abroad in a large share, therefore they are more adaptable to the new receiving society and have higher incomes.

There are three variables in the first model that significantly affect the decision to return. The first one is a demographic characteristic, namely the number of children the migrant has. The probability to return increases if the migrant has at least one child. Migrant's average age suggests that the children are young and in many cases they could be left home in the care of the family.

Number of years spent abroad has a statistically significant impact on decision to return. The probability to return decreases as the number of years spent in destination country increases, this being a conclusion valid for Romanian migrants in general (Roman and Goschin, 2012). Better integration in the destination country is associated with a lower propensity to return and medical staff is in general better integrated both in host society and in destination labor market.

In line with neoclassical migration theory, according to which migration is a utility maximizing behaviour by individuals, previous evidence found that income usually has a negative impact on migrants' return intentions (Roman and Goschin, 2012). One important result of our research is that income has not a significant influence on intentions to return in the case of Romanian healthcare professionals. This result is in line with our expectations and with the international evidence, considering the wage differentials between the health staff in Romania and in the receiving countries.

Confirming our expectations, the migrant's professional category has a significant impact on the intention to return. Nurses have a higher probability to return to Romanian compared to doctors. The odds ratio in this case is the highest in the model, proving that a nurse would have the odds to return 2.3 higher compared to a doctor. This is a consequence of the different characteristics of the two categories but also of the reasons to migrate and return, which are different for doctors and nurses, as described in section 2 of the paper.

6. Conclusion

The international migration of health professionals is for the last decades an issue that affects many developing countries, rising in some cases alarming consequences and inequalities in health services distribution. During the last decade, Romania was also confronted with this phenomenon, which started to appear more and more often on the political agenda of decision makers. The conclusions of our paper raise concerns regarding the return migration of health care staff, only 24 % of the interviewees being willing to return at some point in the future to Romania. Our approach takes into account the differences between doctors and nurses and the study revealed that nurses are more willing to return to homeland compared to doctors. The demographic characteristics of migrant health professionals, such as age, gender, family status, are similar to those of Romanian migrants, but this particular professional category has a higher income and a more developed human capital. One important result of our research is that economic factor such as income has not a significant influence on intentions to return, in the case of Romanian healthcare professionals.

The brain drain phenomenon needs to be addressed as soon as possible with firm political measures otherwise the Romanian health care system will lose in efficiency due to the lack of personnel and, at the same time, will increase the inequalities in European health care. In the context of the European Union related priorities, current migration processes such as medical labour migration from Romania require specific attention, especially with regard to the impact of healthcare migration on Romanian public health and on Romanian society.

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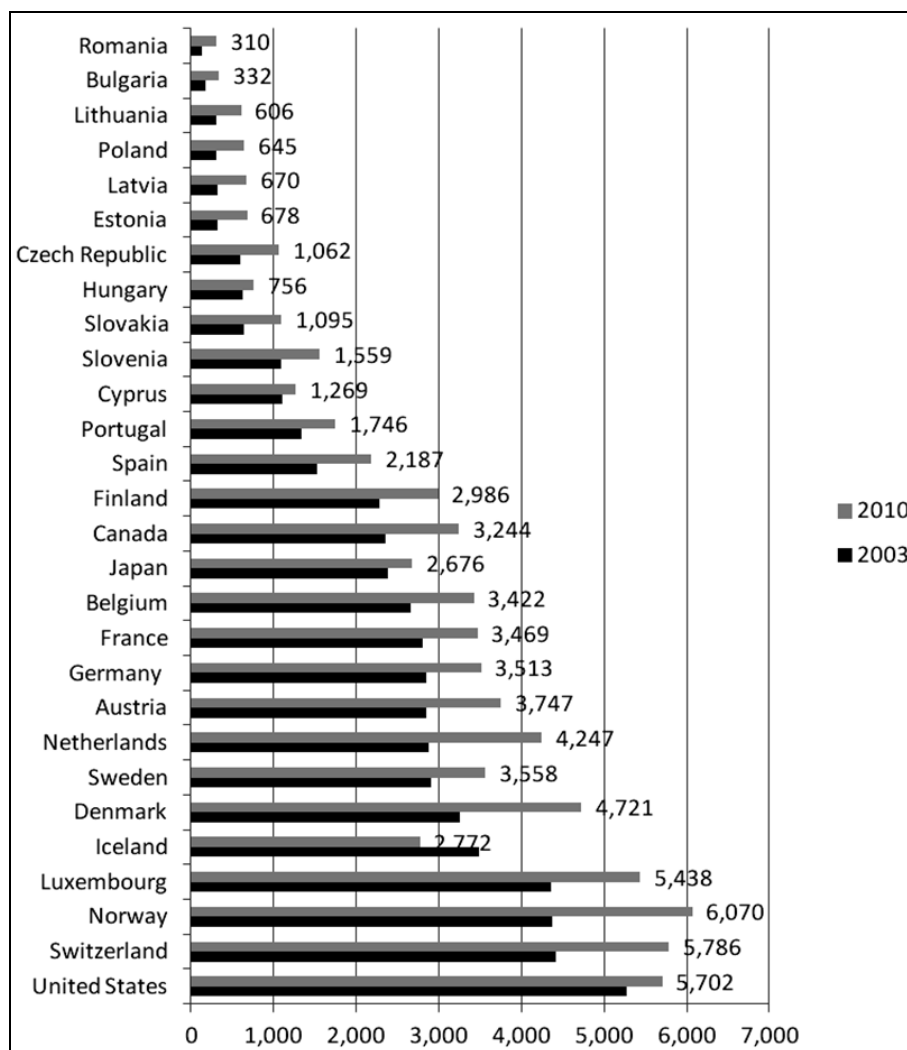
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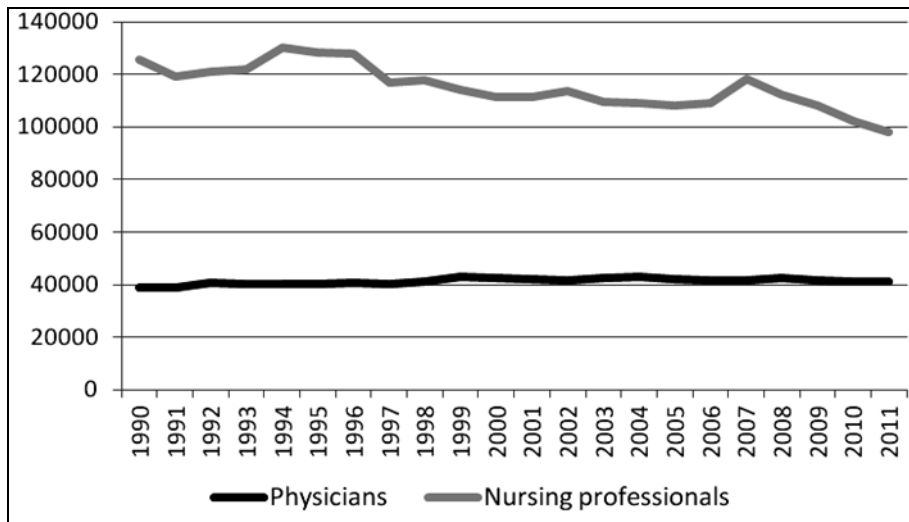
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ANNEXES

Appendix 1. Health care expenditures (Euro per inhabitant) in EU and selected countries



Source: authors' processing based on Eurostat data

Appendix 2. The number of physicians and nursing professionals in Romania, 1990-2011

Source: authors' processing based on data from the National Institute for Statistics

Appendix 3. Characteristics of migrant physicians and nursing professionals in RES database

	Total sample of health professionals N=141					Doctors N=72					Nurses N=69				
	Mean	Std. dev.	Min.	Max.		Mean	Std. dev.	Min.	Max.		Mean	Std. dev.	Min.	Max.	
Age	37.12	8.666	21	62		36.99	8.565	25	62		37.26	8.831	21	59	
Gender	0.461	0.500	0.00	1.00		0.486	0.503	0.00	1.00		0.434	0.499	0.00	1.00	
Years in migration	7.18	7.083	1	49		6.24	6.514	1	35		8.16	7.555	1	49	
Education	5.36	1.596	1	8		6.03	1.233	3	8		4.67	1.642	1	8	
Studies abroad	0.69	0.465	0	1		0.75	0.436	0	1		0.62	0.488	0	1	
Income	6.59	3.187	1	11		7.83	2.926	1	11		5.29	2.936	1	11	
Remitting	0.58	0.495	0	1		0.60	0.494	0	1		0.57	0.499	0	1	
Intention to return	0.24	0.429	0	1		0.17	0.375	0	1		0.32	0.469	0	1	