

PHYSICIANS' MIGRATION FROM ROMANIA. RECENT EVIDENCE FROM ADMINISTRATIVE DATA

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Please cite this paper as:

Apostu, S.A., Roman, M. and Vasile, V., 2020. Physicians' Migration From Romania. Recent Evidence From Administrative Data. In: R. Pamfilie, V. Dinu, L. Tăchiciu, D. Pleșea, C. Vasiliu eds. *6th BASIQ International Conference on New Trends in Sustainable Business and Consumption*. Messina, Italy, 4-6 June 2020. Bucharest: ASE, pp. 768-774

Abstract

A major component of brain drain from Romania is physicians' migration which has significant social consequences, both for origin and host countries. In 2010 over 10 thousand doctors worked only in OECD countries out of 156818 of doctors. The objective of this paper is to describe the recent migration of the physicians from Romania and the main push factors. It is found that: (i) physicians' migration from Romania is determined by remuneration, working conditions and living conditions and (ii) only the increase of wages, up to 2-3 times, without being associated with investments in technology and in the working conditions of hospitals does not fundamentally change the trend of external mobility for work, but only flattens it temporarily.

Keywords

International migration, medical brain drain, Romania, Principal Components Analysis

JEL Classification

C38, F22, R23

Introduction

Today, migration is a "top-tier political issue" (WMR, 2020) and is mainly related to global development, technological, economic and social transformation. 3,5% of the total population are migrants; 2/3 of the 271,6 million are labour migrants (UN DESA, 2019). The migrants' stock from Romania was of 3.57 million people in 2019. The 2017 data from the National Institute of Statistics (NIS) indicate that out of the total stock of migrants over 2/3 there are migrant workers for a period of more than 1 year, with residence in Romania, respectively that 12% of the total population. Most are 25-39 years old (almost 25% of the population in

this age group works abroad) and the average level of training has increased steadily*. Among the skilled migrants most represented in the last decades were the specialists from health, ITC and engineering (Goga and Ilie, 2017).

This research is focused on the analysis of the recent migration of the Romanian healthcare professionals. The hypothesis to be tested is that there is a link between the physicians' propensity to work abroad and some social and economic variables, as push factors. The added value of the research starts from using the administrative database on the professional certificates granted to doctors, as a measure of the propensity for migration; also, new evidence is produced by associating the dynamics of the number of certificates with a series of indicators that reflect the major problems that Romania faces, respectively: a) the number of emigrants (total and at regional level, on counties, to highlight the trend and geography of population loss), b) number of late fetal deaths (as a qualitative measure of the efficiency of the health system, the death rate in Romania being among the highest in Europe); c) the number of hospital beds, as a global indicator of the development of medical services in the hospital system; d) the average wage earning in health and social work activities, which highlights the level of economic development and quality of life and e) the unemployment rate, by which the pressure of the labor market can be measured. The principal components analysis (PCA) was used for identifying the regional factors are associated with doctors' migration.

The paper is of high significance for health policy makers, as the loss of human resources in the health sector for sending countries implies that the health system's ability to provide healthcare is significantly reduced. In the last decade, the migration of health specialists has been represented both by experienced doctors, residents and medical students, and nurses. In this way, the health system is affected, quantitatively and qualitatively, from several perspectives: a) increasing the deficit of employment in the health sector, and reducing the share of experts with experience, through the migration of doctors already employed; b) reducing the potential for rejuvenation of employment and increasing the level of current knowledge, the capacity for innovation and professional excellence through the migration of residents; c) reducing the supply of employment in health services by drastically reducing the number of students in medicine, pharmacy, etc. who wish to remain after graduation in the country of origin.

Literature review

The main reason for physicians' migration differs according to the countries of origin, but the common denominator is the desire to have better working conditions and high-tech equipment, alongside with income. For instance, Hussey (2007) analyzed international physician migration to the United States from all other countries to identify the factors that influence this phenomenon. The results showed that physicians' migration was influenced by GDP per capita in an U-inverse model, most people migrated from countries with middle-income. Other variables that influenced physicians' migration were: absence of medical schools, US migrant networks, English medical instruction, proximity to the United States, and lack of political and civil liberties.

The "brain drain" in the healthcare field has a negative impact on medical services. Kaushik et al. (2008) examined the link between quality of medical education of medical graduates in India and the rate of migration to the United States and the United Kingdom between 1955 and 2002. The share of medical graduates who migrated to the United States and the United Kingdom were calculated based on rankings medical colleges and universities according to three indicators of quality regarding medical education: student choice, academic publications and availability of training medical specialists. The results showed that graduates of medical

* <https://monitorsocial.ro/indicator/situatia-populatiei-plecate-din-romania/>

colleges and universities in the top 5 were 2 to 4 times more likely to migrate to the United States and the United Kingdom than graduates from other colleges and universities. Graduates of higher quality medical institutions are more likely to migrate, so interventions to prevent medical migration should focus on graduates of high-quality institutions. An analysis by Vujicic et al. (2004) showed that wage differences between the countries of origin and the countries of destination are the main factor affecting migration. Other factors, such as working conditions and professional development, had a significant influence on the decision to migrate. The same is true for physicians from Romania - the significant wage disparities attracts health system workers in the countries of destination (Stilwell et al., 2004). Using OECD data, Botezat and Ramos (2020) analyzed the mobility of physicians from several regions around the world and indicated that individuals reacted differently depending the country of origin. The results showed that the factors that significantly influence the medical brain drain are: dyadic factors, lower unemployment rate, physicians' good remuneration, aging population and medical infrastructure in the host country. The Romanian case is not enough covered by the existing literature, mainly due to the lack of reliable data. Relying on a large survey data, Roman and Goschin (2015) identified different triggers for working abroad and returning in the case of medical doctors and nurses. Also Boboc, Boncea and Manea (2015) used panel data analysis for identifying the macro factors that influence the medical brain drain from Romania. Their results show that expenditures in health sector played an important role.

Methodology

The administrative data used in this research originates from the Romanian College of Physicians (RCP), and NIS. The number of doctors having the intentions to work abroad is measured by number of professional certificate released by the RCP. We work under the assumption that a doctor applying for a Current Professional Certificates from the RCP, in the short and medium term, will emigrate for working abroad. The Current Professional Certificate is the document issued at physician request or at the request of the competent authority of another state and contains the relevant personal data regarding the honorability, morality and competence of the physician who holds or has previously held the status of a profession, according to the RCP. The indicator is reported monthly.

In the first step a descriptive analysis was conducted for understanding the dynamics and regional distribution of the medical doctors who intend to work abroad. In the second step, PCA conducted for 2016 and 2018 reveals the factors associated with this movement.

Results

According to the data provided by the RCP, the number of physicians increased significantly after Romania's accession to the EU, and from 2010 decreased, excepting a slight fluctuation around 2015 (Figure 1).

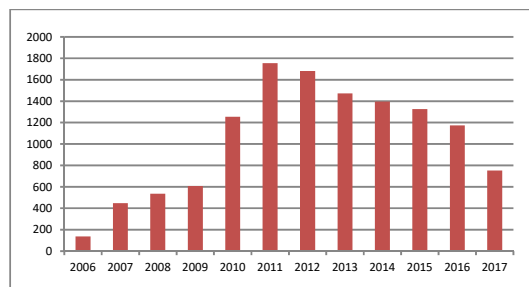


Fig. no. 1 The number of migrant physicians from Romania, 2006-2017

Source: Authors' computation using RCP data

A territorial analysis of the migrant physicians from Romania pointed out that most physicians requested Current Professional Certificates in big university centers. The cities from where most physicians intended to migrate in 2018 were: Bucharest, Timiș, Iași, Dolj and Cluj (Figure 2), areas that concentrate university centers with academic training in the medical field recognized abroad.



Fig. no. 2 Physicians' migration by counties, from 2018

Source: Authors' computation using GeoDa and RCP data

If we report the Current Professional Certificates to the physicians existing in that counties, in 2016 Timiș ranked 1st place (10.13%), followed by Sibiu (6.35%), Bucharest (6.25%), and Iași (5.68%). The share of Current Professional Certificates in total physicians decreased in 2018 compared to 2016, an explanation might be the wage increases in Romania, in 2016 and another significant special increase for specialists in health sector in 2018. The wage base increase was as least with 70%, higher for residents and young physicians (Law 153/2017). In 2016, the main destination countries were France, UK, Germany, Ireland, Belgium and Sweden, and the hierarchy was maintained in 2018, but the absolute values decreased considerably (Figure 1).

Previous studies have shown that the financial factor had the biggest influence on Romanians decision to migrate, so we considered the same hypothesis in the case of physicians. The analysis included variables that characterize the standard of living (average income in health and social work activities, number of migrants from Romania and unemployment rate) and variables describing the working conditions of the physicians (number of hospital beds and number of late foetal deaths).

The PCA was performed for 2016 and 2018 (Figure3). In 2016, the projection of data on the first two principal components preserves 85,27% of the total inertia (65,48% for the first axis, 19,79% for the second axis), while in 2018 the projection of data on the first two principal components preserves 86,14% of the total inertia (73,24% for the first axis, 12,9% for the second axis).

The quality of the results is assessed by Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0,728 for 2016 and 0,731 for 2018) and by the Bartlett's Test of Sphericity (p-value 0 in 2016 and 2018).

Both in 2016 and 2018, the link between the number of CPC, average income in health and social work activities, number of migrants from Romania, number of beds and number of late foetal deaths is direct, and the link between number of migrant physicians from Romania and unemployment rate is inverse. Comparing the two years, it is noticed a stronger correlation between CPC and income in health and social work activities in 2018 than in 2016. This can

be explained by the minimum wage increase in 2016 and the increase of doctors and nurses salaries in 2018. At the same time, the association is bigger between income in health and social activities and the number of CPCs in 2018, which may reflect a decreased influence of income on physicians' decision to migrate.

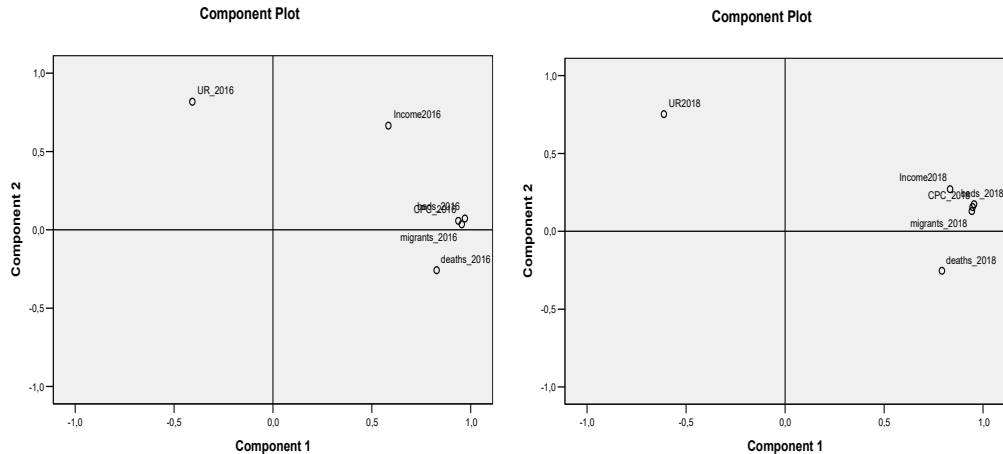


Fig. no. 3 PCA of migrant physicians from Romania, 2016 and 2018

Source: Authors' computations

Even though the physicians' wages increased in 2016 and 2018, the factors that influenced Romanian physicians' decision to migrate remained the same: the standard of living and working conditions, but the influence of the average income in health and social work activities decreased. The wages, although substantially increased, are still several times lower compared to those of the developed countries of the European Union and do not compensate for the negative externalities generated by the former two push factors mentioned above.

Conclusions

Both the accessibility of health services and health services quality are significantly influenced by physicians' migration in Romania. Analyzing this phenomenon in Romania, it was identified that during the last three years, the physicians who requested Current Professional Certificate in order to migrate from Romania decreased, one reason might be the salaries increase in 2016 and 2018.

The counties where most physicians requested Current Professional Certificate were: Bucharest, Iasi, Timis and Cluj, four big counties with big university centers. Also, according to administrative data, most preferred destinations for Romania physicians are: France, UK, Germany, Ireland, Belgium and Sweden. Analyzing the factors correlated to physicians' migration, the results identified a direct association between Current Professional Certificates, average income in health and social work activities, number of emigrants, number of hospital beds and number of late foetal deaths; there is an inverse correlation between Current Professional Certificates and unemployment rate. This suggests that physicians' migration is determined mostly by factors that reflect working and living conditions. Wages, as a migration push factor, decreased in intensity after substantial salaries augmentation in healthcare sector in 2016 and then in 2018, but still remains as a complementary factor for external labour mobility.

The results from our descriptive analysis may be the starting point for further, detailed research. Applying for a professional certificate is a clear sign of an intention for working abroad and should be considered as a warning indicator for policies to support the

development of the medical system - from investment in equipment and infrastructure development, to wage policies based on performance and reward excellence in the medical act.

Acknowledgements

This paper was co-financed from the Human Capital Operational Program 2014-2020, project number POCU / 380/6/13/125245 no. 36482 / 23.05.2019 "Excellence in interdisciplinary PhD and post-PhD research, career alternatives through entrepreneurial initiative (EXCIA)", coordinator The Bucharest University of Economic Studies".

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