Brain drain from Romania: what do we know so far about the Romanian medical diaspora?

Alina BOTEZAT[*], Andreea MORARU[**]

Abstract

In recent years a considerable amount of attention has been directed to the migration of tertiary educated people. Social scientists are interested in the brain drain phenomenon, in order to understand the positive and negative effects of highly-skilled migration in the sending countries. This paper examines physician migration in Romania, a country which records in Europe one of the largest stocks of emigrated medical doctors in the last few decades. Using data from official statistics, a survey carried out among Romanian medical doctors who have migrated, as well as innovative data from LinkedIn, we provide detailed evidence on the emigration flows and trends of Romanian physicians in terms of destinations, specialties and time frame of emigration. In addition, our study sheds light on the underlying reasons for migration and on difficulties encountered in the destination country.

Keywords: migration, physicians, Romania

Introduction

Over the past few decades, an increasing number of health professionals from Eastern and Southern Europe have migrated to wealthier Western and Northern European countries (OECD, 2016; Botezat and Ramos, 2020). This exodus of medical doctors has led sending countries to raise concerns over the negative effects of this process on their healthcare systems, particularly for those regions facing shortages of medical doctors. The phenomenon of physician migration has sparked a debate, particularly in countries where medical training is subsidized by public funds, about the loss of investment in medical education in the case of those who migrate immediately after graduation (Kirigia *et al*., 2006; Rutten, 2009; Mills *et al*., 2011). However, Clemens (2011) argues that a few years of practice after graduation in the origin country would be enough to fully recover the medical training costs.

[*] Alina BOTEZAT is Senior Researcher at the 'Gh. Zane' Institute for Economic and Social Research, Romanian Academy, Iași Branch, Romania; e-mail: botezat.alina@yahoo.com.
[**] Andreea MORARU is Student at the Alexandru Ioan Cuza University of Iași; e-mail: moraru.andreea@yahoo.com.

Part of these costs could then be partially compensated through remittances, even though, in the case of highly-skilled emigrants, the amount of money sent back is rather low (Rutten, 2009). Medical doctors, as well as other categories of highly-skilled migrants, are more likely to leave the country permanently and, consequently, remit less than temporary migrant workers (Rutten, 2009). Furthermore, they usually come from higher income families, where the need for remittances is rather low.

The emigration of medical doctors might have also a negative effect on various health outcomes in the sending country. Bhargava *et al*. (2011) and Chauvet *et al*. (2009), e.g., argue that medical brain drain has a negative impact on child mortality. Bhargava and Docquier (2008) reach a similar conclusion in the case of sub-Saharan African countries, that physician migration is negatively correlated with adult mortality rates.

Aside from the negative effects of medical brain drain, recent studies in both Economics and Sociology have highlighted the positive impact of highly skilled emigration on human capital formation in the sending countries. Economists have found that migration prospects increase the incentives of both movers and non-movers to acquire more schooling at home (Docquier and Rapoport, 2012), particularly in countries with relatively low levels of human capital and low-skilled emigration rates (Beine *et al*., 2008). Subsequently, the emigration of the highly skilled may have a positive effect on human capital formation. Particularly in the case of medical students, the decision to study medicine may have been influenced by emigration prospects after graduation. As shown by Chojnicki and Oden-Defoort (2010) and Kangasniemi *et al*. (2007), migration prospects increase the incentives to pursue a medical education, the effects being larger especially for those coming from low-income countries (Beine *et al*., 2001; Beine *et al*., 2008).

Sociologists, in turn, point out that migration prospects differentially shape an individual's aspirations and capabilities to move abroad. Among those who aspire to migrate, only some will have the ability to do so (Carling, 2002; De Has, 2010). Within this 'aspiration and ability' framework, recent studies reveal that students originating from families with high economic, social and cultural capital are more likely to study abroad (Netz and Finger, 2016; Bahna, 2018). This, in turn, may have positive implications for the social mobility in the sending country, particularly in low-income countries.

Among Eastern Europe countries, Romania registers one of the largest numbers of emigrated medical doctors in the past two decades (OECD, 2016; Anghel *et al*., 2017). This is of high concern, given that Romania has the smallest number of practicing doctors per capita in the European Union (Eurostat, 2017) and the numbers are still declining. Moreover, recent research on Romanian students' intention-to-leave (Coșciug, 2013; Suciu *et al.*, 2017) reveals that more than 80% of current medical students express a willingness to migrate after graduation. These figures are alarming given that migration intentions generally represent a good predictor for the future outflows of medical doctors (Leone *et al*., 2015).

In this paper, we examine the characteristics of the Romanian medical diaspora, by answering the following questions: How migration flows of Romanian medical doctors have evolved in the past three decades? Which medical specialties prevail among physicians who have chosen to emigrate from Romania? What are the underlying reasons for migration among Romania-trained medical doctors? What difficulties do Romanian doctors face in the destination country? To do so, we use data from various sources. First, we present and describe the available administrative and official data on the migration of Romanian physicians. Then, we complement this analysis by exploring data on Romanian health professionals extracted from the LinkedIn platform. This enables us to further investigate the emigration trends of medical doctors trained in Romania who work abroad. Third, we surveyed Romanian physicians from the diaspora. Our questionnaire was multipurpose and covered a range of topics, such as: socio-demographic background, education, factors influencing the migration decision (push and pull factors), difficulties encountered in the host country, and connections to Romania.

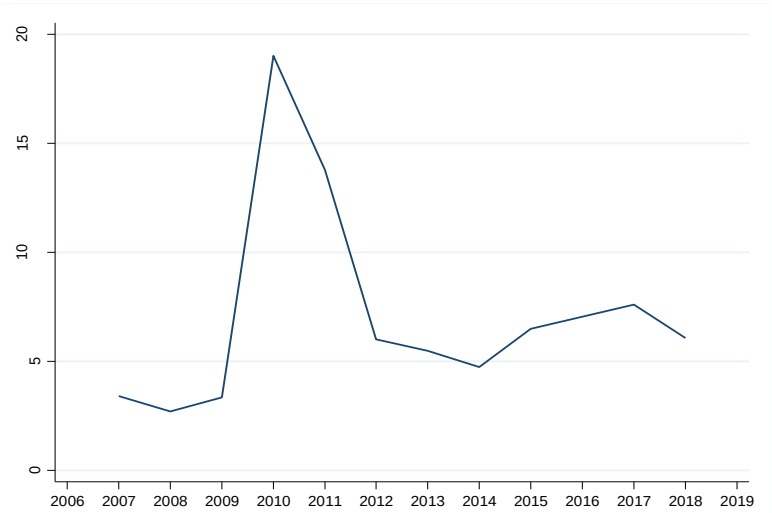
This paper's contribution to the literature is threefold. First, our research adds to the handful of studies that examine physician migration in Romania (Wismar *et al*., 2011; Dornescu and Manea, 2013; Séchet and Vasilcu, 2015; Boncea, 2015; Suciu *et al*., 2017). Romania makes for a particularly interesting case study because it has experienced the highest increase in emigration of skilled health professionals, being the main "sending" country to Western Europe (Suciu *et al*., 2017). Moreover, our study adds to a rather scarce literature that examines physicians' migration in Central and Eastern Europe countries, the region worst affected in Europe by the exodus of medical doctors. Using survey data, Lazarevik *et al*. (2016) explores trends in physician migration for the Western Balkans. Krajewski-Siuda *et al*. (2012) and Domagała and Dubas-Jakóbczyk (2019) analyze migration intentions among medical students and physicians in Poland. Emigration decisions and retention policies for health professionals in Lithuania are discussed by Starkiene *et al*. (2013) and Goštautaitė *et al*. (2018), among others. Second, our study adds to a new strand of literature that use non-traditional data (mobile phone data and social media data) to study human migration (for an overview, see Hughes *et al*. (2016)). In order to shed more light on the migration of Romanian medical doctors, we use data extracted from the LinkedIn platform on physicians who were trained in Romania, but work abroad, LinkedIn being the best data source available for studying professional migration (Hughes *et al*., 2016). While previous studies use LinkedIn data to study the migration flows of professionals in general (State *et al*., 2014), or the migration of IT workers in particular (Barslund *et al*., 2016), our study uses data on medical doctors' LinkedIn profiles. Third, this study is the first, to our knowledge, to examine difficulties experienced by Romanian physicians after migration. We have attempted to identify the difficulties encountered by Romanian medical doctors concerning personal competencies in the host country, institutional organization or interpersonal/social relations in the destination country.

The rest of the paper is structured as follows. Section 1 presents the patterns of migration of Romanian physicians. After describing the data and methods in Section 2, Section 3 presents the results. The last section discusses the main findings and concludes.

1. Patterns of migration of Romanian medical doctors

To assess the intensity of migration among Romanian skilled medical personnel, we rely on the available official data. This data is primarily based on the number of verification certificates issued by the Romanian Ministry of Health and the "good-standing" certificates issued by the National College of Physicians to those who express their intention to migrate. In the years following the country's accession to the European Union (EU) (in 2007), intention-to-leave data indicated an outflow of 14.000 Romanian medical doctors as testified by the number of Certificates for Recognition of Professional Qualifications necessary for practicing abroad and issued by the Romanian Ministry of Health (Moraru, 2017). In 2007 alone, 1.421 medical doctors (almost 3% of all practicing medical doctors in Romania at that time) left the country (Glinos *et al*., 2015). Compared to the estimated outflow, emigration was lower in the first two-three years after accession (Galan *et al*., 2011). Figure 1 plots the proportion of practicing medical doctors in Romania applying for a certificate.

Figure 1. Proportion of practicing medical doctors in Romania applying for Certificates of Good Standing (CGS)



Sources: Number of issued CGSs: Păunică *et al*. (2017) and Neagu (2019). Number of practicing medical doctors in Romania: The National Institute of Statistics, Romania.

The figure shows that in 2007 and 2008 around 3% of practicing physicians requested a good-standing certificate from the Romanian College of Physicians. According to Ognyanova and Busse (2012), most of the medical doctors who expressed their intention to migrate were from the Bucharest and Iași region in the North Eastern part of the country, which is the most deprived region of Romania and has the lowest coverage of medical personnel in rural areas.

We also notice a sharp increase in 2010 in the share of those applying for a certificate. More than 18% of practicing Romanian medical doctors applied for a certificate in 2010. Most likely, this increase was a response to the unexpected and unanticipated austerity measures announced by the Romanian President on May 2010: a 25% wage cut for all public sector employees, the revocation of some financial and in-kind incentives for public sector employees, and a 15% cut in unemployment and maternity leave benefits. The implementation of the harshest austerity measures ever adopted in an EU member state, which drastically affected particularly those working in the public sector (Botezat, 2017), was further accompanied in 2011 by other measures that strictly affected the medical system. The Romanian government decided to close 67 underperforming inpatient care facilities, including 29 city and municipal hospitals, 9 rural hospitals, and 8 long-term hospitals for chronic diseases (Scîntee *et al.*, 2018). Further, after an increasing trend between 2014 and 2017, we notice a decrease in the share of Romanian physicians who required a certificate from the Ministry of Health. This may be due to the substantial increase of salaries in the healthcare system that took place in 2018, entailing an increase of wages between 70% and 172%, the resident doctors being the main beneficiaries. However, we should keep in mind that we use intention-to-leave data in Figure 1, which should not necessarily be interpreted as the share of medical doctors who actually left the country.

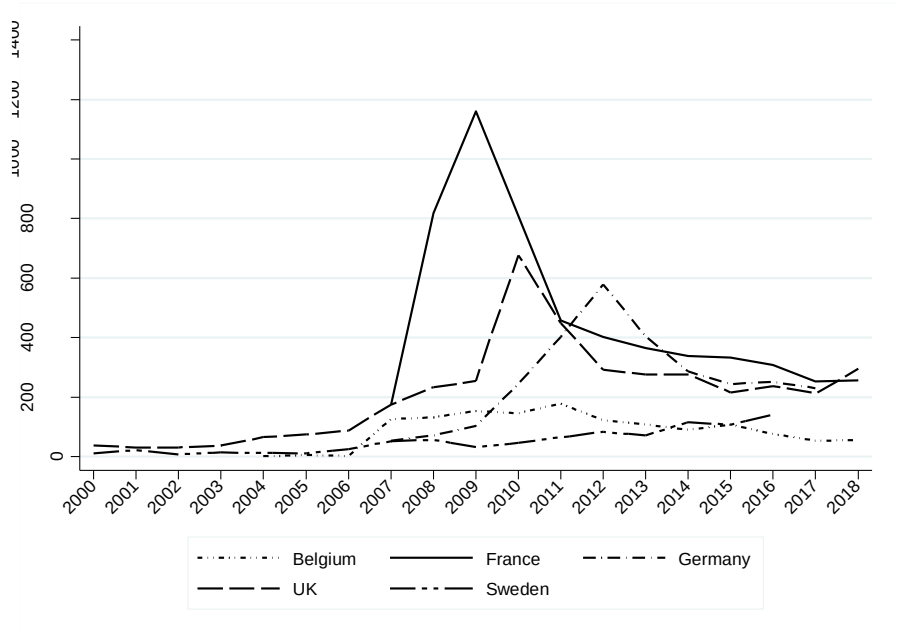
Despite a steady exodus of Romanian physicians, coupled with emerging healthcare shortages due to a lack of medical personnel, especially in small towns, rural and otherwise remote and impoverished areas (Dornescu and Manea, 2013; Buchan *et al*., 2014), Romania does not directly track the medical doctors working abroad. The only official data on health professionals who left the country is provided by the "recipient" country's official records. Based on the available information, we can assess the most preferred destinations for Romanian medical doctors. Figure 2 plots the annual inflow of Romanian medical doctors in the main destination countries for the period 2000 – 2018[1].

The United Kingdom (UK), Germany, France and Belgium appear to be the main preferred destinations. While the migration flows from Romania to the UK, Germany and Belgium slightly increased between 2007 and 2009, France experienced the highest inflow over the same period. The number of registered Romanian physicians in France increased from 174 in 2007 to 1.160 in 2009

[1] Data for France was partially extracted from Delamaire and Schweyer (2011).

(Delamaire and Schweyer, 2011). In 2007, more than half of emigrant doctors specializing in anaesthesia and paediatrics were from Romania (Delamaire and Schweyer, 2011). Furthermore, in 2010, physicians from Romania represented the largest national group (15.4%) of foreign medical doctors in France, gradually replacing the inflows from Northern Africa (Delamaire and Schweyer, 2011). Similar data from 2012 reveals that a third of foreign doctors registered in France were Romanians (Séchet and Vasilcu, 2015).

Figure 2. The annual inflow of the Romanian medical doctors by country of destination



Source: OECD Health Workforce Migration Data.

Starting in 2007, professional qualifications obtained in Romania were also recognized in Belgium. This explains the sharp increase in inflows of Romanian medical doctors choosing Belgium as their destination country, and in 2007 Romania become the third most frequent source of foreign physicians. According to Safuta and Baeten (2011), Romanian professionals employed in Belgium are mainly based in French-speaking hospitals, which is primarily explained by the linguistic proximity between Romanian and French. The inflow of Romanian medical doctors to Belgium has steadily increased, with the period between 2011 – 2013 recording the highest share of Romanian health professionals among the EU12 (Buchan *et al*., 2014).

However, collabouration between Romanian and Belgian doctors has been a tradition since the 90s. Due to local agreements between Romanian medical universities and various hospitals in Belgium (e.g. between the "Gr. T. Popa" University of Medicine and Pharmacy in Iași and hospitals of the Université Catholique de Louvain), many doctors over the years with basic training or medical students from Romania have carried out study visits at Belgian hospitals (Ognyanova and Busse, 2012). It might be expected that gaining international experience during studies would increase migration prospects after graduation.

Figure 2 further shows that, following the unanticipated economic and government reform measures in 2010 and 2011, the migration of Romanian skilled medical personnel increased again, especially to Germany and the UK, and to a lesser extent to France, Belgium, and Sweden. Inflows to the UK grew rapidly after 2009 and peaked in 2010. While Germany recorded 54 Romanian physicians in 2007, the inflow of health professionals trained in Romania steadily increased in the subsequent years, reaching 579 physicians in 2012, and 404 in 2013.

We also notice that the number of newly registered Romanian medical doctors in Sweden has gradually increased over the last few years, now exceeding the number of Romanian physicians registered in Belgium, until recently a favourite destination for Romanian medical doctors.

3. Data and methods

To investigate migration patterns of Romanian medical doctors, we use data from two sources. The first is based on professional profiles of Romanian medical doctors extracted from LinkedIn. It covers all Romanian doctors registered on the LinkedIn platform, who emigrated between 1990 and 2016. Unlike the usual sources of data on migration that record only stocks and flows, our data extracted from LinkedIn has the advantage of containing detailed information on education and the professional pathways of individuals. Thus, aside from information on gender and age, we collected data on the medical school attended, period of study, year of first job abroad (our proxy for year of emigration), destination country, and field of medical specialty.

To make our data comparable, we apply the standard classification of medical specialties used in the EU, European Economic Area, United States (US) and Canada. Thus, physician's specialties were regrouped into official international medical categories recognized in the EU[2]. Further, we restricted our sample only to those who completed their medical degree at a Romanian University and who migrated after graduation. Our final data set contains approximately 1273 individuals for whom we have complete information.

[2] Read more at https://emanet.org/medical-specialties-in-europe/.

The second source is a survey conducted by the authors via snowball sampling among Romanian medical doctors working abroad. In a first step, a group of Romanian physicians were contacted using either personal networks, groups of doctors on social media or various professional associations of Romanian medical doctors working abroad. Those who responded and agreed to participate in our study were asked to share the survey request with other Romanian physicians in their network. In total, 227 medical doctors completed the survey online, between June and September 2017. The questionnaire was multipurpose and included six thematic sections: socio-demographic background (age, gender, marital status, parents' education and occupation, family welfare), education (high-school attended, university, year of graduation, medical specialty), migration (destination country, year of emigration, current job, job before emigration, migration decision), factors influencing the decision to migrate (push and pull factors), difficulties encountered in the host country (concerning personal competencies, institutional organization, and interpersonal/social relations), and connections to Romania. Questions on motivation and factors contributing to the decision to stay or to leave the country, as well as difficulties encountered in the destination country, were mostly developed after reviewing the relevant literature on medical doctors' emigration.

4. Results

In this section, we first describe the migration trends of Romanian medical doctors and the profiles of movers, and then assess the determinants of migration, as well as difficulties encountered in the respective destination country.

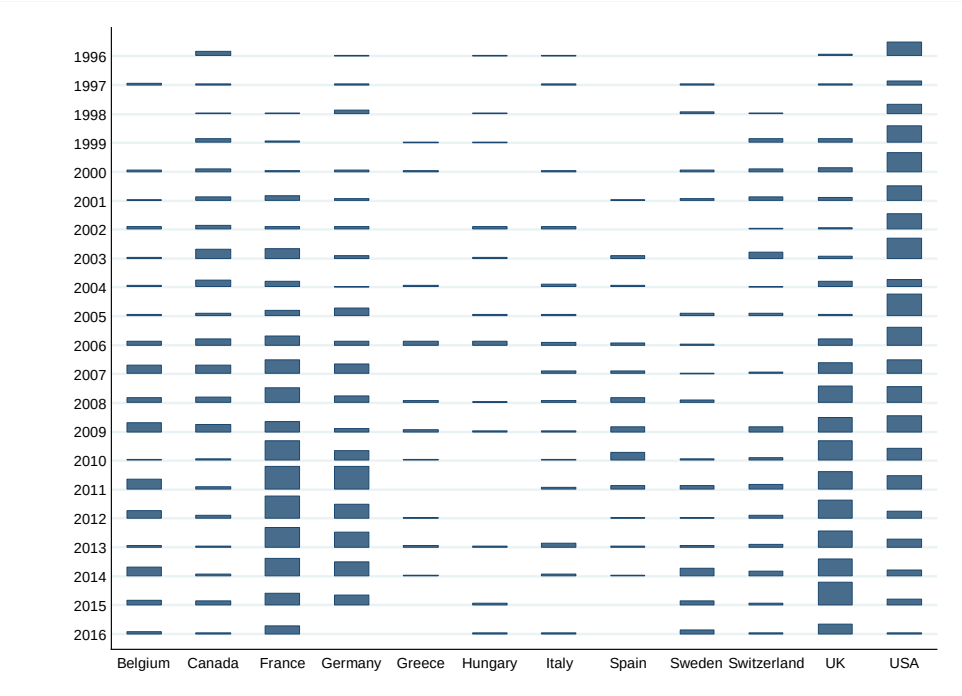
Figure 3 presents the main destination countries of Romanian physicians over the last two decades by year of emigration, based on data extracted from LinkedIn. A visual examination of the plot reveals interesting patterns of Romanian medical exodus. Before joining the EU in 2007, the US was the main destination of Romanian medical doctors, followed by Canada. Unsurprisingly, France, Germany, the UK and Belgium have gradually become favorite destinations for Romanian medical doctors since 2007. Albeit to a lesser extent than other countries, Spain and Italy also attract Romanian physicians, mostly between 2006 and 2014, but the trends in migration to these countries have declined in recent years. We also note a steady rise since 2010 in the number of Romanian physicians choosing Sweden as their destination.

It is reassuring to see that the analysis based on the LinkedIn data illustrates the same picture as the official data provided by the destination countries presented in the previous section.

Next, we look at the preferred destinations of Romanian medical doctors by year of graduation (Figure 4). The pattern of preferences observed for the US and Canada has quickly changed since Romanian entry to the EU. Those who graduated after 2007 preferentially moved to France, Germany or the UK. Outflows to Belgium, however, have been relatively stable over the last few decades, largely

driven by the various aforementioned institutional partnerships between Romanian and Belgium medical universities (Safuta and Baeten, 2011).

Figure 3. Preferred destinations by Romanian physicians by year of emigration

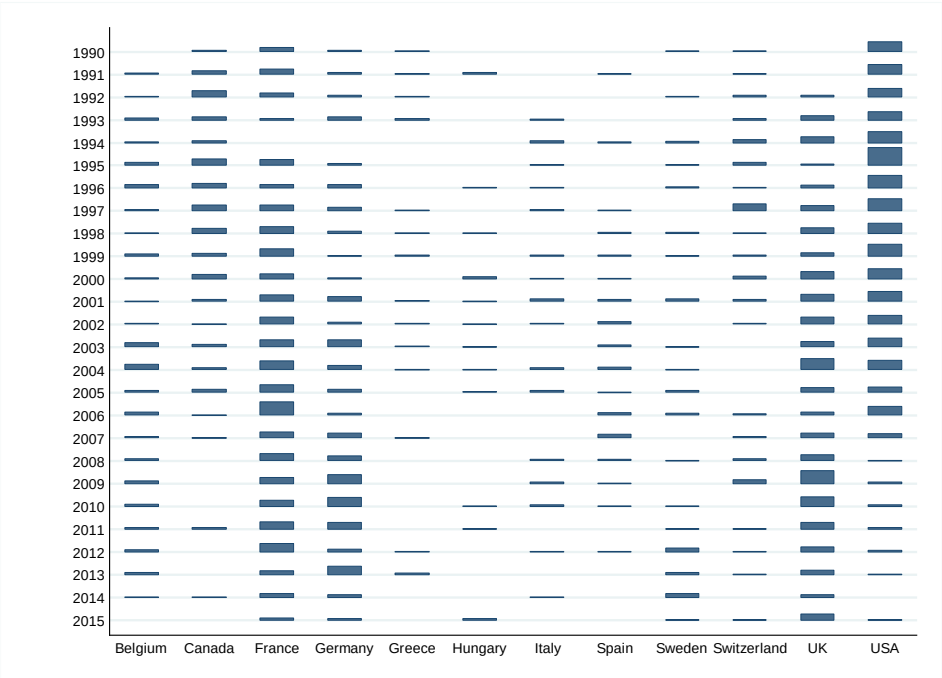


Source: Authors' representation based on data extracted from LinkedIn

In contrast, migration to Hungary has significantly declined following Romania's accession to EU. This may be because, after 2007, many ethnic Hungarian graduates took advantage of the fact their Romanian diplomas were now recognized in the EU, and preferred other European destinations countries to Hungary. Nevertheless, we notice significant inflows to Hungary between 2002 and 2005, with a peak in the year following EU accession in 2004. Most of these immigrants were of Hungarian origin but held Romanian citizenship (Eke et al., 2011).

We make further use of data available from LinkedIn, and look at the medical specialties of Romanian physicians working abroad. Our goal is to identify which medical specialties are more likely to be demanded abroad as reflected in the outflows of Romanian medical doctors. Figure 5 plots the distribution of medical doctors by specialty and country of destination, regardless of the year of emigration or graduation. We only look at the specialties that are more common among Romanian migrants.

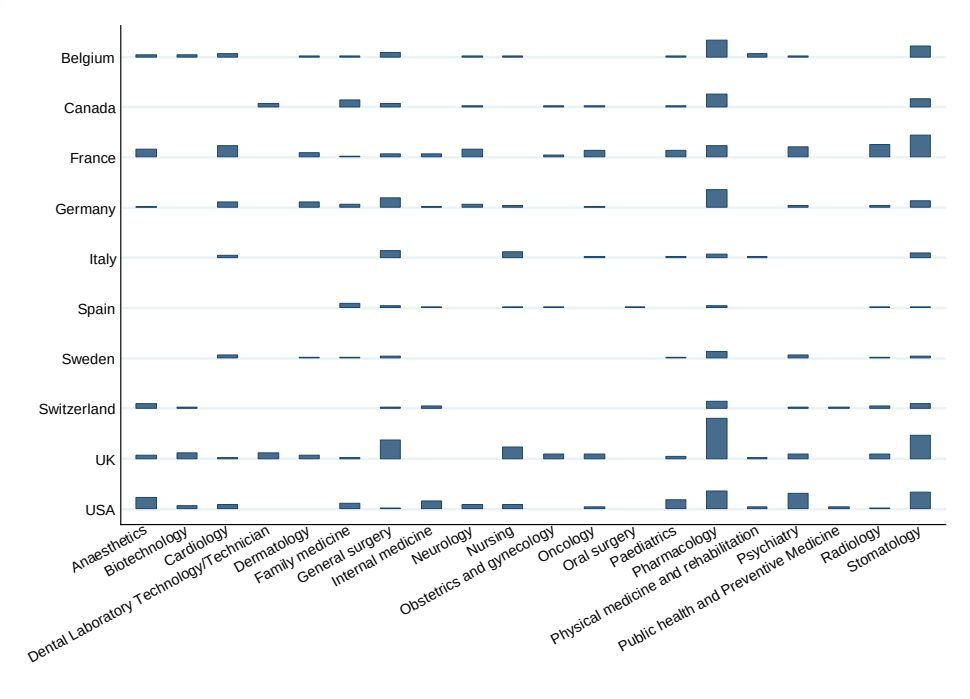
Figure 4. Preferred destinations by Romanian physicians by year of graduation



Source: Authors' representation based on data extracted from LinkedIn.

The plotted data show that certain medical specialties seem to be in greater demand across all preferred destinations. Thus, general surgery, pharmacology, stomatology and family medicine are medical areas in which outflows occurred to all main destinations. Stocks of Romanian medical doctors in specialties such as cardiology, psychiatry, radiology and paediatrics are also high, and widely distributed across destination countries. From a country perspective, the range of specialties demanded differs between destinations. While the US, UK, France, Germany and Belgium attract Romanian physicians from various specialties, Canada, Switzerland and Sweden were preferred by those specializing in certain areas, including general surgery, pharmacology, radiology, and stomatology.

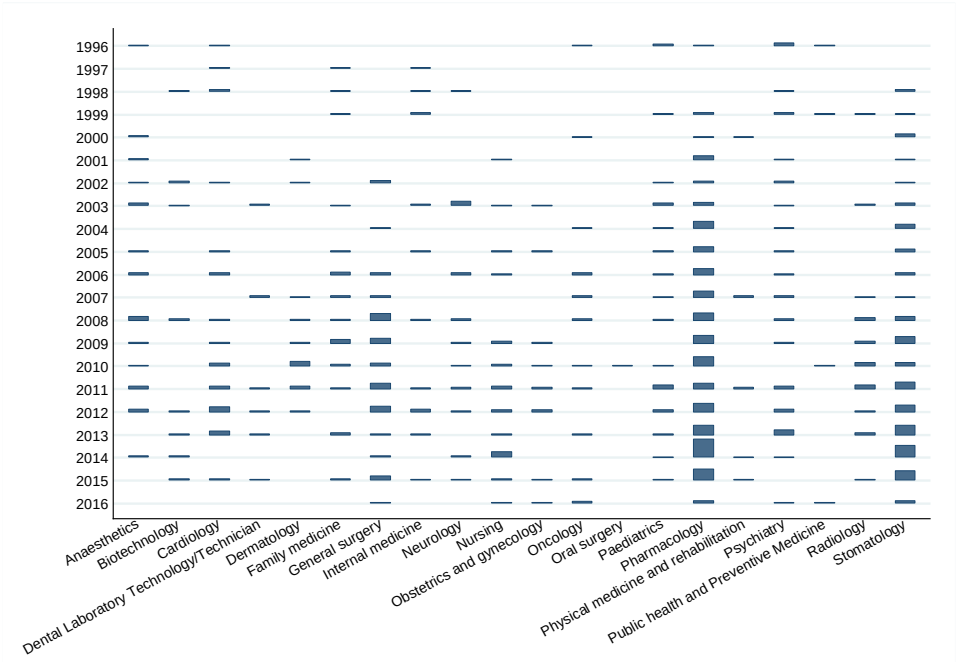
Figure 5. Distribution of Romanian medical doctors by specialty and country of destination



Source: Authors' representation based on data extracted from LinkedIn.

To investigate which specialties were more likely to migrate during the last few decades, we further look at the distribution by specialty and year of emigration (Figure 6). The data extracted from LinkedIn reveals large differences in the number of migrant doctors in each specialty before and after 2007. Prior to joining the EU, the incidence of migration was higher among Romanian physicians practicing certain specialties, such as anaesthetics, paediatrics, pharmacology, psychiatry, and stomatology. After 2007, the spectrum of medical specialties exposed to the phenomenon of migration was, as expected, broader than before. The number of physicians who migrated in specialties as cardiology, general surgery, obstetrics and gynecology, neurology, and radiology significantly increased after Romania joined the EU. In the last few years, those in pharmacology, dentistry, general surgery, and cardiology were more likely to migrate.

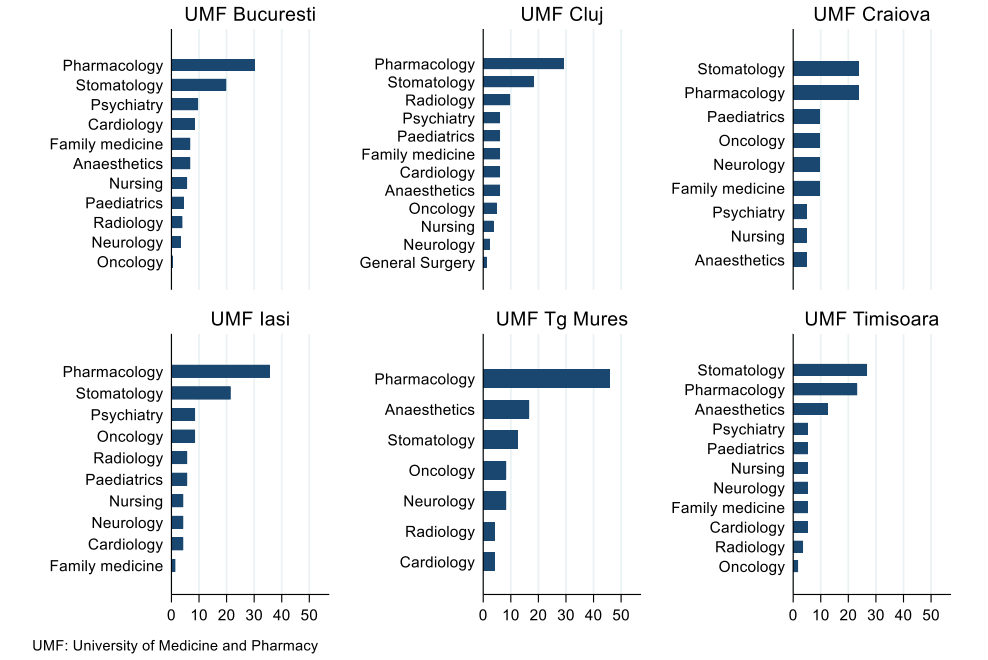
Figure 6. Distribution of Romanian medical doctors by specialty and year of emigration



Source: Authors' representation based on data extracted from LinkedIn.

We also compare the distribution of migrated medical doctors in each of the specialties by the university they graduated from. Out of the 10 medical universities that exist in Romania, we present data for the 6 largest. Our findings reflect particular patterns. As Figure 7 shows, those in pharmacology and dentistry are more likely to migrate regardless of their Alma Mater. The pattern of migration in oncology is similar for UMF Iași, UMF Tg Mureș and UMF Craiova. Those who specialized in anaesthetics at a university in Western Romania (UMF Tg Mureș, UMF Timisoara or UMF Cluj) have relatively higher migration rates compared to those from UMF Iași or UMF Craiova. General practitioners (family medicine) who graduated in Bucharest, Cluj-Napoca or Craiova report relatively higher migration rates than their colleagues from Iași or Tg Mureș.

Figure 7. Distribution of migrated Romanian medical doctors by specialty and their Alma Mater



Source: Authors' representation based on data extracted from LinkedIn.

Survey results

The survey was completed by 227 participants, with 88.54% of respondents completing the survey in full. Table 1 presents the distribution of respondents by age, gender, decision to migrate and main destination countries. Of the respondents, 42.29% reside in France, 24% in Germany, 17.04% in the UK and Ireland, 7.43% in one of the Benelux countries, 5.71% in Sweden or Norway, and 3.43% in the US or Canada. Younger doctors (aged 35 and below) are more likely to be located in France and Germany. Most of those aged 36 and over reside in Scandinavia or North America.

The majority of respondents are females, which is in line with the feminization of the medical profession (Ng-Sueng L.F. *et al.*, 2016). Among the destination countries, France and the Benelux countries are among the favorites of Romanian female doctors, whereas Germany and the Scandinavian countries are preferred by males.

Regarding the migration decision, the respondents were asked when they made the decision to migrate: before starting their medical studies, during their

studies, during or after residency. Of those respondents migrating to Germany, the Benelux countries or North America, more than 60% decided to migrate before or during the studies. Most of those who migrated to the UK made this decision later, during residency. Of those respondents residing in one of the Scandinavian countries, 70% stated they made the decision to migrate after residency.

How respondents found a position abroad was another topic addressed. Most of the Romanian medical doctors in our sample reported finding a job abroad either by directly signing a contract with the employer or through a recruitment agency. Those who moved to Germany or Great Britain stated that they applied directly to the employer for a job. Conversely, 70% of Romanian physicians working in Scandinavia found their position through a recruitment agency. Meanwhile, 21.62% of respondents in France, 16.67% in the UK and Ireland, and 15.38% in the Benelux countries reported they found a job abroad through the diaspora of Romanian doctors.

Table 1. Distribution of the respondents by age, gender, decision to migrate and destination countries (%)

	Main destinations					
	France	Germany	United Kingdom and Ireland	Benelux	Scandinavia	North America
Age						
<31	40.54	50.00	30.00	15.38	0	0
31 -35	18.92	16.67	16.67	30.77	20.00	33.33
36-40	18.92	23.81	40.00	23.08	30.00	16.67
41-45	8.11	7.14	6.67	7.69	30.00	33.33
>45	13.51	2.38	6.67	23.07	20.00	16.67
Cramér's V				0.229		
Gender						
Females	79.17	57.14	70.00	76.92	60.00	80.00
Cramér's V				0.2054		
Decision to migrate						
Before studies	2.70	4.88	3.45	7.69	0	0
During studies	36.49	58.54	24.14	53.85	10.00	66.67
During residency	31.08	24.39	48.28	23.08	20.00	33.33
After residency	29.73	12.2	24.14	15.38	70.00	0
Cramér's V				0.2343		
Period of emigration						

Before 2007	8.70	7.32	3.33	25.00	0	66.67
2007-2010	14.49	7.32	23.22	25.00	20.00	33.33
After 2010	76.81	85.37	73.33	50.00	80.00	0
Cramér's V				0.4112		
How did you find a position abroad?						
Network abroad	**21.62**	7.14	16.67	**15.38**	0	16.67
Job fair	1.35	7.14	10.00	0	10.00	16.67
Contract with the employer	**29.73**	**59.52**	**50.00**	**46.15**	**10.10**	**50.00**
Local network	2.70	7.14	0	0	0	0
Recruiting agency	18.92	**19.05**	**33.33**	0	**70.00**	**0**
Other	28.38	4.76	6.67	38.46	10.10	16.67
Cramér's V			0.2615			

Specialization

Family medicine	75	10.71	3.57	7.14	3.57	0.00
Psychiatry	30.00	15.00	30.00	10.00	15.00	0.00
Internal medicine	33.33	38.89	11.11	5.56	5.56	5.56
Surgery	15.38	46.15	7.69	23.08	7.69	0.00
Dentistry	7.14	28.57	42.86	7.14	0.00	14.29
Radiology	50.00	12.50	0.00	0.00	37.50	0.00
Obstetrics and Gynecology	28.57	57.14	14.29	0.00	0.00	0.00
Anaesthesia and Intensive Care	44.44	44.44	0.00	0.00	0.00	11.11
Neurology	57.14	28.57	14.29	0.00	0.00	0.00
Cramér's V			0.3471			
Respondents (N=199)						

Source: survey data.

As demonstrated in Table 1, certain destinations attract medical doctors from certain specialties at a greater rate. For example, general practitioners/family physicians, neurologists and radiologists represent a significant share of Romanian medical doctors who migrated to France. Meanwhile, those specializing in surgery, internal medicine, anaesthesia, and intensive care predominantly choose Germany as their destination, while Romanian dentists prefer the UK and Ireland.

To assess the relationship between various nominal and categorical variables, we use the frequencies to compute the Cramer's V correlation coefficient. The coefficients are reported in Table 2. Cramer's V ranges between 0.2054 and 0.4112. The main destinations of Romanian physicians have the strongest correlation with the period of emigration (0.4112), with the two biggest waves of migration being

prior to 2007 (mainly to the US and Canada), and after 2010 (mainly to Germany, France and Scandinavia). A relatively strong association was also found between destination country and clinical specialty (0.3471). The weakest correlations are observed between destination country and age (0.229) and gender (0.2054) of the participants.

Determinants of migration

The questionnaire also includes a section on factors affecting the decision to migrate. Participant's migration motivations were measured via the question: "*How do you assess the impact of the following factors on your decision to emigrate?"* with a list of possible reasons presented in Table 2. The respondent could answer on a 10-item scale, where "1" represents low impact, and "10" high impact.

Previous studies have shown that labour market migration motivations vary with time and destination (Niedomysl, 2010). In this vein, we assess the reasons according to participant's current country of residence (Table 2), and on the time period in which they emigrated (Figure 8). The analysis period was divided into 3 time frames. The first includes the pre-EU-accession period. The second covers the years 2007-2010. The last includes the period immediately following the implementation of austerity measures in the budgetary sector, which also affected healthcare professionals.

Table 2. Reasons influencing Romanian physicians to migrate

	Main destinations				
	France	Germany	UK and Ireland	Benelux	Scandinavia
The pay scale of doctors in Romania	7.17	7.64	8.09	7.77	8.45
Lack of equipment in Romanian medical institutions	8.11	7.57	7.59	8.23	8.2
Reduced opportunity of professional development	7.54	7.64	8.09	8.46	8.7
Reduced possibilities of further specialization	7.04	7.07	7.28	8.38	8
Discouraging attitude of superiors	7.68	7.57	7.56	8.85	8.73
Lack of respect from patients	6.18	6.1	5.69	4.5	5.27
General standard of living	7.24	7.53	8.16	8.31	9.64
Level of corruption in Romania	8.59	8.55	8.38	9.15	9.55
Personal reasons	5.32	5.07	5.87	4.38	3.09

Source: Survey data.

Table 2 presents the average score for each of the migration motivation factors for various destinations. What is evident, is that respondents migrated due to a broad range of factors. The "*level of* corruption in Romania" had the highest impact on the decision to migrate, regardless of country of destination. The "general standard of living" is scored higher particularly by those who migrated to Scandinavia (9.64) and the Benelux countries (8.31). "The pay scale of doctors in Romania" was also indicated to be a particularly important factor for those who migrated to Scandinavia. However, more important than wages were factors relating to "reduced opportunities of professional development" in Romania, as well as the "discouraging attitude of superiors" in the Romanian healthcare system. The "lack of equipment in Romanian medical institutions" was also an important motivator for those migrating to France, Scandinavia and the Benelux countries.

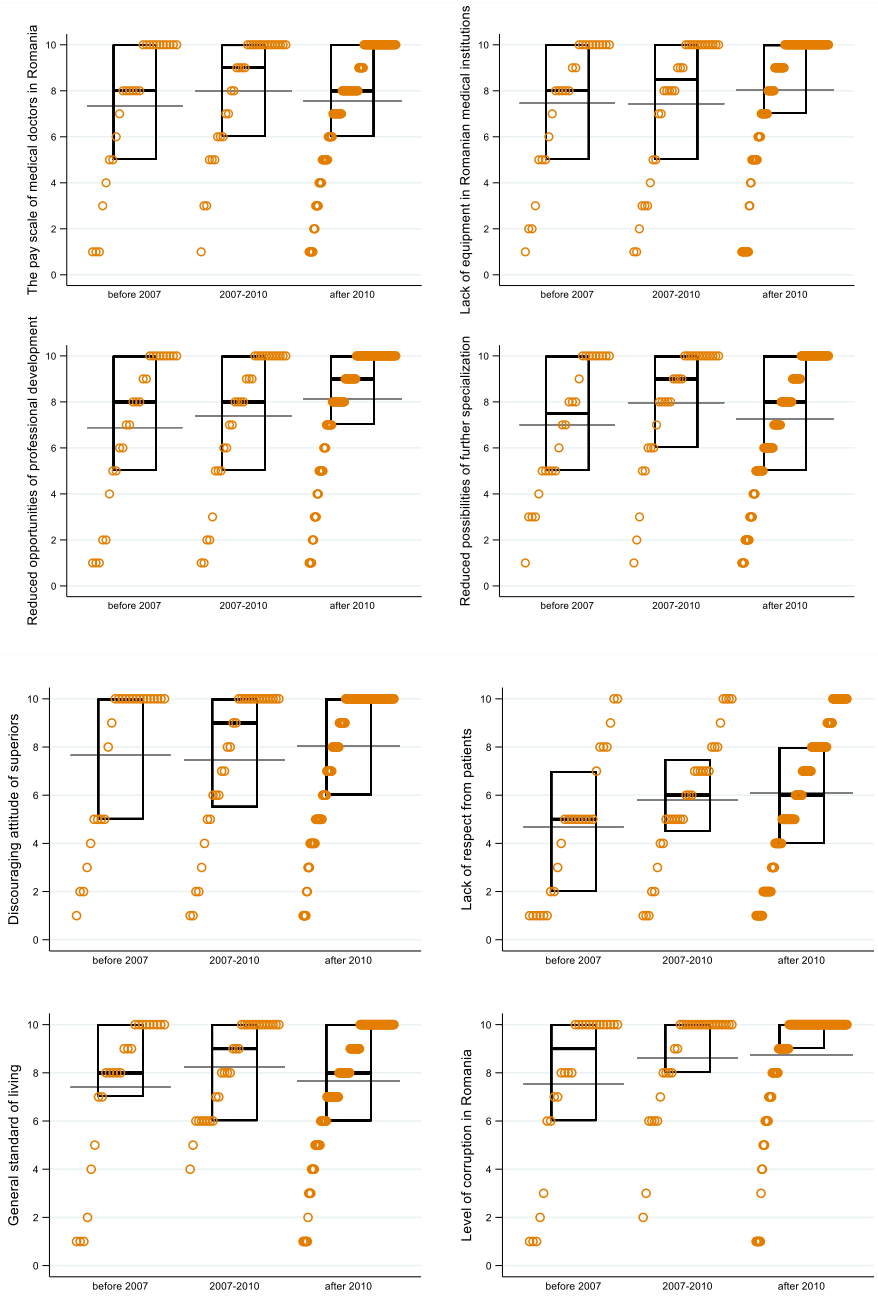
Next, we investigate if the reasons for migration differ between the pre-accession migrants, those emigrating 2007 – 2010, and those who emigrated post-2010. To do so, we use quantile plots3 (Figure 8), which show the distribution of the scores for each reason and period of time. The gray horizontal line indicates the median, while the thicker black line shows the corresponding median. Compared to the pre-accession period and to the one after 2010, the highest rated push factors between 2007 and 2010 were physician salaries, reduced possibility of further specialization and the general standard of living. Furthermore, we notice that, over time, the level of corruption, the lack of respect from patients, as well as reduced opportunities for professional development become increasingly important motivating factors for migration. In fact, we find that no factor underlying the decision to migrate before 2007 experienced a reduction in intensity over time, on the contrary, these factors became even more important.

Difficulties experienced by migrant Romanian physicians working abroad

A section of the survey also inquired into difficulties faced by Romanian medical doctors after emigration. By reviewing the relevant literature on physician migration, we identified a spectrum of commonly reported difficulties by the medical doctors working in a country other than their country of origin and training. We grouped these difficulties into the following categories: difficulties concerning personal competencies in the host country, those concerning institutional organization or interpersonal/social relations in the destination country.

[3] We use the *stripplot* command in Stata (Cox, 2003).

Figure 8. Distribution of the scores for each reason for migration and period of time



Source: Authors' representation.

The difficulties were rated according to a 10-point Likert scale, where "1" indicates the factor has a low impact, and "10" a high impact. Regarding the difficulties concerning own competencies, most of the Romanian physicians experienced were in relation to understanding the medical system in the host country, particularly for those who chose to practice in the Scandinavian countries. Further difficulties relate to the general and medical linguistic competencies, with language being specifically problematic for those migrating to Scandinavia, the Benelux countries or Germany.

Greater difficulties concerning institutional organization are also reported by those who emigrated to Germany and the Scandinavian countries. Undergoing a trial period and the need to complete clinical knowledge were predominantly encountered by those working in these host countries. Moderate problems in understanding the work environment and the organization of the host institution were reported by those working in the Benelux countries.

Most of the Romanian physician's working abroad struggle with a lack of friends and family. Despite the fact that Romanian doctors in Sweden or Norway face difficulties arising from insufficient knowledge of language, or the need to first carry out an internship, they are less likely to report problems when it comes to social / interpersonal relationships with patients or colleagues in the host country. Instead, when compared to their counterparts working in the other countries, they report difficulties in learning local customs.

Moderate problems regarding relationships with colleagues are reported by those physicians working in the Benelux countries.

Table 3. Difficulties experienced by migrant Romanian physicians abroad

	France	Germany	British Isles	Benelux	Scandinavia
Difficulties concerning personal competencies in the host country					
General linguistic competences	4.38	5.71	2.78	4.54	**7.36**
Medical linguistic competences	3.43	4.93	3.22	5.00	**6.6**
Knowledge of the medical system in the host country	6.18	5.67	6.22	6.15	**7.45**
Clinical knowledge	**4.8**	3.9	3.63	3.69	4.18
Difficulties concerning institutional organization in the host country					
Recognition of their medical degree	2.69	2.79	2.75	**3.62**	1.82
Practice license in the host country	2.61	**3.48**	2.84	3.46	1.00
Work environment	4.01	3.95	4.38	**5.00**	3.45
Undergoing a trial period	2.42	4.71	3.03	3.38	**6.27**

Necessity to complete clinical knowledge	4.65	4.6	3.56	4.38	**5.18**
Working in a lower position than level of training	2.42	2.69	**3.94**	1.67	1.82
Difficulties concerning interpersonal/social relations in the host country					
Relationships with patients	2.65	**2.93**	2.75	2.62	2.18
Relationships with colleagues	3.19	3.38	2.47	**4.23**	1.64
Cultural and social adjustment	3.65	3.14	3.28	**3.85**	3.45
Lack of family	**6.03**	5.4	5.09	5.08	3.82
Lack of friends	6.09	**6.43**	6.06	6.42	4.91
Learning local customs	3.65	3.57	3.41	2.00	**4.82**
Adjusting to climate conditions	2.84	2.93	**4.56**	3.38	3.82

Source: Survey data.

Discussions and conclusion

This study adds to the literature on physician migration, with a focus on the migration of Romanian health professionals, which is the most targeted high-skilled occupation in terms of migration in Eastern Europe. Using data from multiple sources, including official statistics, a survey carried out among Romanian medical doctors who have migrated, in addition to innovative data extracted from the LinkedIn platform, we provide detailed evidence on the emigration flows and trends of Romanian medical doctors in terms of destinations, specialties and time frame of emigration. Our study also sheds light on the underlying reasons to migrate, and on difficulties experienced by Romanian medical doctors after emigration.

Our findings show that the main destinations of Romanian physicians emigrating abroad are consistent with those previously reported in the literature (Wismar *et al*., 2014), i.e. France, Germany, Belgium, the UK, and, in the last few years, Sweden. Recently, migration trends towards the Scandinavian countries appears to have increased due to active recruitment by healthcare providers in these countries (Sturesson *et al*., 2019). This also explains the high proportion of Romanian doctors in our study who indicated they found a job in Sweden through a recruitment agency.

Furthermore, we showed that more specialized physicians (in cardiology, surgery, pharmacology, psychiatry, radiology, or anaesthetics) are more likely to migrate than general practitioners and primary care physicians (internal medicine, paediatrics). These results are in line with previous studies, showing that medical doctors of various specialties have different migration behaviours (Holmes and Fraher, 2017). On the one hand, they have different markets (Ricketts and Randolph, 2007),

which explains why medical doctors with certain specialties migrate to certain countries and geographical areas. On the other hand, compared to general practitioners, more specialized physicians tend to preferentially migrate to areas with better economies (Ricketts, 2010) and with a higher population density (Scholz *et al.*, 2015).

Prior research on physicians' migration has either focused mainly on pull-factors (Martineau *et al.*, 2004; Võrk *et al.*, 2004; Nair and Webster, 2013; Botezat and Ramos, 2020) or only on push-factors (Okeke, 2013; Gouda *et al*., 2017). This study investigates the prevalence of both types, and provides evidence that migration motivations in the case of Romanian medical doctors actually *cumulate*. A crucial finding of our research was a high proportion of our respondents indicated the level of corruption as a primary motivating factor for working abroad. This result is consistent with previous studies indicating that high levels of corruption decrease returns to education and worsen working and living conditions, fueling skilled migration in particular (Dimant *et al*., 2013; Poprawe, 2015).

Compared to other papers showing that higher wages in the destination country trigger out migration in origin countries (Borjas *et al*., 1992, Willis-Shattuck *et al*., 2008), our results further reveal that factors such as the general standard of living, reduced opportunities for professional development in the home country, or a lack of equipment in Romanian medical institutions are more important in the migration decision than wages (or the wage gaps between the sending and destination countries).

In this article, we have attempted to identify the difficulties encountered by Romanian medical doctors after migration. Several other studies examining these difficulties (Michalski, 2017; Klingler and Marckmann, 2016) posit that most physicians report intercultural issues regarding hierarchies and decision-making, a loss of status in society and the clinical environment, as well as a lack of knowledge of the organizational structures of the new health care system. Our findings are in line with previous work (Skjeggestad *et al.*, 2015) showing that the new language and a lack of insight into the host healthcare system are among the greatest challenges facing medical doctors abroad, particularly in Scandinavian countries. The need to complete further clinical knowledge in the destination country, as revealed by our study, also broadly aligns with previous research (Lockyer *et al*. 2010; Skjeggestad *et al*., 2015; Klingler and Marckmann, 2016). Regardless of country of destination, most of our respondents struggle with a lack of family and friends.

There are at least two caveats to the present study. First, due to data limitations our samples are not representative, and therefore, our findings lack generalization. However, we partially tackle this problem by analyzing data from multiple sources, which reveal similar patterns and results. Second, our study focuses on the specific case of Romania and the experience of Romanian healthcare professionals might not be similar to medical doctors from other source countries.

Given the policy debates in Romania on how to retain health professionals within the country, understanding current medical diaspora has become increasingly

important in the research agenda. Our work contributes to this debate by providing useful information on the emigration flows and trends of Romanian physicians in terms of destinations, specialties and time frame of emigration. Our study also sheds light on the underlying reasons for migration and on difficulties encountered in the destination country.

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