# 6. EMIGRATION DECISION AND THE MIGRATION PROFILE OF THE UNEMPLOYED: A CASE STUDY ON ROMANIA

**Mirela CRISTEA**[1]
**Daniela Emanuela DĂNĂCICĂ**[2]
**Grațiela Georgiana NOJA**[3]

## Abstract

*This paper examines the fundamentals of the emigration decision and depicts a detailed comprehensive profile of the unemployed people in Romania who decide to emigrate. The research is based on a newly compiled dataset that encloses individual features as micro-data, during January 2017 – June 2019. Methodological credentials are anchored on Kaplan-Meier product limit estimator and Cox regression in a competing-risks approach. Main results entail that age, gender, education, region, area of living and unemployment indemnity status are the uttermost credentials that shape the profile of Romanian unemployed emigrants. Young unemployed are the most vulnerable group; therefore, a special attention from the Romanian policymakers and coordinated efforts should be given to leverage the labor market performance of both natives and migrants.*

**Keywords:** emigration; unemployment; econometric modelling; Romania; strategy

**JEL Classification:** F22, F15, E24

[1] *Department of Finance, Banking and Economic Analysis, Center for Banking and Financial Research, University of Craiova, Craiova, Romania, A.I. Cuza Street, No. 13, 200585, Craiova, Dolj, Romania. E-mail address: MirelaS.Cristea@gmail.com*
[2] *Department of Finance and Accounting, "Constantin Brancusi" University of Targu-Jiu, Targu-Jiu, Romania, Research, PhD student, Faculty of Economics and Business Administration, University of Craiova, Craiova, Romania, A.I. Cuza Street, No. 13, 200585, Craiova, Dolj, Romania. Email address: danadde@yahoo.com. Corresponding author.*
[3] *Department of Marketing and International Economic Relations, East European Center for Research in Economics and Business, West University of Timişoara, Timişoara, Romania, V. Parvan Street, No. 4, Timisoara, 300223, Timis, Romania, E-mail address: gratiela.noja@e-uvt.ro*

# 1. Introduction

International migration represents a sheer demographic phenomenon, which, alongside the population ageing, induces profound implications on both migrant sending and receiving countries (Börsch-Supan, 2005; Grzenda, 2019). Therefore, the immigration effects on the economic development of host countries (Bauer *et al*., 2004; Kahanec and Zimmermann, 2008; Noja *et al.,* 2018), and the emigration spillovers on sending economies (Roman and Voicu, 2010; Zareva, 2018), as well as the socio-economic integration of migrants (Clark *et al.,* 2018) have been core subjects of the scientific literature for many decades. However, despite its significance, to the best of our knowledge, few studies have managed to underline a detailed profile of the emigrants from top sending countries within the European Union (EU), and, moreover, of the unemployed people deciding to migrate abroad.

The amplitude of the migration phenomenon in Europe is revealed by the statistical data on migrants across the EU, entailing that in 2017 a flow of 4.4 million people (migrants) was registered, from which "3.1 million emigrants were reported to have left an EU Member State" (European Commission, 2019d, p. 1). Among the total of 3.1 million emigrants coming from one of the EU countries, their allotment by citizenship revealed that the highest share of total European emigrants come from Romania, counting 82% of the total EU emigrants, followed by Poland with 63% (European Commission, 2019d). Moreover, as regards the distribution of „immigration by country of birth", the first place in 2017 was also held by Romania, with „54% of all immigrants", followed by Bulgaria (which enlisted 49% of total immigrants) and Estonia (44% of total EU immigrants) (European Commission, 2019d, p. 5). As for the crude values of emigrant stock, at the beginning of 2018, Romania was once again placed on the 1st position across the EU-28, with almost 3 million residents, followed by Poland, with 1.5 million people abroad (European Commission, 2019d). Furthermore, a large share of the emigrants that required an additional citizenship within the EU-28 „were Romanians becoming citizens of Italy (8.0 thousand persons) or Germany (4.3 thousand persons), Poles becoming citizens of the United Kingdom (7.1 thousand persons) or Germany (6.3 thousand persons)" (European Commission, 2019d, p. 16). Summing up these migration statistics, we spotlight the paramount issue of Romanian migrants, since Romania ranks the 1st among the EU Member States (MS) as regards the flows of emigrants residing abroad.

On these frame of facts and immanent challenges, the configuration of migrants' profile was a core interest among researchers (Arslan *et al.,* 2014; Son and Noja, 2012), but few of them have performed an in-depths analysis of the national profile of emigrants (Andrén and Roman, 2016; Bonev, 2018; Goschin, 2016; OECD, 2019; Roman and Voicu, 2010), in order to shed light on specific migration policies and strategies that should be adopted by the origin countries to temper the negative effects of migration and further enhance the positive spillovers and benefits that could arise from the migration process. Moreover, previous studies were mainly focused on the general characteristics of migrants, such as the level of education, gender, age, language abilities, captured on the basis of aggregate national data, or online questionnaire surveys; hence, disregarding the specific characteristics of individual emigrants. Therefore, the general objective of our research is to map the profile of Romanian unemployed emigrants, based on a newly compiled dataset that includes individual features. Data were provided by the Romanian National Agency for Employment (NAE), covering the period January 2017 - June 2019. Whereas the way of tracking the unemployed by NAE and the methodology of their records have changed several times during the 2007-2019 period, although we have requested data from NAE during this lapse of time, it would have been very difficult to build a unitary database for such

a long period. Nevertheless, our dataset comprises a very large amount of information on 9,245 unemployment spells, deactivated from registration due to leaving abroad, for distinctive periods of time, namely less or more than 3 months. We choose to investigate the profile of the unemployed people in Romania who decide to emigrate, since the inability/impossibility to find a job on the national labor market is a crucial factor in the emigration decision (Candeias and Peixoto, 2016), especially for the Romanian people facing themselves the migration decision (Goschin, 2016; C. Otovescu and Otovescu, 2019). Moreover, the unemployed persons represent the most vulnerable group within a society that require a special attention. The research methodology is anchored on Kaplan-Meier estimation and Cox regression in a competing-risks approach, in order to configure a comprehensive profile of Romanian unemployed emigrants and to identify the fundamental credentials of the emigration decision in order to lay down accurate policies and strategies that need to be adopted by the Romanian and EU policy makers to properly govern and coordinate the migration process. The scientific novelty of this research is enhanced by the innovative way in which the authors configure the fundamentals of the emigration decision adopted by the unemployed persons in line with the macroeconomic neoclassical theory, based on a newly-featured dataset and an accurate methodology that allows to draw-up a distinctive emigration profile essential for tailored migration policies that are so eagerly demanded by public discourse and diverse strands of thought across the EU.

After underlining the grandness of the migration phenomenon in Romania in respect with the labor market counter-performance in the Introduction section, the remainder of the paper is settled as follows. Section 2 heightens the significant findings of previous research on the main factors of the emigration decision, and portrays the profile of emigrants around the world, with a keen focus on the EU. Section 3 renders the enlarged dataset, associated with drawing up of summary statistics in order to further apply the econometric analysis, introduced in Section 4. Section 5 entails the final concluding remarks, grounded on included discussions.

## 2. Brief Theoretical Framework

Fundamental theoretical underpinnings of international migration grasped by the scientific literature entail both the initiation mechanism of the migration process under a complex set of shaping factors, as well as the specific ways in which the phenomenon takes amplitude, diversifies through the migrant networks and policy leverages, thus keenly impacting the origin and host economies. Among the main theoretical approaches on the determinants of the migration decision we find the neoclassical economic theories (micro and macroeconomic) (Ravenstein, 1889; Lewis, 1954; Sjaastad, 1962; Harris and Todaro, 1970; Borjas, 1987), the new economics of labor migration (Stark and Bloom, 1985), the dual labor market theory (Piore, 1983) and the world systems theory (Wallerstein, 1974). The macroeconomic neoclassical theory (Lewis, 1954; Massey *et al.*, 1993) grounds the migration decision with respect to the differences among countries in terms of the labor demand and supply. The theory attests that given the wage differentials among two economies, one characterized by an excess of labor (unemployment) and the other by a surplus of capital, the two production factors move in opposite directions and the convergence of wages represents a mechanism to restore the economic equilibrium.

After reviewing several relevant theoretical and empirical studies, we have distinguished that the main groundings of the emigration decision are (also in line with Candeias and Peixoto, 2016; Goschin, 2016; Noja *et al.,* 2018; C. Otovescu and Otovescu, 2019; Riaño, 2021;

Simionescu, 2019): skills and increased employment opportunities at destination that go better than those of the origin country; higher wages and new experience in host countries; unemployment status in the origin country; increased standards of living within the country of destination; the sequel of studies abroad under the protection of the government; gender and family reunification.

Opposite, a significant factor that hinders the emigration decision is people's „homeownership", which „hampers mobility", and enhances the opportunities in finding a job in the origin country (Munch *et al.*, 2006, p. 991). This finding should represent a constrictive factor for the emigration phenomenon in Romania, since the homeowners' share is quite high, being the 1st at the level of EU (96.8%) as compared to other EU countries (*e.g.*, 51.4% in Germany) (European Commission, 2019c). Nevertheless, it seems this binder of the need of property in Romania does not impede the emigration flow, because of "the lack of an adequate dwelling place for the young couples" (C. Otovescu and Otovescu, 2019, p. 375), which are more mobile than the generation up to 40 years.

As regards the emigrants' profile, the socio-economic characteristics of the emigrants were intensively analyzed, both at regional level, namely the Organization for Economic Co-operation and Development (OECD) (Arslan *et al.*, 2014), the EU (Son and Noja, 2012), or at the national level of some EU countries (Andrén and Roman, 2016; Assirelli *et al.,* 2019; Bonev, 2018; McCollum *et al.*, 2017; OECD, 2019).

By analyzing the profile of the Romanian emigrants living in Spain based on macroeconomic data, Andrén and Roman (2016) have outlined the following results: *(i)* gender dimension - there were more women than men; *(ii)* educational level is in favor of secondary education than tertiary (76.5% as compared to 8.9%); *(iii)* marital status criteria is on behalf of married couple (almost 55% of emigrants living in Spain); the most represented age cohort is 18-34 years (almost 61%); occupational status is in favor of employed migrants (78%); monthly earnings in Spain ranges between 500 and 999 euros for the highest share of migrants (46% of them); and the main type of working contract in Spain is temporary (for 87% of the total).

A recent study (OECD, 2019) of the Romanian emigrants' profile into the OECD countries foregrounds its main features as being the educational level and gender. The illustration for the educational attainment pointed to high education formation of Romanian migrants who are oriented towards the Nordic States (Denmark, Sweden), Canada, United States of America, but also Germany, Israel, United Kingdom (UK) and Ireland. The lowest educational level of the Romanian emigrants was of those oriented to Italy, Spain and Germany. Among the high educated Romanian emigrants in the OECD countries, women registered the largest share, especially in the UK, France, Spain and Canada. Summarizing, the Romanian emigrants to the OECD countries „still face fairly frequent discrimination, which may hinder their successful integration into host societies" (OECD, 2019), being more than necessary to redesign tailored specific policies that address the essentials of the migration decision in order to hamper the migration phenomenon in Romania.

We compared the main features of the Romanian emigrants' profile as outlined by the OECD (2009) with other profiles across the EU to better understand the migration decision. Hence, similar portrayal of emigrants from Bulgaria was sketched by Bonev (2018), who, based on aggregate data, outlined the following issues: more women than men emigrated after 2014, especially as compared to the previous period (before 2010), when it was to the benefit of men; migrants aged 15-34 years represented the largest cohort of emigrants (59% of total emigrants, continuously increasing); the educational attainment of migrants is mostly of

secondary and professional level; the employment status is in favor of migrants that were engaged in private enterprises (almost 34%), followed by the unemployed people (27% of total emigrants) and students (almost 18% of the overall Bulgarian emigrants); the representative occupational fields for Bulgarian emigrants were for „the machinery and equipment operators, public services, security, trade and skilled production and unskilled workers", mainly low-skilled labor force (Bonev, 2018, p. 306); the earnings level before the decision to emigrate was marked as „average" for almost half of the Bulgarian emigrants. In Latvia (McCollum *et al.,* 2017, p. 1518), women expressed a „greater propensity to migrate than men" with a share of almost 59% of total emigrants, which sustain the „feminization of migration" (Arslan *et al.,* 2014; Castles and Miller, 2009); the level of education of Latvian emigrants was mainly secondary (69%); the occupations before leaving abroad were professionals (26%) and students (25%) oriented to low-skilled jobs in destination countries (37%); language skills for most of Latvian emigrants were oriented after the English language preference; the age is in favor of 16-25 years (48%), married couples (53%) with no children (63%), and most of them were from the urban area, particularly the capital city (24%). Altogether, a large part of Latvian emigrants did not intend to come back (75%), and they experienced the repeated migration (over 58%). The same results were outlined for the Portuguese and Italian profile of emigrants by applying an online questionnaire survey, completed with national statistical data: people aged between 25-34 years, more women than men, highly educated people, „emigration to Europe is framed by the search of a first job after finishing studies or by academic projects like post-doc careers, PhD and Erasmus projects" (Candeias and Peixoto, 2016, p. 19). Still, the authors put in foreground that these results may be affected by „a greater willingness to participate in the questionnaire surveys by the most educated emigrants, thus having a lower statistical representativeness" (Candeias and Peixoto, 2016, p. 19). As regards the "highly skilled young" migrants from Italy, Assirelli *et al.* (2019, p. 4) found that women are less compliant with migration, while graduates with skills more adaptable abroad (like foreign language, scientific areas – engineering, information and communications technology, mathematics, chemistry, physics) and those with managerial and professional occupations are more willing to go to a foreign country. For the unemployed graduates, Assirelli *et al.* (2019) did not find any statistical relevance. These results were obtained by applying logistic regression and multinomial logit models for a survey of over 2,000 respondents.

Consequently, after reviewing the scientific literature, we can substantiate that: firstly, to the best of our knowledge, none of the studies reviewed considered solely the profile of the unemployed persons deciding to emigrate, but rather depicted some general features of emigrants residing abroad; second, the profile of the unemployed who decide to emigrate was not analyzed by using modern techniques specific to medicine and biostatistics (such as Kaplan-Meier analysis and Cox model with proportional hazard), being the first study of this type for Romania; third, these studies conclude that the unemployment status in the origin country represents a core factor for emigration decision alongside with a better job and expected standard of living within the country of destination (without extracting a sample of the unemployed people to further substantiate its importance); fourth, the migrants' profile has been extensively considered, but less for the unemployed category, as main measure of labor market performance in the origin country; fifth, the leading features of an emigrant's profile are outlined in terms of gender (more women than men for developing countries, while more men than women for the developed ones), age (young people up to 35 years old), residence (urban more than rural side), educational background (mainly secondary school attainment), marital status (married couples with no children), and occupational

profile (skills more adaptable abroad). Our research accounts for all these credentials as well, but also goes in depth with analyzing the fundamentals of the migration decision through the lens of the macroeconomic neoclassical theory; it further portraits a detailed emigration profile of the unemployed people deciding to start their migration journey; finally, the research proposed several strategically directions/guidelines that should be followed by the national and EU policymakers for a good governance of the migration process, to enhance the advantages coming from international migration, to the benefit of all parties involved.

## 3. Data and Variables

Our research is based on a nationally representative dataset provided by the NAE of Romania, for the January 1st 2017 - June 28th 2019 period.

The dataset comprises information on 9,245 unemployment spells, deactivated from registration due to leaving abroad, for distinctive periods of time, namely less or more than 3 months. From the initial dataset, we removed the duplicate cases, the negative unemployment durations or equal to zero, the spells belonging to individuals of non-compliant age, considering them as registration errors. After the initial processing of the dataset, the total number of unemployment spells that was included in our research is 9,164. We must underline that, according to the Romanian regulations as regards unemployment (art. 44(h) of Law 76/2002), the payment ending of unemployment benefit takes place on the date of departure of the beneficiary outside the country for a period of more than 3 months, only if the beneficiary of the unemployment indemnity has notified in writing the Employment Agency of the county, in whose records he/she is included, about his/her leaving.

The examined data comprises individuals who have been deactivated from the NAE records during the period 2017-2019, both as unemployed with and without indemnity, due to leaving abroad for a period of less or more than 3 months. We also emphasize that we have not received information to include the reasons to leave abroad of the unemployed people (*e.g.*, to work, visit, study, family reunion etc.), and neither about the country of destination. For each spell that ended due to leaving abroad, we have information about the number of the file registered at NAE, the county of residence, the registration date of unemployment, the exit date from the NAE records, the reason for deactivation (leaving abroad for short or long term), gender, age, education, place of residence (urban/rural), if he/she receives unemployment indemnity (UI), the Romanian occupation code (ROC) and the occupation of the individuals registered in the NAE records.

In order to perform the econometric analysis, firstly, we have organized the variables included in our empirical research (Table 1).

**Table 1**

**Variables of the Study**

| Type of variables | Description |
|---|---|
| **Endogenous variable** | |
| Unemployment duration | It is computed as difference between the date of deactivation due to leaving abroad, and the date when the individual was registered in the NAE record, as an individual without a job (days) |
| **Explanatory variables** | |
| Gender | Dummy variable, 1- Male, 2-Female |

| Type of variables | Description |
|---|---|
| Age | Values in between 16 and 69 years, with the following intervals: [less than 25], [25-34], [35-44], [45-54], [over 55] |
| Education | Qualitative variable, transformed as follows: 1- International Standard Classification of Education (ISCED) 1-2 (primary education, secondary education, vocational education: special school, vocational school and complementary apprenticeship education); 2- ISCED 3 (high-school education: theoretical, specialized, special high-school for people with disability); 3- ISCED 4 (post-secondary school, foreman school and college from universities authorized to provide post-secondary education); 4- ISCED 6-8 (long-term university education - without a bachelor's, long-term university education, master degree and doctoral degrees); and 5- unknown level of education |
| Specialization | We receive data about occupation of each registered unemployed as a qualitative variable, with 904 different variants describing occupations of individuals who lost their job and decided to go abroad. Because of the large number of variants, the effect of this variable on the unemployment spells is analyzed only for individuals who graduated post-high-school or university education (945 spells). We chose this particular group because, on the one hand, it is about highly educated and skilled individuals who decide to leave the country, a category of great interest and importance from an economic point of view, and on the other hand, because the variants that describe the variable occupation for these individuals can be more easily grouped into categories and coded. Starting from the educational specialization necessary for each occupation, we constructed 7 groups, as follows: 1 - unemployed with economic education (economists, accountants, with higher or post-high-school education); 2 - unemployed with higher education in engineering and architectural studies; 3 - unemployed with medical studies (physicians, nurses with university education, nurses with post-high-school education, pharmacists, physiotherapists, veterinarians and dental technicians are included here); 4 - unemployed with Law university education; 5 - unemployed with studies in psychology, sociology, pedagogy and social assistance; 6 - unemployed with higher education in history, geography, philological studies and journalism, unemployed with higher education in mathematics, physics, chemistry, biology; and 7 - other university specializations or occupations. For the analyzed spells, there is no duration that does not specify the occupation of individual |
| Region | With the following categories: 1 - North-East; 2 - West; 3 -North-West; 4 - Center; 5 - South-East; 6 - South-Muntenia; 7 -Bucharest-Ilfov; and 8 - South-West Oltenia |
| Area of living | Dummy variable: 0-rural area; 1- urban area |
| Unemployment indemnity status (UI) | Dummy variable: 0 - for unemployed without indemnity; 1 – for unemployed who receive unemployment indemnity |
| **Events** | |
| Status | Dummy variable: 1- leaving the country, on request, for less than 3 months; 2- after leaving the country more than 3 months |

*Source:* Own contribution.

Out of the total 9,164 unemployment spells deactivated due to leaving abroad, 7,247 spells (79.1%) belong to individuals who decided to leave, on request, for less than 3 months, and 1,917 spells (20.9%) are held by unemployed who left the country for a period of more than 3 months. We draw the histogram of the entire analyzed spells and the histograms of spells deactivated due to leaving abroad, for a period less than 3 months, and for a period longer than 3 months, respectively (available on request, due to lack of space within the paper). We acknowledge that the decision to emigrate comes shortly after losing the job or graduating (in the case of first time job-seekers), especially in the case of short-term migration for less than 3 months. In terms of *gender*, out of the 9,164 unemployed that decided to go abroad during the analyzed period, 48.8% were women and 51.2% were men, similar to Assirelli *et al.* (2019) for Italian highly skilled young migrants, and opposite to those registered by Andrén and Roman (2016) for total Romanian emigrants, based on macroeconomic statistical data, but also by Bonev (2018) for Bulgaria, McCollum *et al.* (2017) for Latvia, or Candeias and Peixoto (2016) for Portugal cases, which revealed higher shares of women as compared to men out of the total number of emigrants. However, the gender distribution is different, depending on the type of leaving abroad. In the case of short-term migration, for a period of less than 3 months, the gender distribution is 50.7% to 49.3% in favor of women, as compared to 41.6% to 58.4% in behalf of men, in the case of migration for more than 3 months. These differences are explored into next sections by applying specific econometric models. We performed the descriptive analysis for the analyzed dataset, which can be made available upon request. We have clearly noticed a significant impact of age on the decision to leave the country of the unemployed. Mean duration of unemployment until leaving abroad was of 128.43 days for individuals below 25 years, 235.74 days for individuals aged 25-34 years, 233.85 days for 35-44 years old, 228.58 days for 45-54 years' cohort, and 209.07 days for unemployed aged over 55 years. The unemployed emigrants' distribution by their *education* revealed that a share of 51.7% of the total unemployed emigrants represents low-educated individuals, and 32.4% represents medium-educated individuals (theoretical, specialized and special high-school graduates). If we calculate the percentage of unemployed individuals who leave the country for a period of more than 3 months out of the total of the respective educational group, we will notice that the ISCED 6-8 unemployed group have one of the highest long-term migration rate. Indeed, Romania has a big problem with the brain-drain, which appears to be a brain-waste.

The link between the unemployed occupation/specialization and his/her decision to migrate abroad is an interesting and very useful topic in order to understand the profile of the Romanian unemployed migrant. We analyzed the distribution of unemployment spells deactivated by going abroad by the occupation of individual, and the results can be made available upon request. The highest percentage of spells that ended by leaving the country belongs to individuals with medical education (with a higher medical education or post-high-school), followed by unemployed with engineering studies, unskilled workers, locksmiths and skilled construction workers. Due to the fact that we have 904 different variants describing occupation of individuals who lost their job and decided to go abroad, we could not encode this variable for the entire dataset. Therefore, in the econometric analysis we analyzed the effect of specialization on the migration decision only for highly educated individuals and for individuals with a post-high-school education (945 unemployment spells). We chose this particular group, namely highly educated and skilled individuals who decide to leave the country, because this represents a category of great interest and significance from the economic point of view, on the one hand, and, on the other hand, due to the fact that the

variants that describe the variable occupation for these individuals can be more easily grouped into specialization categories and coded.

# 4. Methodological Approach

In this paper, we used, as a methodological approach, the Kaplan-Meier analysis and the Cox regression in a competing-risks framework. The non-parametric Kaplan-Meier product limit estimator and the semi-parametric Cox proportional hazard model is the standard approach when survival of a subject until an expected event occurs is investigated. We have a dataset from the NAE with all the unemployment spells that ended due to migration abroad. We have two established events/scenarios: (*1*) exit from unemployment by leaving the country, on request, for less than 3 months (short-term external migration); (*2*) and exit from unemployment after leaving the country for more than 3 months (long-term external migration).

Using the Kaplan-Meier product limit estimator, we estimate the median survival time and the mean survival time in unemployment until one of the two events occurs, for each subpopulation, we can draw the survival curves and compare the results. Therefore, we have information about how soon the decision of going abroad is made by each unemployed individual. Let *T* denote a continuous random variable of non-zero values, representing the survival time of the individuals of a population subject to statistical observation ($T \geq 0$). The distribution of the positive-value of *T* is described by the *survival function*, the *probability density function* and the *hazard function*.

*The survival function S(t)* is defined to be the probability that the survival time of an individual is equal to or higher than *t:*

$$S(t) = P(T \geq t)$$

(1)

The survival curve is the graph of survival function versus *t* (Greene, 2003; Le, 1997). Using survival function, we estimate important parameters, such as mean and median survival time until the expected event.

Our variable *T* is characterized by the *probability density function* too, denoted by $f(t)$:

$$f(t) = \lim_{\delta t \to 0} \frac{P(t \leq T < t + \delta t)}{\delta t}$$

(2)

and the *hazard function* represents the instantaneous death rate, assuming that the individual has survived until time *t:*

$$\lambda(t) = \lim_{\delta t \to 0} \frac{P(t \leq T < t + \delta t \mid T \geq t)}{\delta t}$$

(3)

where: $\lambda(t)$ denote the hazard of *death* (death, failure, occurrence of the event) at time *t*.

In the literature, $\lambda(t)$ is called the hazard rate and it measures the instantaneous death rate of a subject at time *t,* conditioned by the fact that the subject survived until that time *t*. The hazard function can be interpreted as a high risk of the event occurring for that subject. The *Cox proportional hazard model* is a semi-parametric method that gives the possibility to estimate the effect of different exogenous variables on the hazard of the expected event occurring.

Assuming that we have *"n"* subjects under observation, the model is as follows:

$$\lambda_i(t) = e^{x_i\beta} \cdot \lambda_0(t) = c_i \cdot \lambda_0(t) \quad i = 1,2,...,n$$

(4)

Customizing the equation 4 to the variables of our study, we will have the following model:

$$\lambda_i(t) = \lambda_0(t) \bullet e^{\beta_1(gender) + \beta_2(age) + \beta_3(education) + \beta_4(region) + \beta_5(area) + \beta_6(indemnity)}$$

, (5)

where: $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are the regression coefficients, $\lambda_0(t)$ is the baseline hazard

and $\lambda_i(t)$ is the hazard rate. The hazard rate measures the probability of an individual who

is still unemployed at the "*t*" time (day) to go abroad for a period less than 3 months or more than 3 months in the very next day.

Detailed presentations of mathematical background of the Kaplan-Meier product limit estimator and Cox regression can be found in Le (1997), Collett (2003) and Greene (2003).

## 5. Results of the Econometric Analysis

Next, we analyze if the differences observed in the descriptive statistics analysis are significant from a statistical point of view, and the explanatory variables have an impact on the decision of unemployed individuals to leave abroad for short or long term.

By processing the *Kaplan-Meier estimation*, the results revealed that the median survival time until an unemployed exited from the NAE registration due to leaving abroad is of 143 days, with a standard error of 1.573.

The survival curves (Appendix, Figure A1 and Figure A2) and survival parameters (Appendix, Table A1) for *gender variable* show differences between men and women. However, the results of the statistical tests (Appendix, Table A2) reveal that, in the case of 1st event (exit from unemployment due to short-term external migration), only the results of Log-Rank test show statistical significance between men and women. For the 2nd considered event (exit from unemployment due to long-term external migration), men decide to leave unemployment and go abroad faster than women, with highly significant statistical results (Appendix, Figure A2, Table A1 and Table A2).

The survival curves for *age variable*, both events (Appendix, Figure A3 and Figure A4) and survival parameters (Appendix, Table A3), and the results of statistical tests (Appendix, Table A4) reveal the following: age has a highly significant effect for the decision of leaving abroad of unemployed, for both short and long-term migration; as the age increases, the decision of leaving abroad is delayed; young unemployed are most prone to leave the country, on short or long-term.

As for *education* variable, the difference between survival curves and mean and median survival time, both events (Appendix, Figures A5 and A6, Table A5) are significant only in the case of 1st event, exit from unemployment due to short-term external migration (Appendix, Table A6). The shortest duration of unemployment until the individual decides to go abroad is registered by the ISCED 3 graduates. Education does not appear to have a significant effect on long-term external migration of unemployed.

A variable of major interest to achieve the profile of the Romanian migrants registered as unemployed is his/her specialization at the time of entering the NAE registration. We

received information about their occupation and the corresponding ROC code, as they were registered in the NAE system. However, due to the fact that we have 904 different variants describing occupation of analyzed individuals, the effect of specialization on the decision to emigrate is analyzed only for highly educated unemployed and for those with a post-high-school education. We have 945 unemployment spells belonging to highly educated unemployed and post-high-school graduates who are deactivated from NAE registration due to going abroad. The survival curves for *specialization* variable are presented in the Appendix, Figures A7 and A8, and the survival parameters are presented in the Appendix, Table A7. The differences between survival curves are highly significant only for the 2nd event (Appendix, Table A8). Unemployed with medical studies and those with higher education in history, geography, philological studies and journalism, mathematics, physics, chemistry, biology are most prone to exit from unemployment by going abroad for a period higher than 3 months. These results are similar to those obtained by Assirelli *et al.* (2019, p. 4) for highly skilled migrants from Italy, which found that graduates with skills on scientific areas – engineering, information and communications technology, mathematics, chemistry, physics, are more willing to go abroad.

The results of Kaplan Meier estimator show *urban/rural* disparities in terms of external migration of unemployed, for both events, highly statistically significant (Appendix, Table A9 and Table A10). An individual from rural area spent 167 days in registered unemployment until he/she decides to go abroad for less than 3 months, as compared to 156 days for urban area (Appendix, Table A9). For the long-term external migration, there are opposite survival durations. Thus, an unemployed person from the rural area withstands 548 days before leaving the country, as compared to 1,042 days for the urban unemployed.

*Region* has a highly significant effect on external migration of unemployed, on both short and long-term (Appendix, Table A12). Unemployed from Bucharest-Ilfov have the shortest unemployment duration until they go abroad, both for short- (127 days), and long-term (478 days) migration (Appendix, Table A11). The results reinforce the regional disparities in terms of external migration in Romania.

All the unemployed persons that did not receive *unemployment indemnity* are long-term external migrants (2nd event). There is no individual without UI who leave the country for less than 3 months. Due to this situation, we have survival curves and statistics only for the 2nd event, exit from unemployment due to long-term external migration (Appendix, Table A13). There are statistically significant differences between unemployed with and without indemnity (Appendix, Table A14). Individuals without UI are most prone to leave the country for a period of more than 3 months (Appendix, Table A13).

For the next step we used *Cox regression* to estimate the hazard of transition from unemployment to migration, on short or long term. Similarly, we have the same two events: (*1*) exit from unemployment when leaving the country, on request, for less than 3 months (short-term external migration); (*2*) and exit from unemployment after leaving the country for more than 3 months (long-term external migration).

In Table A15 from Appendix we have the results for the first event, exit from unemployment by going abroad for less than 3 months. All the other spells that did not ended due to first event occurrence are right-censored. Since all the unemployed individuals who received benefits exit from unemployment due to going abroad for more than 3 months, we dropped the UI variable from the regression model. All the other explanatory variables are simultaneously analyzed. The *reference category* is the first and the Enter method was used.

As much, the differences between men and women are not statistically significant, being the same conclusion as we got from the previous non-parametric analysis. Thereby, in the case of short-term external migration (less than 3 months), unemployed men and women behave in the same manner. Age has a highly significant effect on the decision to go abroad for less than 3 months. All the regression coefficients are negative when comparing with the unemployed aged less than 25 years old. Therefore, young unemployed aged less than 25 years old are most prone to exit from the NAE registration due to leaving abroad for less than 3 months. Education has also a strong significant effect on short-term external migration. The highest probability of exit from unemployment due to going abroad for less than 3 months is registered by the ISCED 6-8 unemployed, followed by the ISCED 3 unemployed. We noticed several important regional differences for Romania, with the Bucharest-Ilfov region being on the top of the short-term external migration, followed by the North-West region. Also, unemployed persons from the urban area have a higher probability to exit from unemployment due to a period of less than 3 months of external migration.

For the 2nd event (exit from unemployment due to going abroad for more than 3 months) (Appendix, Table A16), gender is again not statistically significant. However, if we count only the gender variable into the model, we notice a highly statistically significant difference between men and women, proving that men have a higher probability to go abroad for a period more than 3 months than women, being in line with previous results in the case of non-parametric analysis. When we have simultaneously introduced the entire explanatory variables in the model, the effect of gender is not once more significant. This is due to the presence of collinearity between explanatory variables. Age has also a highly statistical effect for long-term external migration. Young unemployed less than 25 years are most prone to go abroad for more than 3 months, followed by unemployed 25-34 years aged. Thus, we can state that young unemployed people are a vulnerable group in terms of external migration. Education has a significant effect on the decision to migrate abroad for more than 3 months. ISCED 6-8 unemployed have the highest probability of going abroad on long-term, which confirms that Romania has serious problems with high-skilled workforce external migration (Goschin, 2016; Roman and Voicu, 2010). For the region variable, the results reveal again the same result as in the case of 1st event: unemployed from Bucharest-Ilfov region have the highest probability of going abroad for more than 3 months. As in the case of gender variable, if we estimate only the effect of urban/rural variable in the long-term external migration probability, the result show that an unemployed from rural area has a higher probability for going abroad for more than 3 months. But when we simultaneously analyze the effect of all the explanatory variables on the endogenous variable, the urban/rural variable lacks statistical significance. We also notice that UI has a strong significant effect on the decision to exit from unemployment and go abroad for more than 3 months. Unemployed who receive indemnity have a 79.2% lower probability to end their spell and go abroad for more than 3 months. The decision to end the spell and go abroad is made, on average, after the legal period for UI expires.

We also estimated the effect of specialization variable on exit from unemployment by going abroad hazard, for the 945 spells belonging to highly educated individuals and individuals with a post-high-school-education. In this case, we have only one exogenous variable in the model, thus we estimate the singular effect of occupation on the decision to emigrate of highly educated unemployed and post-high-school graduated who are registered as unemployed at NAE, during the analyzed period. The results are presented in the Appendix, Tables A17 and A18. When the event is exit from unemployment by going abroad for a period less than 3 months, the only statistically significant difference, at a 10% rate, is the

one between unemployed with a specialization in geography, history, humanities and journalism, mathematics physics, chemistry, biology, and those with a specialization in economics to the advantage of the first group. But when the event is exit from unemployment by going abroad for more than 3 months, we have highly significant differences between unemployed with medical studies and those with studies in economics. An individual with medical studies has a 2 times higher hazard to go abroad for more than 3 months than an individual with studies in economics. Also, we have a significant hazard difference between individuals with a specialization in geography, history, humanities and journalism, mathematics physics, chemistry, biology and those with a specialization in economics to the advantage of the first group.

In our analysis, we started from the assumption that hazard is constant over time. In order to check the validity of the proportional hazard assumption, we used the log-minus-log (LML) curve for each of the explanatory variable. The LML curves of the categories of explanatory variables do not cross, for both events, thus the proportional hazard assumption holds. Therefore, there is no need for an augmented Cox regression with time-varying covariate (we can provide the LML curves upon request).

## 6. Discussions and Conclusions

This paper was set out to portray the emigration profile of unemployed people in Romania. The analysis is based on a nationally representative micro-dataset with 9,164 unemployment spells, during January 2017 – June 2019, ended due to individuals going abroad for a period of less or more than 3 months, based on gender, age, education, specialization, region, area of living, UI status. Methodological credentials were anchored on the Kaplan-Meier estimations and Cox regression in a two-risk approach.

The results of the empirical analysis show that there are more spells belonging to women, going abroad for a period less than 3 months, and more spells belonging to men who emigrate for more than 3 months. These results are reverse to those registered by Andrén and Roman (2016) for the total Romanian emigrants, based on macroeconomic statistical data, which revealed higher shares of women as compared to men out of the total number of emigrants. However, in terms of statistical significance, unemployed men and women behave the same regarding the decision to go abroad for less than 3 months. But unemployed men are more prone to exit from unemployment and go abroad for more than 3 months. Thereby, we need proper jobs for men, since they do not succeed in finding adequate working opportunities on the labor market and decide to leave the country instead.

*Age* has a strong and highly significant effect on external migration of unemployed people. Young unemployed are the most vulnerable group, who requires a special attention from the Romanian policymakers. The high emigration of unemployed people below 35 years, and aged 35-55 might have huge implications for the ageing phenomenon as regards the old dependency rate (people 65+/15-64 working age group), and the pressure on the public pension and health public expenditure (as decreasing social contributions paid by less working age, 15-64 years) (Cristea and Mitrica, 2016). Moreover, in conjunction with low birth/fertility rate, and the baby-boom after Decree no. 770 of 1966 against interruption of pregnancy, when were recorded 27 live births per 1,000 people, being the highest in Europe at that time (European Commission, 2019b), it is expected that after 2030, the year when people born after 1967 will retire, the pressure on the public pension will be at the highest. Consequently, we need better policies for labor market integration of young people (up to 35 years), but also for the 35-44 years' cohort, such as active labor market policies (ALMP)

and passive labor market policies (PLMP), and the Danish model of flexicurity, respectively (Noja and Cristea, 2018; Madsen, 2004). ALMP defrays "activation measures for the unemployed and other target groups including the categories of training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation, and start-up incentives" (European Commission, 2019a). PLMP "cover out-of-work income maintenance and support (mostly unemployment benefits) and early retirement benefits" (European Commission, 2019a). Moreover, in the current Digital Era, these labor market policies are "aimed at reskilling the workers and at making them fit for the coming digital economy are pivotal issues" (Bianco, 2018, p. 9). In Romania, ALMP represents only 0.024% of the GDP, while PLMP, 0.065% of the GDP, in 2017, as compared to 1.451% in Denmark as regards ALMP, and 2.038% as for PLMP, respectively (European Commission, 2019a). *Education* has also a significant effect on external migration of unemployed people in Romania. A share of 47.9% of the spells ended due to leaving abroad for less than 3 months, and 65.7% of the total spells ended due to migration abroad for more than 3 months belong to ISCED 1-2 individuals. However, an unemployed individual with an education higher than ISCED 1-2 spends less time in unemployment and goes abroad faster than individuals from the ISCED 1-2 group. At any moment of study time, an ISCED 6-8 unemployed has an instantaneous hazard of leaving abroad for more than 3 months higher than the reference group and the other educational groups. Accordingly, better policies and strategies on skills formation according to the labor market are all-important. The large number of job vacancies (almost 55 thousand at the end of June 2019, according to NIS, 2019) reveal that Romania is not adapted at job quality and skills formation. Policymakers have to follow "the matching" model proposed by Pissarides (2010, p. 397), "a process whereby both workers and firms search for each other and jointly either accept or reject the match seemed to be closer to reality".

For the 945 spells belonging to highly educated individuals and individuals with a post-high-school-education spells we estimated the effect of specialization on the decision to go abroad, for a period of less or more than 3 months. Except for a significant difference at a threshold of 10% between unemployed with a higher education in geography, history, humanities and journalism, mathematics physics, chemistry, biology and those with a specialization in economics, to the advantage of the first, the other unemployed behave the same in terms of the decision to emigrate on short-term. However, when it comes to leaving the country for more than 3 months, our results show that the unemployed with medical studies and those with a higher education in earth sciences are most prone to go abroad for more than 3 months. We have a result that shows the existence of an exodus of highly skilled labor and, in particular, of health personnel. For Romania, the long-term or even permanent emigration of qualified medical staff is a huge negative externality, especially in the context of the SARS-CoV-2 pandemic, due to the loss of investment made in medical staff training, diminished quality and access to medical services. In addition, the effects of population aging (increasing life expectancy, while decreasing the birth rate) exacerbate the health crisis (Cristea *et al.,* 2020). It is interesting to see how this observed behavior changes during the SARS-CoV-2 pandemic, which will be a future research topic. According to Dănăcică (2020), due to an extremely high international demand for highly skilled medical labor at the moment, and to the global pandemic, the skilled medical staff, and not only, must be valued and retained within the country.

Unemployed individuals *living* in urban *area* are more prone to exit from unemployment and go abroad for less than 3 months, and unemployed living in rural area are more disposed to exit from unemployment and go abroad for more than 3 months. These results are similar

with those obtained by McCollum *et al.* (2017) for the Latvian emigrants. If we add that, on average, unemployed living in rural area are low-educated individuals, then we can conclude that individuals without a job that reside in rural areas of Romania are a vulnerable group.

We want to underline again that we did not have information about why the unemployed decide to go abroad, whether to work, to visit, to study, for training, and no information about the destination country. However, since the subjects are unemployed or first-time job seekers, the probability of leaving abroad to work or for studies and self-improvement is high. This is one of the main limits of our research, not knowing exactly the purpose of migration. Another one is the lack of the follow up period, and the lack of information about what happened with the migrants in their migration journey, how the unemployed status affected their post-migration lives. A third limitation is the low availability of the micro-dataset as provided by NAE, namely the short time period the data covers and about other relevant personal characteristics of individuals.

The future research directions are oriented towards new investigations that de-gap all of the above stated limitations and further assess other vulnerable groups of unemployed persons in Romania, namely the unemployed with at least one disability, along with their integration on the Romanian labor market.

# Acknowledgement

# References

Andrén, D. and Roman, M., 2016. Should I Stay or Should I Go? Romanian Migrants during Transition and Enlargements. In: Kahanec M., Zimmermann K. (eds), *Labor Migration, EU Enlargement, and the Great Recession*. Berlin, Heidelberg: Springer.

Arslan, C., Dumont, J.C., Kone, Z., Moullan, Y., Ozden, C., Parsons, C. and Xenogiani, T., 2014. A New Profile of Migrants in the Aftermath of the Recent Economic Crisis. *OECD Social, Employment and Migration Working Papers*, *No. 160*, OECD Publishing.

Assirelli, G., Barone, C. and Recchi, E., 2019. "You better move on": Determinants and labor market outcomes of graduate migration from Italy. *International Migration Review*, *53*(1), pp. 4-25.

Bauer, T.K., Haisken-DeNew, J.P. and Schmidt, C.M., 2004. International Labor Migration, Economic Growth and Labor Markets—The Current State of Affairs. *RWI Discussion Paper, 20*, Leibniz Institute for Economic Research, Essen, Germany.

Bianco, A., 2018. Active Labour Market Policies for Digital Economy: Skills Development and Workforce Preparation. *Working Papers, ASTRIL - Associazione Studi e Ricerche Interdisciplinari sul Lavoro*, Available at: <http://host.uniroma3.it/associazioni/astril/db/434116a6-9952-477f-9fff-98da58bb36a7.pdf> [Accessed on September 2019].

Bonev, M., 2018. Profile of the Bulgarian Emigrant in the International Labour Migration. *China-USA Business Review*, *17*(6), pp. 302-307.

Borjas, J.G., 1987. Self-Selection and the Earnings of Immigrants. *The American Economic Review, 77* (4), pp. 531-553.

Börsch-Supan, A., 2005. The Impact of Global Ageing on Labor, Product and Capital Markets. Available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.569.1414&rep=rep1&type=pdf> [Accessed on August 2019].

Candeias, P. and Peixoto, J., 2016. Europe at their Feet? Free Circulation, Economic Crisis and Exit Strategies of Recent Portuguese Emigrants to the European Union. *Sociologia Online, 10,* pp. 11-31.

Castles, S. and Miller, M.J., 2009. *The Age of Migration: International Population Movements in the Modern World (4th edition)*. Basingstoke: Palgrave MacMillan.

Clark, K., Garratt, L., Li, Y., Lymperopoulou, K. and Shankley, W., 2018. Local Deprivation and the Labour Market Integration of New Migrants to England. *Journal of Ethnic and Migration Studies,* pp. 1-23.

Collett, D., 2003. *Modeling Survival Data in Medical Research (2nd edition)*. New-York: Chapman and Hall.

Cristea, M. and Mitrică, A., 2016. Global Ageing: Do Privately Managed Pension Funds Represent a Long-Term Alternative for the Romanian Pension System? Empirical Research*, Romanian Journal of Political Science, 16*(1), pp. 63-106.

Cristea, M., Noja, G.G., Stefea, P. and Sala, A.L., 2020. The Impact of Population Aging and Public Health Support on EU Labor Markets. *International journal of environmental research and public health*, *17*(4), p.1439.

Dănăcică, D., 2020. External Migration of Highly Educated Unemployed: The Romanian Case. *Annals of the Constantin Brâncuşi University of Târgu-Jiu,* Economy Series, 4, pp. 33-47.

European Commission., 2019a. Employment, Social Affairs & Inclusion. Statistical data. Available at: <https://ec.europa.eu/social/main.jsp?catId=1249&langId=en>[Accessed on August 2019]..

European Commission., 2019b. Eurostat database. Accessed November 5, 2019, Available at: <https://ec.europa.eu/eurostat/data/database> [Accessed on August 2019].

European Commission., 2019c. Eurostat. Statistics explained – Housing statistics. Available at: <https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics> [Accessed on August 2019].

European Commission., 2019d. Migration and migrant population statistics. Statistics Explained, Eurostat database, Available at: <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/1275.pdf> [Accessed on September 2019].

Goschin, Z., 2016. *Main Determinants of Romanian Emigration. A Regional Perspective* (No. 88829). University Library of Munich, Germany.

Greene, W.H., 2003. *Econometric Analysis.* New York: Prentice-Hall.

Grzenda, W., 2019. Socioeconomic Aspects of Long-Term Unemployment in the Context of the Ageing Population of Europe: The Case of Poland. *Economic Research-Ekonomska Istraživanja, 32*(1), pp. 1561-1582.

Harris, R.J. and Todaro, P.M., 1970. Migration, Unemployment and Development: a Two-Sector Analysis. *The American Economic Review, 60*(1), pp. 126-142.

Kahanec, M. and Zimmermann, K.F., 2008. Migration, the Quality of the Labour Force and Economic Inequality, *IZA Discussion Paper Series 3560*, Institute for the Study of Labor, Bonn, Germany.

Le, C.T. 1997. *Applied Survival Analysis.* New York: John Wiley & Sons.

Lewis W.A., 1954. *Economic Development with Unlimited Supplies of Labour*. Manchester: School of Economic and Social Studies.

Madsen, P.K., 2004. The Danish Model of Flexicurity: Experiences and Lessons. Transfer: *European Review of Labour Research*, *10*(2), pp. 187 – 207.

Massey, S.D., Arango, J., Graeme, H., Kouaouci, A., Pellegrino, A., Taylor, E., 1993. Theories of International Migration: A Review and Appraisal, *Population and Development Review*, *19*(3), pp. 431-466.

McCollum, D., Apsite-Berina, E., Berzins, M. and Krisjane, Z., 2017. Overcoming the Crisis: the Changing Profile and Trajeatories of Latvian Migrants. *Journal of Ethnic and Migration Studies*, *43*(9), pp. 1508-1525.

Munch, J.R., Rosholm, M. and Svarer, M., 2006. Are Homeowners Really more Unemployed? *The Economic Journal*, *116*(514), pp. 991-1013.

National Institute of Statistics (NIS) in Romania., 2019. Tempo online – statistical data, Available at: <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table> [Accessed on September 2019].

Noja, G.G. and Cristea, M., 2018. Working Conditions and Flexicurity Measures as Key Drivers of Economic Growth: Empirical Evidence for Europe. *Ekonomický Casopis (Journal of Economics), 66*(7), pp. 719-749.

Noja, G., Cristea, S.M., Yüksel, A., Pânzaru, C. and Drăcea, R., 2018. Migrants' Role in Enhancing the Economic Development of Host countries: Empirical Evidence from Europe. *Sustainability*, *10*(3), 894, pp. 1-32

OECD., 2019. *Talent Abroad: A Review of Romanian Emigrants*. Paris: OECD Publishing.

Otovescu, C. and Otovescu, A., 2019. The Depopulation of Romania–Is It an Irreversible Process? *Revista de Cercetare şi Intervenţie Socială*, *65*, pp. 370-388.

Piore, J.M., 1983. Labour Market Segmentation: To What Paradigm Does It Belong? *The American Economic Review*, *73*(2), pp. 249-253.

Pissarides, C.A., 2010. Equilibrium in the Labour Market with Search Frictions. Nobel Prize Committee, Nobel Prize in Economics Documents 2010-9, Available at: <https://ideas.repec.org/p/ris/nobelp/2010_009.html> [Accessed on September 2019].

Ravenstein, E.G., 1889. The Laws of Migration: Second Paper. *Journal of the Royal Statistical Society*, *52*(2), pp. 241-305.

Riaño, Y., 2021. Understanding Brain Waste: Unequal Opportunities for Skills Development between Highly Skilled Women and Men, Migrants and Nonmigrants. *Population, Space and Place*, p.e2456.

Roman, M. and Voicu, C., 2010. Some Socio-Economic Effects of Labor Migration on Sending Countries. Evidence from Romania. *Theoretical and Applied Economics*, *7*(548), pp. 61-76.

Simionescu, M., 2019. European Economic Integration and Migration in Romania. *Economic Research-Ekonomska Istraživanja*, *32*(1), pp. 3607-3626.

Sjastaad, A.L., 1962. The Costs and Returns of Human Migration. *The Journal of Political Economy*, *70*(5), pp. 80-93.

Son, L. and Noja, G.G., 2012. A Macroeconometric Panel Data Analysis of the Shaping Factors of Labour Emigration within the European Union. *Theoretical and Applied Economics*, *11*, pp. 15–30.

Stark, O. and Bloom, E.D., 1985. The New Economics of Labor Migration, *The American Economic Review*, *75*(2), Papers and Proceedings of the Ninety-Seventh Annual Meeting of the American Economic Association, pp. 173-178.

Wallerstein, I., 1974. The Rise and Future Demise of the World Capitalist System: Concepts for Comparative Analysis. *Comparative Studies in Society and History,* 16(4), pp. 387-415.

Zareva, I., 2018. Returning Migrants–Effects on the Labour Market in Bulgaria. *Economic Studies journal*, (2), pp. 102-114.