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GENDER DIFFERENCES REGARDING UNEMPLOYMENT SPELLS AND EXIT DESTINATIONS IN ROMANIA

The purpose of this study is to analyze the impact of factors influencing unemployment spells and exit destinations of men and women in Romania. The empirical analysis is based on 2376253 registered unemployment spells, gathered from the National Agency for Employment. Using non-parametric methods and the semi-parametric Cox proportional hazard model in a competing-risks framework, we estimated the effect of different explanatory variables for the unemployment spells of men and women.

Keywords: unemployment spells, exit states, hazard model

JEL Classification: J64, J21

1. INTRODUCTION

Rubery et al (1996) and Wadsworth (1991) emphasized in their studies that men and women have different social roles and behave differently in the labour market. In the traditional outlook, men have a greater degree of involvement in the labour market than women, and although the gender differences regarding active participation in the labour market have been weakened over the past decades, women still have many more responsibilities at home than men. This affects women's participation in the labour market, their career and even their wages (Fagan and Rubery, 1996). Moreover, Feng-Liam Du, Xiao-Yuan Dong (2007) and Matysiak and Vignoli (2009) underlined that women are less incisive than men in gaining better job-position and higher wages because of family responsibilities.

In the economic literature there are several empirical analysis and studies focused on the impact of *gender* on the unemployment duration. Kulik (2000) proved that unemployed Israeli men are much more stigmatized than women for the unemployed status, and spend more time looking for a job. In contrast, women are more likely to reject a position when the job

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responsibilities are in conflict with family obligations (Kotowska and Matysiak, 2008, Matysiak, 2006).

Gonzalo and Saarela (2000) demonstrated in their study the existence of significant gender differences in the exit rates from unemployment for Finnish people less than 30 years old (women are disadvantaged). During this period women usually become mothers, which negatively affects their probability to exit from unemployment. The gender gap attenuates with the increasing age of individuals. Another interesting result for the authors is that employers seem to penalize more long-term unemployed men than women, probably because of the traditional outlook that women are supposed to have a lower attachment to the labour market. The results obtained by Ollikainen (2006) also for the Finnish labour market, confirm the previous results obtained by Gonzalo and Saarela (2000), where women have a lower probability of going out to work than men. The appearance of a child or the existence of foreign citizenship decrease even further the chances of women to go to work. Grogan and van den Berg (1999) found very interesting gender differences in the labour market in Russia over the period 1994-1996. Unmarried women have a lower unemployment duration compared to men with the same marital status, but the ratio changes for married people; the women in this group have significantly higher unemployment durations than males. Hunt (2004) proves that there are gender differences concerning the unemployment duration for Germans declared as unemployed. Böheim and Taylor (2000) showed in their study that the unemployment duration tends to be lower for women compared to men in the UK labour market, but this result is explained by the outflow from unemployment to part-time work or temporary work. The estimation results of the gender factor influence on the unemployment duration showed that for Belgium, Greece, France, Spain, Denmark and Portugal women are less likely to leave unemployment (D'Agostino and Mealli, 2000). Borsic et al. (2009) proved that Slovene men have employment rate 20.8% higher than women, during the period 2002-2005.

The aim of this study is to analyze the impact of factors influencing men and women's registered unemployment spells and exit destinations in Romania. There are not many papers in the literature focused on men and women's unemployment duration and exit destinations. As Gonzalo and Saarela (2000) underline, most of the studies focused on unemployment duration do not consider that the effect of different determinants can be a function of gender. Nationally, the effect of factors influencing the duration of unemployment by gender is a topic insufficiently investigated in

Romania. Earle and Pauna (1996) examined for the first time the impact of *gender, education, age and other determinants* on the unemployment duration for the Romanian labour market. Their results showed a higher probability of re-employment for men compared to women. Dănăcică and Babucea (2007) assess the impact of *gender, age and educational level* on the unemployment duration for a county of Romania, Gorj County, using the duration models; the results showed that men have a 16.3% higher employment rate compared with women. In a recent study, Ciuca and Matei (2010) examine the impact of the same variables, *gender, age and educational level* on the unemployment duration for eight counties of Romania. The differences found between men and women were not statistically significant for 2009.

In contrast with the other four above presented studies focused on Romanian unemployment duration, in this paper we exhaustively analyze for the first time all the unemployment spells registered in Romania during the observed period. In a previous study, Dănăcică (2013) proved a 14% lower exit to employment hazard for unemployed women than men (the same analyzed period) and a longer unemployment duration for women. Thus, a deeper analysis to determine the effects of different determinants of the unemployment spells and exit destinations by gender is needed. In this work we analyze if age, education, region of living, urban or rural area of living, marital status, labour market history of individuals, marital status and health differently affect men and women's unemployment spells and exit destinations. Special attention is given to the education variable and its effect on men and women's unemployment spells and (re)employment hazard. The paper is the first of its kind for Romania, trying to fill an empty space in literature. The rest of the paper is organized as follows: section 2 briefly presents unemployment by gender in Romania, statistical data and variables of the study are described in section 3 and 4 and the results of the empirical analysis in section 5. The paper ends with the conclusions of the study.

2. BRIEF OVERVIEW OF UNEMPLOYMENT BY GENDER IN ROMANIA

The unemployment phenomenon in Romania has been officially acknowledged since 1991, with the entry into force of Law no. 1/1991 concerning the social protection and professional reintegration of the unemployed. In the previous regime, unemployment was non-existent or negligible due to the nature of the economic system. The imbalances caused

by the transition to free enterprise and the economic downturn determined quite an explosion of unemployment in the early years of transition, culminating in 1999 when the registered unemployment rate reached 11.8% (Romanian National Institute of Statistics, Tempo-Online database). After this date, according to the Romanian National Institute of Statistics, the registered unemployment rate continued to decrease (4% in 2007), and began to increase with Romanian's entry into economic and financial crisis, reaching a threshold of 6.9% in 2010.

Regarding the gender pattern of Romanian labour market, while in the beginning of the transition period (1990) the female registered unemployment rate was almost double than the male registered unemployment rate (4% compared to 2.2%), since 1999 the threshold has been reversed (11.6% the female unemployment rate compared to 12.1% for men). These differences are maintained over the entire period, reaching 7.5% for unemployed men and 6.2% for women at the end of 2010 (Table 1). The higher proportion of unemployed women registered at the beginning of transition is a consequence of the fact that women were first affected by layoffs during this period.

Table 1

Dynamics of the registered unemployment rate during 1991-2010, by gender (%)

Gender	1991	1992	1995	1998	1999	2000	2001	2005	2006	2007	2008	2009	2010
Male	2.2	6.2	7.9	10.4	12.1	10.7	9.2	6.4	5.7	4.2	4.4	8.4	7.5
Female	4	10.3	11.4	10.4	11.6	10.1	8.4	5.2	4.6	3.9	4.4	7.1	6.2

Source: Romanian National Institute of Statistics, Tempo-Online database

What happened in 1999? In 1998 and 1999 the Romanian Government adopted a series of hard economic measures. The reorganization of the National Forest Administration, the Romanian Bank for Foreign Trade, the reorganization of the Romanian National Railways and a number of collective dismissals in the industrial sector (oil, gas, and mining) increased the unemployment rate in our country in general, and the male unemployment rate in particular. 1998 and 1999 were years of massive economic restructuring in the industrial sector where the workforce was predominantly male. Some of the labor force released by the industrial sector was subsequently absorbed by the tertiary sector, where women have found a job much easier. The ILO unemployment rate and registered unemployment rate provided by the Romanian National Institute of Statistics show an improvement of young unemployed women's condition and a deterioration of the situation of middle age unemployed women.

3. DATA

The econometric analysis is based on data offered by the National Agency for Employment Romania. The database has individual information regarding all the individuals registered at the National Agency for Employment Romania during January 1st 2008 – December 31st 2010 and all ongoing spells until April 30th 2011, when we received the data.

The initial database provided by the National Agency for Employment Romania had 2,653,183 registered unemployment spells. From the initial database we had to remove all the spells with age lower than 15 years and higher than 65 years and spells with negative duration of unemployment. Also, individuals whose unemployment spells begun and ended on the same day were removed from the database due to the non-existent duration of unemployment. Out of all the 2,376,253 analyzed spells, 296,371, representing 12.5% are ongoing spells. Due to the confidentiality law regarding unemployed people in Romania, we did not receive the names of the individuals registered as unemployed during the analyzed period, or the identification number for each individual. Thus, the existence of multiple durations for the same individual is possible in the dataset. Multiple spells for the same individual is a problem that can lead to biased results. After we investigated the coding used for unemployed by the National Agency for Employment Romania, we noticed that individuals with an unclear exit destination are a potential source of multiple spells existence. Thus, we decided to censor in the econometric analysis all the spells with an unclear exit destination and all the ongoing spells. An individual can exit from unemployment due to re-employment, lose his/her job and enter again in the National Agency for Employment system registration, with a different spell. In this particular case we have a multiple spells situation too; however, in this case multiple durations are independent from each other. For each registered spell we got information concerning the entry date in unemployment, the end date, gender, age at the registration time, education, region of living, urban or rural area of living, marital status at the registration time, if the individual received unemployment allowance or not during his/her current spell, the reason of exit from unemployment, labour market history and health status of registered unemployed. However, we would like to underline that we used as unit of the analysis unemployment spells rather than individuals.

4. VARIABLES

First we analyzed the macroeconomic indicators related to unemployment in Romania using official statistics (Dănăcică, Cîrnu, 2011). We noticed that a person's gender influences both the incidence and duration of unemployment; age is a determinant factor of incidence and duration of unemployment in Romania, too. We also observed differences in the average unemployment duration between educational groups, between rural and urban area, and disparities at regional level. Thus, we decided to focus on microdata and empirically analyze if several covariates affect men and women unemployment spells and exit destinations differently.

The endogenous variable, *duration of unemployment spell*, was defined as the difference between the first and last day of registered unemployment and is measured in days. For both men and women we had information about age of the individual, education, region of residence, urban or rural area of residence, marital status, unemployment benefits, history in the labour market and health status; thus we decided to use all this information as explanatory variables and estimate their effect on unemployment spells and exit destinations. As we mention in the Introduction, several papers already proved the interaction between gender, age, education, unemployment benefits and unemployment duration. Beside the above presented explanatory variables, we also wanted to analyze the effect of education type (specialization), the effect of the presence of young children in the household, the effect of income, religion and ethnical background for men and women unemployment spells. But these data are not available at this moment; we hope in the future to extend the analysis to a more profound one.

The explanatory *gender* was coded with 0 for women and 1 for men. The *age at the start of registered spell* variable has values in between [15-65] years and was computed in the analysis as a continuous variable and also as a discrete one. In order to investigate if we have disparities between men and women unemployment duration and exit destinations within different age groups, we divided *age* in five intervals, coded as follows: 1 [15-24 years], 2 [25-34 years], 3 [35-44 years], 4 [45-54 years] and 5 [55-65 years] (the same age categories are used by the Romanian National Institute of Statistics). The *education* includes the following categories, coded as follows: 1 primary education or none, 2 gymnasium, 3 apprenticeship complementary education, 4 professional school, 5 theoretical high-school and vocational high-school, 6 special education (for people with disability, compatible with theoretical high-school in numbers of study years),

7 vocational school, 8 post-high-school, 9 short-term university education (college), 10 long-term university education and 11 unknown education. Before the Bologna process, we had in Romania short term university education, namely college (three years of study), and long-term university education (four, five or six years of study). Unfortunately we did not receive information about post-university education, e.g. master level or PhD. Thus, the higher educational level in our analysis is university education, where people with Master degree or PhD can be included.

Pencavel (1986), Killingsworth and Heckman (1986), Hunt (2004), Borsic et al. (2009), Böheim and Taylor (2000) proved in their studies that age and education have a different impact on men and women unemployment duration and reemployment probability.

We also analyzed the effect of *urban or rural area of living* for men and women unemployment spells and exit destinations. The explanatory *area of living* was coded as 0 for rural area and 1 for urban area. The explanatory variable *region of living* has the following eight categories, according to the administrative organization of Romania and was coded as follows: 1 North-East region, that includes six counties: Iași, Botoșani, Neamț, Suceava, Bacău and Vaslui, 2 West region with four counties, Arad, Caraș-Severin, Hunedoara and Timiș, 3 North-West Region, with six counties, Bihor, Bistrița Năsăud, Cluj, Maramureș, Satu-Mare and Sălaj, 4 Central region, with six counties, Alba, Sibiu, Mureș, Harghita, Covasna and Brașov, 5-South-East region, with six counties, Vrancea, Galați, Brăila, Tulcea, Buzău and Constanța, 6 South-Muntenia, with seven counties: Prahova, Dâmbovița, Argeș, Ialomița, Calarași, Giurgiu and Teleorman, 7 Bucharest-Ilfov region, which includes the capital Bucharest and Ilfov county, and 8 South-West Oltenia region, with five counties, Mehedinți, Gorj, Vâlcea, Olt and Dolj. The explanatory variable *marital status* was coded as follow: 1 unmarried, 2 married, 3 widowed and 4 divorced. We analyzed the effect of marital status for unemployment spells to see if there is a different impact on men and women.

For *unemployment allowance* we only had information about whether an individual has received allowance during his/her current unemployment spell or not (0 if not, 1 if he/she received allowance). We would like to underline that we estimated the effect of receiving or not an unemployment allowance during the current spell on the unemployment duration and exit destination. This is important since we have in the database individuals that received unemployment allowance at one point, found a job, lost their job and came back in the National Agency for Employment registration system as an unemployed individual without receiving allowance and with a new spell

different from the first one. We had the same situation for *labour market history of individuals* (0 no previous work experience at the time of entry in unemployment, 1 if individual had previous work experience) and for *health status* (0 normal health condition, 1 individual with disability).

In order to capture the impact of financial crisis on unemployment spells and exit destinations and to see if its impact is affecting differently men and women spells we introduced in the econometric analysis *the entry year in unemployment* as an explanatory variable.

For every registered unemployment spell we had information about the reason of unemployment ending (26 different reasons, e.g. employment, inactivity due to military obligation, retirement, retirement because of invalidity, arrest or execution of sentence, inability to work, going abroad, arrest for more than twelve months, maternity leave, accident occurred during the training courses, if an individual does not appear at the Agency for Employment at the established term, suspended individuals during the compensation period, exit from unemployment due to the unjustified rejection to take a job at a distance less than 50 km from home, exit from unemployment due to the unjustified refusal to attend to active labour market programmes, exit from unemployment due to legal expiry from unemployment, or due to enrolment into a new educational level, etc.). With the data available in the analysis we could discriminate between different types of exit destinations from unemployment. As we will explain in the next section, using more than one ending event will increase the amount of information and the accuracy of the analysis. We grouped all the 26 different reasons of exit from registered unemployment into three transition states (exit destinations): 1 exit from unemployment due to (re)employment (short-term, less than twelve months and long-term, more than twelve months)¹, 2 expiry of the legal period for receiving unemployment allowance and 3 exit to inactivity (non-participation) in the Romanian labour market.

5. EMPIRICAL ANALYSIS

There are two central concepts in the survival analysis: the *survival function* and the *hazard function*.

¹ We used “(re)employment” term because some individuals are young graduates, at their first employment experience. They have the legal right to receive unemployment allowance for 6 months, in case they cannot find a job after graduation.

We introduce the random variable T , which can take any non-negative value, for the *survival time* of an individual, t , until a pre-established event. The *survival function*, denoted as $S(t)$, is defined as the probability that an individual survival time is equal or greater than t :

$$S(t) = P(T \geq t) \quad (1)$$

$S(t)$ is also known in the literature as the *survival rate*. The graph of survival function versus t is named the survival curve (Le, 1997). Using survival function we can estimate relevant parameters, like the median survival time and the mean survival time.

The distribution function of T , denoted by $F(t)$, is given by the formula:

$$F(t) = P(T < t) = \int_0^t f(u)du = 1 - S(t) \quad (2)$$

The random variable T is also characterized by the probability density function $f(t)$, defined by:

$$f(t) = \lim_{\delta t \rightarrow 0} \frac{P(t \leq T < t + \delta t)}{\delta t} \quad (3)$$

The *hazard function* $\lambda(t)$ represents the instantaneous failure (*death* in biostatistics) rate, assuming that the individual has survived until time t , and is given by:

$$\lambda(t) = \lim_{\delta t \rightarrow 0} \frac{P(t \leq T < t + \delta t | T \geq t)}{\delta t} \quad (4)$$

From the equation (4) we notice that $\lambda(t)\delta t$ is the probability for an individual to achieve the event in the interval $(t, t + \delta t)$ conditional on survival until the time t . For example, in our study if the duration of unemployment is measured in days, $\lambda(t)$ gives the probability that an individual who is still unemployed on day t will exit to (re)employment, inactivity or exit due to expiry of the legal period for unemployment allowance the next day.

As we already mentioned in previous section, in our analysis we could distinguish between three potential exit destinations from unemployment. Some of the empirical studies about unemployment duration do not make a distinction between different exit destinations from unemployment; it is assumed that all transitions are from unemployment into employment. This omission leads to unrealistic employment probabilities of individuals (Gonzalo and Saarela, 2000, Eriksson, 1985). Another aspect we should consider is that the effect of determinants on the unemployment duration depends on the exit destinations. For our empirical analysis we used a Cox proportional hazard model in a competing-risks framework to estimate the instantaneous exit rate from unemployment to (re)employment, to inactivity or exit rate from unemployment due to the expiry of the legal period for receiving unemployment allowance support. Due to the particularities of the National Agency for Employment system, at the end of the legal period for receiving unemployment allowance all unemployed individuals are excluded from registration. Therefore, all the spells have an end, except the ongoing spells at the end of the study. The individuals who reached the end of legal period for unemployment allowance can choose to stay in registration by writing a request to the Agency; in this case a new spell starts, from the day of their request, and they are kept in the system as unemployed without receiving unemployment insurance benefits (UI). All the individuals that exit from unemployment due to the expiry of the legal period for UI are in fact long term unemployed.

As Jensen and Westergaard-Nielsen (1990) pointed out, using a competing-risks model led to an increase of the amount of information compared to the single-risks model, therefore a competing-risks model is a better option. In the case of a competing-risks model, the probability of leaving unemployment is given by the sum of these three transition probabilities. A transition probability is defined in our study as the probability of going to one of these three potential destinations: (re)employment, non-participation (inactivity) or exit due to the expiry of the legal period for receiving unemployment insurance benefits.

As Gonzalo and Saarela (2000), Addison and Portugal (2003), Jensen and Svarer (2003), Olikainen (2006) pointed out, the transition probabilities are assumed to be independent, conditional on the explanatory variables. In this case, the transition probabilities are considered as a hazard rate for each destination. According to Narendranathan and Stewart (1989) the transition probabilities are estimated as a single-risks by treating spells that are finishing into other destinations as right-censored.

The estimated effect of the explanatory variables on men and women unemployment spells and exit destinations is presented in Table 2, Appendix I. When an explanatory variable is a numerical one, the hazard ratio is an estimate of the hazard function change for a unit increase in the p -th covariate. For the categorical variables, the coefficient gives the hazard ratio for a specific category compared to a reference category. In our analysis, the reference category is the last category for *age*, *region of living*, *urban/rural area of living*, *marital status*, *unemployment benefits*, *history in labour market*, *health status*, and first category for *education* and *year of registration as unemployed*. As we can see from Table 2, Appendix I, most coefficients are statistically significant.

During the analyzed period, an additional year of age decreases the chances to exit from unemployment to (re)employment by 1.8% (if we compute *age* as a continuous variable). In a recent paper analyzing eight counties of Romania, Ciuca and Matei (2010) obtained a 2.2% decrease of the exit to employment hazard for an additional year. An even smaller effect of age for duration of unemployment spells (0.2%) was obtained by Dănăciță and Babucea (2007) for one county of Romania, Gorj County. A potential explanation for the less significant effect of age on unemployment duration is the high number of youth unemployment spells in the analyzed sample. In Romania, the deterioration of the youth job accessibility has led to large increases of enrolment rates in higher education and to the “brain drain” phenomenon of young highly skilled individuals. Another tendency of young people in Romania is to prolong their higher education period, following an undergraduate program, then Master and maybe a PhD, which is in reality a hidden form of unemployment.

The effect of age is different for men and women unemployment spells and exit destinations. An additional year for women leads to a decrease of the exit to a job rate with 1.6% and an additional year for men means a 1.2% lower exit to employment rate. Thus, age has a slightly higher impact on women (re)employment exit rate than on men. Women are most prone to exit from unemployment due to the expiry of the legal period for UI, compared with men. With the age increase the hazard of exit in inactivity for men increases with 1.038. If we are looking at the age groups, we can conclude that both men and women aged between 25 and 34 have the best chance of (re)employment, compared with the reference category, 55-65 years group (2.526 hazard rate for women and 1.951 for men). The median survival time until (re)employment has the lowest value for both men and women aged between 25 and 34 (Table 3, Appendix I). From Table 3,

Appendix I we can notice that the median survival time until (re)employment is longer for men aged between 15 and 24 than for women of the same age. In Romania we have an improved situation for young women and a depreciating situation for middle age women. The differences between men and women median survival until (re)employment become more obvious after 35 years. The differences between survival times until (re)employment were tested with the Log Rank test, Breslow test and Tarone-Ware test. As we can notice from Table 3, Appendix I, the observed differences are highly significant. Competing-risks specification shows that the 15-24 years group is most prone to exits into inactivity, for both men and women. A potential explanation for this situation is the fact that work experience has an important role in offering a job to an individual in Romania. Also education has a positive influence on the exit to a job probability of an individual in the Romanian labour market. The 15-24 years group consists mostly of individuals without any work experience and due to the young age most of them have a lower level of education, thus they are a vulnerable group in the labour market. A potential explanation for women higher exit rate to inactivity compared with men can also be the appearance of a child in this period of the women's life.

Education has a significant impact on men and women unemployment spells and exit destinations during the analyzing period (Table 2 and 4, Appendix I). We can notice that women without education or with a maximum four years of study have a 62 days longer survival time until (re)employment than men with the same education; the difference is even higher in the case of individuals who graduate secondary school (109 days longer in the women case). With the increase of the level of education we can notice a decrease of the disparities between men and women unemployment duration; beginning with the vocational school level, median survival time until (re)employment is shorter for women than men. Higher educated women have a 21 days shorter median survival time until (re)employment than men with the same education (Table 4, Appendix I). From Table 2, Appendix I we can notice that the difference between the exit to a job hazard for higher educated women and poor educated women is higher than the difference between higher educated and poor educated men. Therefore, we can conclude that a poor education or a higher education has a stronger effect on women unemployment spells than men. And we have the same situation for post-high-school education. For unemployed men, education focused on practical skills (e.g. vocational school) gives better exit to a job chances than the reference category and even compared with higher

educated men. This is a warning sign for the Romanian Ministry of Education who have not paid enough attention to practical education in recent years. At one point there were even a lot of discussions about the abolition of professional education in Romania. Our results show that for both men and women an education focused on achieving practical skills, like vocational school, and even apprenticeship complementary education gives better chances to exit from unemployment to (re)employment than high-school or post-high-school. The competing-risks specification shows that poorly educated women are most prone to exit from unemployment due to expiry of the legal period for UI than poorly educated men (meaning a higher probability of long-term unemployment).

From the results presented in Table 2, Appendix I we can notice that the region of living has a significant impact on unemployment spells and exit destinations for both men and women. The median survival time until (re)employment of women has the highest value for South-West Oltenia region, 1110 days, followed by South-East region, 596 days. The lowest value of survival time until (re)employment is registered for West region, 437 days, followed by Bucharest-Ilfov with 448 days (Table 5, Appendix I). For men we have an almost similar situation; median survival time until (re)employment has the highest value for South-West Oltenia region, 700 days, followed by South-East with 455 days. The lowest value of median survival time until (re)employment is registered for West region, 438 days and North-East region, 448 days. The results of the significance tests show statistical significance. In the Bucharest-Ilfov and West region case we can notice that median survival time until (re)employment is lower for women than men (Table 5, Appendix I). The most significant differences between median survival time until (re)employment are registered for South-West Oltenia region, 410 days, South-East region, 141 days and North-East region, 58 days. For both men and women spells, regression coefficients for region of living variable are positive (Table 2, Appendix I) for both men and women, meaning an increase of the chances of employment for all seven regions compared with the reference category, South-Oltenia region. Men and women from West region have the highest (re)employment chance. Significant (re)employment hazard disparities between men and women are registered for South-West Oltenia region, South-Muntenia and North-East region.

In a previous study, Dănăciță (2013) proved that unemployed individuals living in rural areas of Romania have a 37.8% lower exit to a job rate than those living in urban area. One of the research questions formulated at the

beginning of this paper was whether gender has a significant effect on the gap between rural and urban unemployment spells and (re)employment probabilities. By analyzing the results presented in Table 2, Appendix I we can notice that unemployed women living in rural area have a 38.5% lower exit to a job rate compared to those from urban area. For men the difference between rural and urban (re)employment hazard is lower. Therefore, gender has a significant effect on the differences between urban and rural (re)employment hazard. If we are looking at the median survival time until (re)employment (Table 6, Appendix I), we notice that median survival time until (re)employment is 515 days longer for women living in rural area, compared with those living in urban area. By contrast, for men we have only a 144 days difference. In rural areas women have a median survival time until (re)employment longer with 373 days than men. In urban areas the difference between men and women is only 2 days. Both men and women unemployed living in rural areas are most prone to exit from unemployment due to the expiry of the legal period for unemployment allowance (Table 2, Appendix I). The economic situation in rural areas of Romania constantly declined during the entire period after the revolution of 1989, rural individuals having difficulties to find a job or to be re-employed.

Both married men and women have higher chances to exit to employment compared with divorced individuals (Table 2, Appendix I). Usually, married men and women make a greater effort to find a job and to exit from unemployment through employment than individuals without family responsibilities. The median survival time until (re)employment is 450 days for married men and 456 days for married women (table 7, appendix I). Divorce has a negative effect on unemployment duration and (re)employment hazard. The observed differences are statistically significant (Table 7, Appendix I); however, due to the small size of the divorced individuals sample compared with the other categories, this result has to be interpreted with caution. Unfortunately, we did not have information about the presence of a child within a household and its effect on unemployment duration and exit destinations. This direction is a good subject for further research.

Receiving or not unemployment insurance benefits appears to have a great impact on the unemployment duration and (re)employment probabilities during the analyzed period. Women that did not receive allowance have a 3.913 instantaneous hazard rate to exit to (re)employment compared with women that received UI benefits. For men, the instantaneous exit rate to (re)employment is even higher, 4.293 (Table 2, Appendix I). The differences are statistically significant.

Dănăciță (2013) proved that previous work experience has a positive effect on (re)employment probability in Romania. (Re)employment hazard of individuals without previous work experience is 22.9% lower than those with previous work experience. The results of this studies show that a lack of the previous work experience has a more pronounced negative effect on unemployed men than women. Inexperienced unemployed women have a 15.7% lower (re)employment chance than those with work experience; for men the difference is 27.7% (Table 2, Appendix I). In our opinion, this gender difference is induced by job characteristics for men, mostly with strong technical particularities; most of the time employers ask for previous work experience for these jobs.

We already know that a normal health condition improve the re-employment chances of individuals. Differentiated analysis of men and women unemployment spells shows that the presence of a disability has a stronger effect on (re)employment hazard of men than women, especially in the case of low educated men in Romania (Table 2, Appendix I). However, we had a small sample for individuals with disabilities, thus the result has to be interpreted with caution. Unfortunately, we did not have any information about the type of disabilities. Another interesting research topic that would be followed in future researches is to analyze the impact of difference type of disabilities (physical, cognitive, psychical) on the duration of unemployment and (re)employment probabilities.

The impact of entry year in unemployment for men and women unemployment spells is analyzed too. With the increase of the effects of the economic crisis, we can notice the stronger negative effect on unemployed men than women. The median survival time until (re)employment is 107 days longer for women than men; in 2009 we have the same median survival time until (re)employment for both men and women, and a shorter duration until (re)employment for women than men in 2010 (Table 9, Appendix I). Unemployment duration was the longest in 2009. Beside the economic situation, another aspect that could have influenced the duration of unemployment spells in 2009 is the fact that, by the Government Emergency Ordinance (OUG) no. 28/2009 regarding the implementation of social protection measures, with derogation from the specifications of the 39 article, paragraph, 1, from the Law 76/2002, all the people dismissed due to economic difficulties are entitled to receive unemployment indemnity three months longer than the period established by the Law 76/2002. In 2010 the unemployment duration registered the lowest value compared to 2008 and 2009. This can be a consequence of the changes in the unemployment

insurance regulation adopted in 2010 and of the higher rate of people going abroad to work registered in 2010. Our results prove that the exit rate from unemployment is very sensitive to the economic situation in Romania and to the negative effects of the crises, especially for the groups less attached to the labor market.

A key assumption in our econometric analysis was proportional hazards. To check the proportional hazard assumption we used the log-minus-log graph. The result proved that the proportional hazard assumption hold, thus the Cox proportional model is well suited.

CONCLUSIONS

Our goal was to analyze the effect of factors influencing men and women unemployment spells and exit destinations in Romania. The empirical analysis was based on 2,376,253 unemployment spells, 1,047,172 women spells (44.1%) and 1,329,081 men spells (55.9%). The results suggest that the impact of explanatory variables differ significantly between men and women. Age has a different effect on men and women unemployment spells; an additional year for women led to a decrease of the exit to a job rate by 1.6% and an additional year for men means a 1.2% lower exit to a job rate. Since we have more highly-educated women spell than men in our database, the age effect on (re)employment chances can be even stronger in the women's case. Another interesting result is that median survival time until (re)employment is shorter for women aged between 15 and 34 years than men of the same age. After 35 years we have the opposite situation and the differences between men and women unemployment spells and (re)employment hazard are more pronounced. The 55-65 age group is the most vulnerable in the labour market during the analyzed period, especially for women. Both women and men belonging to this age group that did not find a job during the analyzed period exit in inactivity. As Katz (1974) pointed out, older workers are usually protected against unemployment by the senior citizen's rights and by the experience gained until that date in the labor market. At the same time, their probability of finding a job is much lowered by the advanced age. As a rule, this age group has a lower incidence of unemployment, but when it occurs, the unemployment duration is the longest. The results of our study suggest that Romanian policies to reduce unemployment duration and to improve re-employment should be targeted towards individuals and especially women aged over 35 years at the time of entering registered unemployment.

Education has a significant effect on unemployment duration and (re)employment probabilities for both men and women. However, for less-educated group, the gender gap regarding (re)employment chances is more pronounced. An education focused on achieving practical skills (e.g. vocational school), gives better re-employment chances for unemployed men. Both men and women with practical education, like vocational school have a higher (re)employment chance than high-school graduated men and women. Another target direction for Romanian policies makers is to increase the level of education of the labour force in general, and of women in particular.

Competing-risks analysis shows that for Bucharest-Ilfov region and West region we have an opposite gender gap, the median survival time until (re)employment of women is shorter than of men. The most pronounced gender gap (where women are disadvantaged) is registered for South-West Oltenia region, followed by South-East and North-East regions. Rural/urban area of living has a significant effect on unemployment duration and (re)employment chances too. We have a more pronounced gender gap for rural areas; the difference between median survival time until (re)employment for men and women living in urban areas is only 2 days. (Re)employment hazard of women living in rural areas of Romania is lower than (re)employment hazard of men living in rural areas.

The lack of previous work experience in labour market and the presence of a disability have a more pronounced negative effect on unemployed men than women. The negative effect is augmented by the lack of education for these individuals. Another finding of this study is the fact that men are more affected by economical crises than women.

The obtained results are in line with those found in previous studies by Earle and Pauna (1996), Gonzalo and Saarela (2000), Ollikainen (2006), D'Agostino and Mealli (2000), Borsic and Kavkler (2009) for gender, age and education, Atkinson and Micklewright (1991), Moffit (1985), and Ham and Rea (1987) for unemployment benefits. However, due to the problems with the initial data, the results should be interpreted with caution.

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APPENDIX I

Table 2

Factors influencing unemployment spells by gender in Romania

Explanatory Variables	Exit destinations from registered unemployment					
	(Re)Employment		Expiry of legal period for UI		Inactivity	
	Women Hazard Ratio	Men Hazard Ratio	Women Hazard Ratio	Men Hazard Ratio	Women Hazard Ratio	Men Hazard Ratio
Age	0.984***	.988***	0.934***	0.941***	0.966***	1.038***
15-24 years	2.009***	1.480***	7.082***	8.541***	2.721***	1.470***
25-34 years	2.526***	1.951***	2.815***	3.080***	0.675***	0.389***
35-44 years	1.937***	1.484***	1.284***	1.292***	0.097***	0.136***
45-54 years	1.540***	1.332***	0.958**	1.096***	0.341***	0.244***
55-65 years	Reference category					
Education						
<=4 years of studies	Reference category					
Gymnasium	3.707***	3.118***	2.437***	2.210***	2.860***	1.742***
Apprenticeship complementary education	4.546***	3.983***	2.533***	2.542***	3.022***	2.036***
Vocational school	4.985***	4.607***	2.387***	2.308***	3.531***	1.985***
High-school	4.680***	3.920***	2.674***	3.046***	3.971***	2.272***
Special education	4.253***	3.682***	3.273***	4.195***	4.484***	2.426***
Technical college	4.886***	4.190***	2.205***	2.062***	4.396***	3.249***
Post-high-school	5.094***	3.994***	2.761***	2.760***	4.737***	2.370***
College	5.184***	4.866***	2.380***	2.770***	4.492***	2.147***
University education	4.858***	4.165***	3.139***	3.470***	4.900***	2.309***
Unknown	3.866***	3.367***	2.682***	2.595***	1.514***	1.198***
Region of living						
North-East Region	1.350***	1.440***	0.976***	1.048***	1.177***	1.067***
West Region	1.758***	1.663***	0.853***	0.922***	0.953*	1.162***
North-West Region	1.286***	1.272***	0.889***	0.946***	1.069**	0.945**
Central Region	1.292***	1.219***	0.791***	0.859***	1.214***	1.008
South- East Region	1.148***	1.272***	0.927***	0.908***	1.090***	0.857***
South-Muntenia Region	1.413***	1.450***	0.925***	0.961***	1.158***	0.955*
Bucharest- Ilfov Region	1.156***	1.097***	0.665***	0.732***	0.991	0.905***
South-West Region	Reference category					
Urban/Rural Area of living						
Rural	0.615***	0.630***	1.157***	1.048***	0.785***	0.817***
Urban	Reference category					
Marital status						

Explanatory Variables	Exit destinations from registered unemployment					
	(Re)Employment		Expiry of legal period for UI		Inactivity	
	Women Hazard Ratio	Men Hazard Ratio	Women Hazard Ratio	Men Hazard Ratio	Women Hazard Ratio	Men Hazard Ratio
Unknown	1.413***	1.400***	1.024	0.952***	0.760***	1.377***
Unmarried	1.046**	1.186***	1.301***	1.230***	0.689***	1.219**
Married	1.292***	1.392***	1.124***	0.933**	0.928	1.281***
Widowed	1.201***	1.125***	1.011	0.927**	0.805***	1.118
Divorced	Reference category					
Unemployment allowance during current spell						
Without UI	3.913***	4.293***	-	-	-	-
With UI	Reference category					
History in the labour market						
Without previous experience	0.843***	0.723***	0.237***	0.190***	0.266***	0.158***
With previous experience	Reference category					
Health status						
Without disabilities	1.262***	1.438***	0.732***	0.584***	0.698***	0.377***
With disabilities	Reference category					
Year of registration						
2008	Reference category					
2009	0.725***	0.656***	1.070***	1.221***	1.412***	1.258***
2010	1.023***	0.928***	3.427**	3.452***	4.564***	4.179***

*/**/***/significant at 10%/5%/1% level

*Source: our own analysis using SPSS 17.0

Table 3

Survival time until (re)employment for men and women spells by age

Median survival time until (re)employment		
Age groups	Women	Men
15-24	532	749
25-34	429	425
35-44	452	448
45-54	611	455
55-65	870	841
Significance tests		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0

Table 4

Survival time until (re)employment for men and women spells by education

Median survival time until (re)employment		
Education	Women	Men
< =4 years of studies	1006	944
Secondary school	566	457
Apprenticeship complementary education	449	440
Vocational school	448	443
High-school	445	442
Special education	438	439
Technical college	447	455
Post-high-school	430	443
College	428	429
University education	409	430
Significance tests		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0

Table 5

Survival time until (re)employment for men and women spells by region of living

Median survival time until (re)employment (days)		
Region	Women	Men
North-East	506	448
West	437	438
North-West	455	450
Centre	452	451
South-East	596	455
South-Muntenia	458	449
Bucharest-Ilfov	448	450
South-West Oltenia	1110	700
Statistical significance		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0

Table 6

Survival time until (re)employment for men and women spells by urban/rural area of living

Median survival time until (re)employment (days)		
Area	Women	Men
Rural	959	586
Urban	444	442
Statistical significance		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0

Table 7

Survival time until (re)employment for men and women spell by marital status

Median survival time until (re)employment (days)		
Marital status	Women	Men
Unknown	998	665
Unmarried	457	456
Married	455	450
Widowed	455	457
Divorced	935	878
Statistical significance		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0

Table 8

Survival time until (re)employment for men and women spell by history in the labour market

Median survival time until (re)employment (days)		
Labor market history	Women	Men
Without previous experience	944	941
With previous experience	454	452
Statistical significance		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0

Table 9

Survival time until (re)employment for men and women spell by year of registration

Median survival time until (re)employment (days)		
Year	Women	Men
2008	547	440
2009	457	457
2010	365	404
Statistical significance		
Log Rank (Mantel-Cox)	0.000	0.000
Breslow (Generalized Wilcoxon)	0.000	0.000
Tarone-Ware	0.000	0.000

*Source: our own analysis using SPSS 17.0