



What hides behind unemployment spells in urban Romania?

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Abstract

The aim of this research is to analyze the particularities of unemployment spells in urban Romania. We used a micro-dataset of 1151352 registered unemployment spells during 2008-2010 to analyze what hides behind the urban spells and what is the effect of different individual characteristics for the unemployment spells and exit destinations from unemployment.

Key words : unemployment spells, urban areas, exit states

Introduction

The aim of this research is to analyze particularities of registered unemployment spells in urban Romania and the effect of different individual characteristics on the unemployment spells and exit states. As we know from the literature, unemployment has negative consequences at economical, social and individual level; for policy makers it is very important to know what is behind the unemployment spells, why some individuals have shorter unemployment spells than others and who the vulnerable groups that need a special attention are.

There are not many papers focused only on the urban unemployment spells and especially on the urban unemployment in developing countries. We can mention here the study of Nivorozhkin (2006) for urban Russia, in which the author proves that the risk of exit to a job is monotonic and tends to decrease with the increase of the unemployment duration. Serneels (2008) analyzed unemployment duration, job search and labor market segmentation in urban Ethiopia; his study emphasis the importance of labor market segmentation. Tansel and Tasci (2010) proved in their study that living in an urban area does not have a significant effect on the exit to a job hazard for Turkish unemployed. Kupets (2006) found in her study a gap between urban and rural areas of Ukraine regarding unemployment duration, and emphasized that policy makers should focus on older workers, less educated individuals and residents of small



towns and rural area. Ollikainen (2006) found that the exit rate from unemployment is higher for rural areas of Finland than urban areas; however behind this difference is the fact that most exits from unemployment are to active labor market programmes and not to a job. The author emphasized that Finnish labor market policy has a very strong regional aspect and a higher percent of individuals involved in active labor market programmes are from rural or peripheral areas. Laužadytė (2013) showed that both men and women from the rural areas of Lithuania have longer unemployment spells than individuals living in urban areas.

In a recent papers (see Dănăică, 2013b) we proved the existence of a gap between urban and rural areas of Romania regarding the unemployment duration and exit states from unemployment. Since there is no other empirical paper devoted to urban unemployment spells in Romania, we decided to focus on this topic. 1151352 registered unemployment spells for urban areas of Romania are analyzed and the effect of different individual characteristics for the unemployment spells and exit states from unemployment is estimated.

Data, Variables and preliminary descriptive statistics

For the empirical analysis we got the micro-data from the National Agency of Employment Romania.

Individuals whose unemployment spells begun and ended on the same day were removed from the analysis due to the non-existent unemployment duration. Also, we deleted the registrations with an age below 15 years or above 65 years. After this process, the analyzed urban sample had 1151352 unemployment spells registered during 1 January 2008 and 31 December 2010. An unemployment spell can start anytime during this period. All the ongoing spells after the April 30th 2011 are right-censored.

The endogenous variable of the study is duration of unemployment spells, calculated as the difference between first and last day of registered unemployment spell and measured in days. Personal characteristics, like gender, age, education, region of living, history on the labor market, health status, unemployment allowance (UI) and year of registration in unemployment are the explanatory variables of this study and are presented in table 1.



Table 1. Definitions of the explanatory variable

Explanatory variables	Definition
Gender	Dummy variable, 0-women, 1-men
Age	Values in between [15-65 years], analyzed distinctively by the following intervals, [15-24], [25-34], [35-44], [45-54] and [55-65].
Education	Dummy variable with the following categories: 0-without education, primary education or incomplete gymnasium, 1-gymnasium, 2-apprenticeship complementary education, 3-vocational school, 4-theoretical high-school, 5-special education (for people with disability), 6-foremen school, 7-post-high-school, 8-short-term higher education (college) and 9- long-term university, 10-unknown level of education
Region of living	Dummy variable: 1- North-East Region, 2 - West Region, 3- North-West Region, 4- Central Region, 5- South-East Region, 6- South-Muntenia, 7 – Bucharest-Ilfov Region and 8 – South-West Oltenia Region.
Previous work experience	0-if individuals do not have previous work experience, 1- if he/she has work experience
Receiving or not UI	0- if the individual do not receive unemployment allowance during his/her current unemployment spell, 1- if he/she receive unemployment allowance during the current unemployment spell.
Health status	0-without disability, 1- with disability
Registration year	2008, 2009, 2010



In our sample, an unemployment spell ends due to different reasons, like (re)employment, expiry of the legal period for receiving unemployment allowance, different forms of non-participation, self-employment, going abroad for less than three months or more than 3 months, etc. There are 25 different exit from unemployment reasons in our database; we grouped all these deactivation reasons in three exit states: (re)employment, exit from registered unemployment due to expiry of the legal period for receiving unemployment allowance (UI) and exit in non-participation. Out of all 1151352 urban spells, 32.4% are deactivated due to (re)employment, a higher percent than rural area (see Dănăcică, 2013b), 28.6% are deactivated due to expiry of the legal period for receiving UI, 3.2% spells end in non-participation and 35.8% are right censored (unclear exit reason or ongoing spells at the time when we got the data).

For the analyzed period, the minimum unemployment duration in urban Romania was 1 day, the maximum 1206 days, with a conventional mean of 237.18 days, skewness of 0.426 and kurtosis of 0.266. Conventional mean for the urban sample is lower with 7 days than the mean for the rural sample (see Dănăcică, 2013b). Out of all 1151352 urban spells, 48.9% belong to women and 51.1% to men. The percent of men spells in the total is lower than in the rural area, where we had 60.5% registered men spells. Mean unemployment duration until (re)employment for women living in urban area is 177.39 days, and for men 169.12 days; even from these preliminary descriptive statistics we can notice that the gap between men and women unemployment duration until (re)employment is lower for the urban area compared with the rural area (see Dănăcică, 2013b).

The average age for the analyzed urban spells is 36.04 years. In table 2 we presented descriptive statistics for the urban spells taking account of different age groups. We can easily notice a direct association between age and unemployment duration.



Table 2. Urban unemployment spells by age groups

Age	N	Mean (days)	Std. deviation	95% Confidence interval for the mean
15-24 years	279348	146.63	113.911	(146.20,147.06)
25-34 years	265441	203.93	143.359	(203.36,204.49)
35-44 years	277157	282.68	174.284	(281.98, 283.39)
45-54 years	258682	314.75	179.934	(313.99, 315.50)
55-65 years	70724	322.42	176.181	(320.97, 323.86)
Total	1151352	237,18	168.840	(236.85, 237,.51)

In table 3 we presented descriptive statistics regarding the urban spells by education levels. For our urban sample we have a much lower percent of individuals without education or with a very low education than for the rural sample. And the number of individuals with a higher education is higher for the urban area compared with the rural area. We can also notice that different type of education influence the unemployment duration for the registered urban spells. Unemployment duration seems to decrease with the increase of the educational level. However we have to underline that the durations presented in table 3 represents the duration until deactivation, not until (re)employment.

Table 3. Urban unemployment spells by education

Education	N	Mean (days)	Std. deviation	95% Confidence interval for the mean
Primary education or none	48298	265.97	197.577	(264.20,267.73)
Gymnasium	163783	260.97	179.657	(260.10,261.84)



Apprenticeship complementary education	31321	222.64	162.345	(220.84,224.44)
Vocational school	177923	276.37	174.196	(275.56, 277.18)
High-school	308837	230.87	160.371	(230.31,231.44)
Special education	2163	214.06	139.534	(208.18, 219.95)
Foremen school	9175	325.85	169.497	(322.38, 329.32)
Post-high-school	18675	219.51	149.879	(217.36,221.66)
College	1698	219.02	146.555	(212.04,226.00)
University education	158975	193.35	140.900	(192.65, 194.04)
Unknown	106553	206.27	171.109	(205.25, 207.30)
Total	1151352	237.18	168.840	(236.85, 237.51)

In table 4 we presented descriptive statistics regarding unemployment spells by region of residence. As we can notice, the data suggest an influence of the region variable on the urban unemployment spells.

Table 4. Urban unemployment spells by region

Region	N	Mean (days)	Std. deviation	95% Confidence interval for the mean
North-East	183141	213.96	170.058	(213.14, 214.78)
West	136851	234.71	170.395	(233.76, 235.66)
North-West	133459	236.39	160.220	(235.49, 237.30)
Central	155963	262.76	164.543	(261.90, 263.63)
South- East	135074	250.70	169.428	(249.74, 251.67)
South-Muntenia	168458	220.88	171.299	(220.02, 221.75)
Bucharest- Ilfov	99206	264.36	174.847	(263.19, 265.53)
South Oltenia	139200	231.07	163.269	(230.16, 231.98)
Total	1151352	237.18	168.840	(236.85, 237.51)

Descriptive statistics regarding urban unemployment spells by other explanatory variables are presented in table 5. Individuals without previous work experience have shorter



spells than those with work experience, as we expected (those with previous work experience are allowed to stay as registered unemployed with indemnity for 6, 9 or 12 months, depending of their contribution period). The number of spells registered for individuals with previous work experience is much higher for the urban areas than for the rural areas (see Dănăică, 2013b). Non-UI individuals have shorter unemployment spells. We can notice that the 2009 year has the highest number of registered spells and the longest unemployment duration, same situation as we had for the rural areas (see Dănăică, 2013b).

Table 5. Urban unemployment spells by other explanatory variables

Region	N	Mean (days)	Std. deviation	95% Confidence interval for the mean
Previous work experience				
Without experience	529534	137.92	145.222	(137.52,138.32)
With experience	621818	331.76	131.312	(331.40,332.11)
UI				
Without UI	495537	117.22	145.081	(116.81, 117.64)
With UI	655815	338.90	110.824	(338.61, 339.19)
Health status				
Without disability	1148623	237.30	168.887	(236.97, 237.63)
With disability	2729	188.81	140.894	(183.37, 232.08)
Registration year				
2008	284641	210.99	197.399	(210.26, 211.72)
2009	450260	293.60	160.014	(293.13,294.07)
2010	416451	179.39	120.045	(178.97, 179.82)
Total	1151352	237.18	168.840	(236.85, 237.51)

Results of the econometrical analysis



From the previous descriptive analysis we can notice that the above presented explanatory variables influence the urban registered unemployment spells. In this section we will use the Cox proportional hazard model in a competing-risks framework to estimate the effect of different individual characteristics on the unemployment spells and exit destinations. As we above underlined, for every registered spell we had information about the reason of deactivation. We grouped all the 25 different deactivation reasons in three different exit states: (re)employment, exit from registered unemployment due to expiry of the legal period for receiving unemployment allowance (UI) and exit in non-participation. All these three categories are treated as risks in our econometric analysis, and we estimated the effect of the explanatory variables on the each exit destination. A transition probability is defined in our study as the probability of going to one of the three potential exit states, (re)employment, expiry of legal period for receiving unemployment allowance and non-participation.

The micro-data were computed using SPSS 17.0. The estimated effect of the explanatory variables on the urban registered unemployment spells and exit states are presented in table 6, 7 and 8 from the Appendix. The reference category is the first for the education variable and the last for the other explanatory variables. All the above presented explanatory variables were pulled together in the analysis, and the Enter method was used.

After the competing-risks analysis we can draw the following conclusions:

- the effect of the all explanatory variables for the (re)employment state is highly significant (except for the previous work experience variable, where we have a 10% significance level). The regression coefficient for women is negative, meaning a decrease of the exit to a job chance compared with men (table 6 from the appendix). If we look at the Exp(B) value we can notice that women have a 11.9% lower exit to a job chance than men. Same conclusion we can draw if we analyze the hazard function graph from figure 1 from the appendix (men are represented by the green line). The gap between men and women exit to a job hazard rate is lower with 3.6% for the urban areas than for the rural areas (see Dăncică, 2013b) and below the results obtained for whole the Romanian sample (14%, see Dăncică, 2013a). Of course we have to take account than we have much more medium and higher educated women in the urban sample than in the rural sample. Urban unemployed women are most prone to exit from unemployment due to the expiry of the legal period for receiving UI or to exit in non-participation than urban men (11.5% higher exit to state 2 hazard rate than men and 96.9% higher exit to non-participation hazard rate, table 7 and 8 from the appendix). The exit to state 2 hazard rate, expiry of legal



period for UI, is higher for rural women than urban women, when men are the reference category. By contrast, the exit in non-participation hazard rate is higher for urban women than rural women, for the same reference category (see Dănciță, 2013b).

- all the regression coefficients for educational groups are positive when the reference category are individuals without education or with a very low education and the event is (re)employment (table 6 from the appendix). Thus education can make the difference between a very low educated individual and the rest, in terms of (re)employment chance. As we can see from table 6 and from the figure 2, best chances for (re)employment have individuals who graduated the short-term university level (college), and if we look at the confidence intervals presented in table 6 we can see that the difference between the exit to a job chance of these individuals and the rest is statistically significant. An individual who graduated a long-term university level has the same (re)employment chance than an individual who graduated a vocational school, a foremen school or a post-high-school, in the urban areas. The situation in the urban areas is different than the one described for the rural areas, where individuals with a practical education, like foremen school, vocational school have the best chances to exit to a job (see Dănciță, 2013b). However, only 3.4% from all the rural registered spells belong to higher educated individuals.

- Age has a significant effect on the urban unemployment spells and exit states and all the regression coefficients are positive when the 55-65 age group is the reference category. In the best position regarding (re)employment are individuals aged in between 25 and 34 years (table 6 and figure 3 from the appendix). Age has a slightly lower effect on the unemployment spells from the urban areas than the spells from the rural areas (see Dănciță, 2013b). Individuals aged in between 15 and 24 years living in the urban areas are most prone to exit in state 2 or in inactivity.

- Region of living influence the (re)employment chances and has a significant impact on the exit from unemployment due to expiry of the legal period for receiving UI. Individuals living in urban areas of region North-East are in the best position regarding (re)employment, followed by the West region.

- An individual who receive unemployment allowance during his/her current spell has almost five times



higher exit to a job hazard rate than those without unemployment allowance. In figure 4 from the appendix we have the hazard function for these two categories. However, we should be careful with the interpretation of this result, because individuals who receive unemployment allowance usually stay in unemployment until their legal period for it ends. All the spells deactivated because of the expiry of the legal period for receiving unemployment allowance are UI spells, and only 5 spells that ended in non-participation are non-UI spells. The effect of the unemployment allowance is stronger for the urban areas than rural areas and above the one obtained for the whole Romanian dataset (see Dănăicică, 2013b and Dănăicică, 2013a).

- In Romania, an individual without a previous work experience has a 22.9% lower exit to a job chance than those who have work experience (see Dănăicică, 2013a). In the urban areas this difference is very low and its significance is low too; the opposite situation we have for the rural areas, where an individual without a previous work experience have a 45% lower exit to a job rate than those with work experience (see Dănăicică, 2013b).

- We know from the literature that a good health condition is increasing the chance to be reemployed.

According to the data presented in table 6 from the appendix, urban individuals without a disability have a 64.7% higher exit to a job rate than disabled individuals. However, we must interpret this result with caution, since we had in our database only 2729 spells of disabled individuals.

- Regarding the registration year, for urban areas we have the same picture like the rural area: the regression coefficients for the 2009 and 2010 are negative, meaning a decrease of the exit to a job chance when comparing with the 2008, but the decrease is stronger for rural areas of Romania (see Dănăicică, 2013b).

Conclusions

In this study we focused on the registered unemployment spells in urban Romania. We used a micro-data set of 1151352 registered unemployment spells during 1 January 2008 and 31 December 2010 to analyze what hides behind the urban spells and what is the effect of



different individual characteristics for the unemployment spells and exit destinations. We found out a gender gap for the analyzed sample; however the gender gap is lower for the urban area than for the rural area. Education has a significant effect for the urban registered spells. One of the reasons behind the difference between (re)employment chances of individuals living in urban areas and those from rural areas of Romania is poor education of individuals from the second category. Very low educated individuals with an age above 40 years are a vulnerable group regarding (re)employment chances in the urban areas of Romania. Another interesting result is that the effect of receiving unemployment allowance is stronger for the urban spells than rural spells and above the one obtained for the whole Romanian sample. An interesting future research topic is to analyze if we have an association between the amount of the unemployment allowance and the unemployment duration and (re)employment hazard in urban Romania.

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APPENDIX

Table 6. Results of the competing-risks analysis, event (re)employment, urban registered spells

Variables in the Equation								
Explanatory variables	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
Gender								
Women	-.127	.003	1336.721	1	.000	.881	.875	.887
Men	Reference category							
Education								
Primary edu or none	Reference category							
Gymnasium	1.177	.010	12740.163	1	.000	3.244	3.179	3.311
Apprent. compl.	1.38	.013	10768.47	1	.000	3.988	3.885	4.094



educ.	3		8					
Voc. school	1.42 8	.010	18582.03 5	1	.000	4.171	4.086	4.257
High-school	1.33 8	.010	16834.75 6	1	.000	3.810	3.734	3.888
Special education	1.32 7	.041	1033.306	1	.000	3.769	3.476	4.087
Foremen school	1.39 2	.020	4853.465	1	.000	4.025	3.870	4.186
Post-high-school	1.38 8	.016	7224.462	1	.000	4.006	3.880	4.137
College	1.53 8	.042	1355.362	1	.000	4.653	4.287	5.050
University edu.	1.41 0	.011	16945.68 1	1	.000	4.097	4.011	4.185
Unknown	1.34 0	.011	15415.94 7	1	.000	3.820	3.740	3.902
Age								
15-24 years	.215	.009	574.666	1	.000	1.240	1.218	1.262
25- 34 years	.676	.009	6294.601	1	.000	1.965	1.933	1.998
35-44 years	.422	.008	2520.684	1	.000	1.526	1.501	1.551
45-54 years	.292	.008	1195.088	1	.000	1.339	1.317	1.361
55- 65 years	Reference category							
Region								
North-East	.337	.007	2531.849	1	.000	1.401	1.383	1.420



West	.283	.007	1587.858	1	.000	1.327	1.309	1.346
North-West	.117	.008	240.572	1	.000	1.124	1.108	1.141
Central	.164	.007	518.451	1	.000	1.179	1.162	1.196
South- East	.228	.007	945.998	1	.000	1.256	1.238	1.275
South- Muntenia	.261	.007	1421.821	1	.000	1.298	1.281	1.316
Bucharest- Ilfov	-.076	.008	95.094	1	.000	.927	.913	.941
South-Oltenia	Reference category							
Unemployment allowance								
Without UI	1.571	.006	61940.45 7	1	.000	4.811	4.752	4.871
With UI	Reference category							
Previous work experience								
Without work exp.	.011	.006	2.969	1	.085	1.011	.999	1.023
With work exp.	Reference category							
Health status								
Without disab.	.499	.039	162.151	1	.000	1.647	1.525	1.779
With disability	Reference category							
Year								
2008	Reference category							
2009	-.025	.005	29.556	1	.000	.976	.967	.984
2010	-.374	.005	6794.676	1	.000	.688	.682	.694

Table 7. Results of the competing-risks analysis, event expiry of the legal eligibility for UI, urban registered spells



Variables in the Equation								
Explanatory variables	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
Gender								
Women	.109	.004	898.318	1	.000	1.115	1.107	1.123
Men	Reference category							
Education								
Primary edu or none	Reference category							
Gymnasium	.787	.012	4052.728	1	.000	2.196	2.143	2.250
Apprent. compl. educ.	.718	.015	2252.959	1	.000	2.050	1.990	2.112
Voc. school	.742	.012	3633.371	1	.000	2.100	2.050	2.151
High-school	.914	.012	5792.485	1	.000	2.494	2.436	2.553
Special education	1.13 2	.037	936.638	1	.000	3.100	2.884	3.333
Foremen school	.672	.021	986.869	1	.000	1.959	1.878	2.042
Post-high-school	.930	.017	2855.293	1	.000	2.535	2.450	2.623
College	.916	.043	458.884	1	.000	2.499	2.299	2.718
University edu.	1.08 2	.012	7525.073	1	.000	2.951	2.880	3.024
Unknown	1.00 7	.013	6117.516	1	.000	2.738	2.670	2.808



15-24 years	2.33 5	.009	62507.10 1	1	.000	10.331	10.144	10.522
25- 34 years	1.33 4	.009	24114.38 4	1	.000	3.796	3.733	3.861
35-44 years	.318	.008	1407.188	1	.000	1.374	1.351	1.397
45-54 years	.090	.008	112.311	1	.000	1.094	1.076	1.112
55- 65 years	Reference category							
Region								
North-East	- .064	.007	92.607	1	.000	.938	.926	.950
West	- .239	.007	1146.360	1	.000	.788	.777	.799
North-West	- .199	.007	810.165	1	.000	.820	.809	.831
Central	- .279	.007	1753.362	1	.000	.757	.747	.767
South- East	- .098	.007	201.290	1	.000	.907	.895	.919
South-Muntenia	- .124	.007	339.801	1	.000	.884	.872	.895
Bucharest- Ilfov	- .501	.008	4027.676	1	.000	.606	.597	.616
South-Oltenia	Reference category							
Previous work experience								
Without work exp.	-.992	.006	28106.02 8	1	.000	.371	.367	.375



With work exp.	Reference category							
Health status								
Without disab.	-.280	.037	56.753	1	.000	.756	.702	.813
With disability	Reference category							
Year								
2008	Reference category							
2009	-1.310	.006	51848.42 1	1	.000	.270	.267	.273
2010	-1.164	.004	68628.32 9	1	.000	.312	.309	.315

Table 8. Results of the competing-risks analysis, event non-participation, urban registered spells

Variables in the Equation								
Explanatory variables	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
Gender								
Women	.678	.012	2939.058	1	.000	1.969	1.921	2.018
Men	Reference category							
Education								
Primary edu or none	Reference category							
Gymnasium	.787	.037	455.718	1	.000	2.196	2.043	2.360



Apprent. compl. educ.	.750	.049	233.049	1	.000	2.116	1.922	2.330
Voc. school	.868	.037	550.310	1	.000	2.382	2.216	2.562
High-school	.970	.036	713.552	1	.000	2.638	2.457	2.833
Special education	.992	.132	56.732	1	.000	2.697	2.084	3.492
Foremen school	1.355	.046	864.573	1	.000	3.877	3.542	4.243
Post-high-school	1.134	.051	488.862	1	.000	3.107	2.810	3.435
College	1.152	.129	79.826	1	.000	3.164	2.457	4.073
University edu.	1.125	.038	877.527	1	.000	3.081	2.860	3.319
Unknown	.206	.044	21.731	1	.000	1.229	1.127	1.340
Age								
15-24 years	.441	.023	379.342	1	.000	1.555	1.487	1.625
25- 34 years	-.796	.019	1670.744	1	.000	.451	.434	.469
35-44 years	-2.439	.022	12331.581	1	.000	.087	.084	.091
45-54 years	-1.319	.016	7177.049	1	.000	.267	.259	.276
55- 65 years	Reference category							
Region								
North-East	.024	.023	1.150	1	.284	1.025	.980	1.071
West	-.054	.024	5.268	1	.022	.947	.904	.992



North-West	-.033	.024	1.988	1	.159	.967	.923	1.013
Central	.008	.022	.140	1	.708	1.008	.966	1.052
South- East	-.038	.023	2.712	1	.100	.963	.920	1.007
South- Muntenia	-.027	.023	1.354	1	.245	.974	.931	1.018
Bucharest- Ilfov	-.247	.025	96.473	1	.000	.781	.744	.821
South-Oltenia	Reference category							
Previous work experience								
Without work exp.	-.995	.020	2360.974	1	.000	.370	.355	.385
With work exp.	Reference category							
Health status								
Without disab.	-.406	.124	10.635	1	.001	.666	.522	.850
With disability	Reference category							
Year								
2008	Reference category							
2009	-1.503	.019	6190.297	1	.000	.223	.214	.231
2010	-1.260	.015	6904.194	1	.000	.284	.275	.292

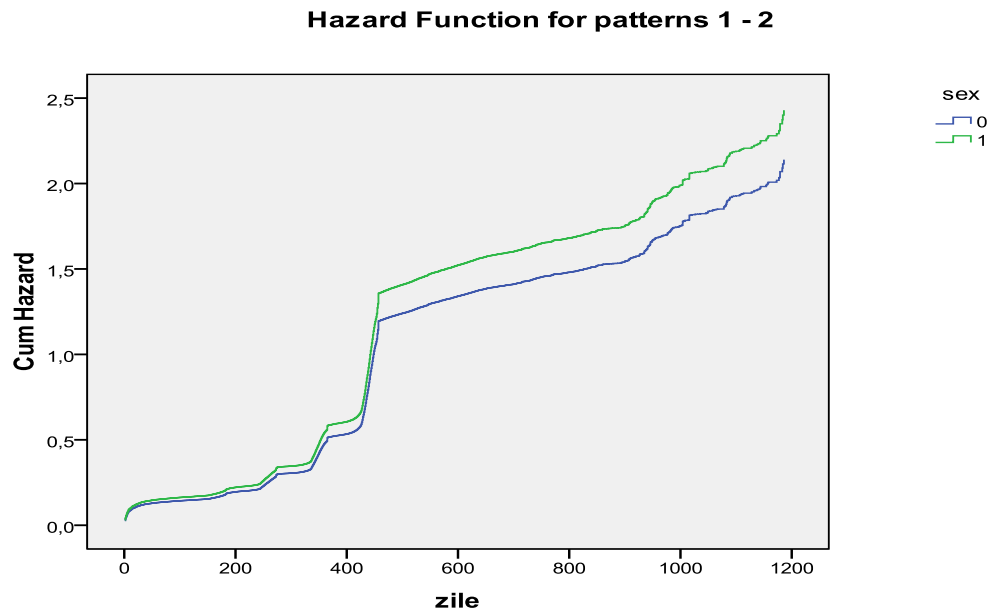


Fig.1. The hazard function for men and women, urban area, (re)employment state



Hazard Function for patterns 1 - 11

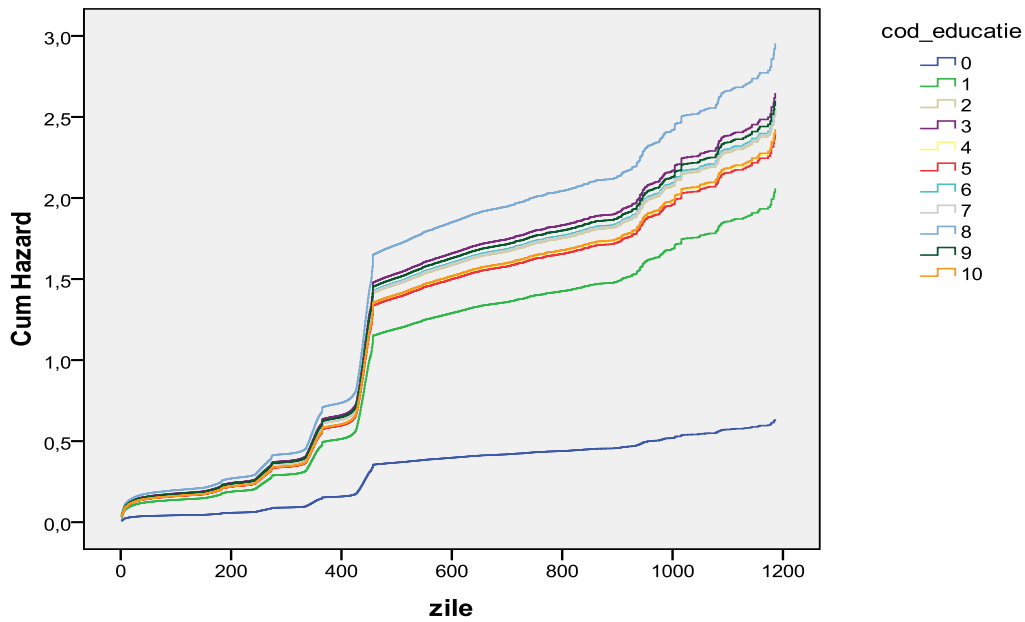


Fig.2. The hazard function different educational groups, urban area, (re)employment state

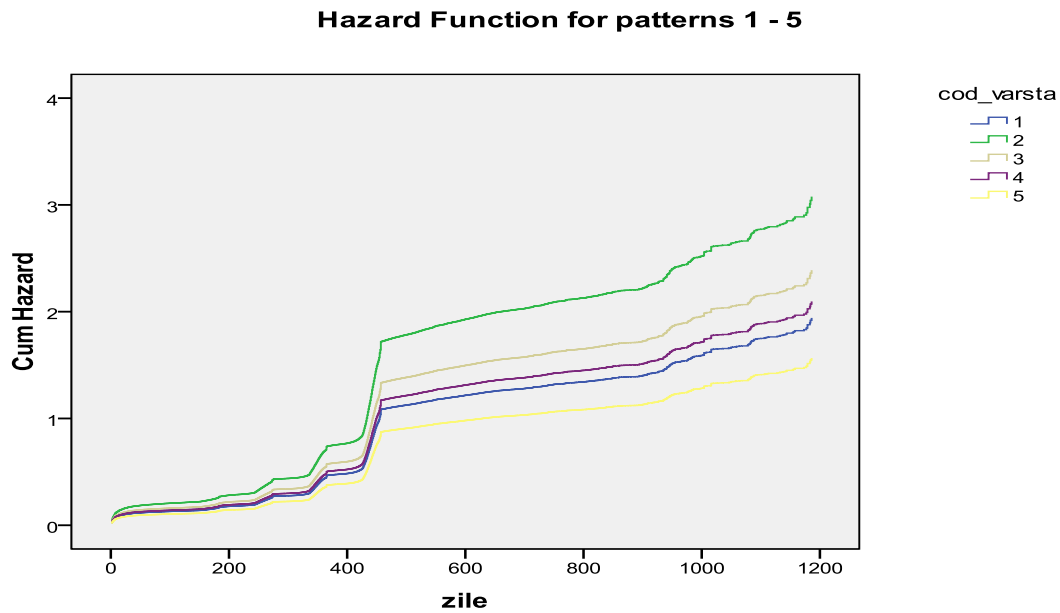


Fig.3.The hazard function different age groups, urban area, (re)employment state



Hazard Function for patterns 1 - 2

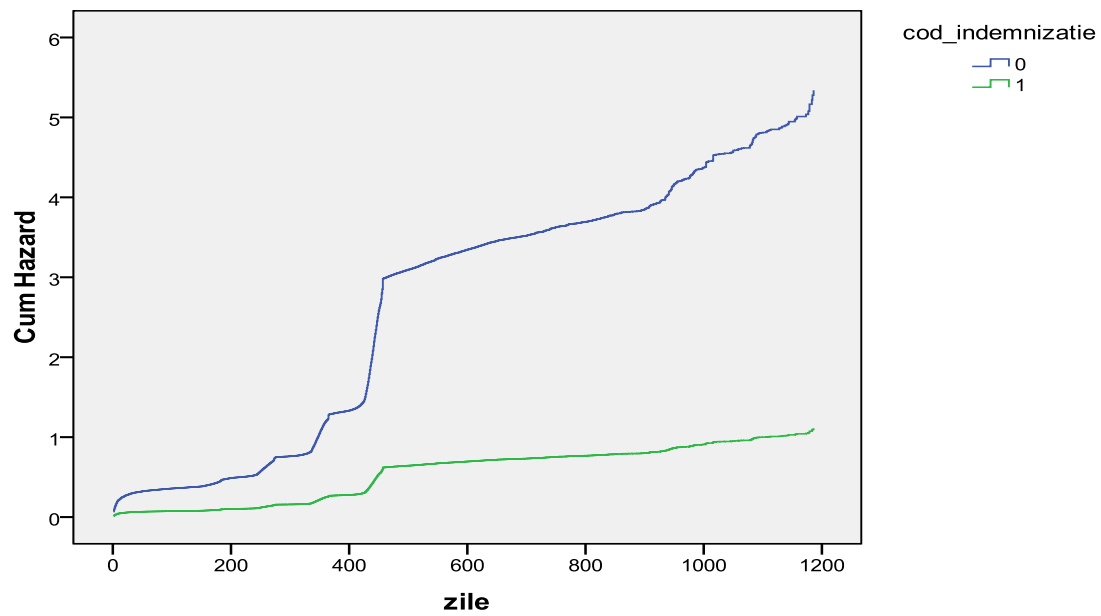


Fig.4. The hazard function UI and non-UI spells, urban area, (re)employment state