

EFFECT OF PENSION INCREASE
ON UNEMPLOYMENT DURATION

by

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Abstract

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While majority countries have already implemented contributory pension scheme Ukraine still postpones the reform. Pensions in Ukraine are paid from funds accumulated by current population and the size of the pension is established by state. Further more pensions account for nearly 20% of household income thus reducing the incentives to work. This research studies the influence of pension increase in 2004 on unemployment duration in Ukraine. We assume that unexpected pension increase negatively affects the unemployment duration by stimulating longer job search by members of households receiving income. On the other hand higher pension leads to decrease of unemployment duration by promoting retirement of working pensioners, thus the total effect on unemployment is ambiguous.

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Chapter 1

INTRODUCTION

There is no doubt that unemployment is not only economic but also social problem, and the more prolonged the unemployment spell, the more severe the problem. From the one hand, while experiencing longer unemployment spell a person has a possibility to search for a job longer which may result in a better job match. Thus government financial support is needed to make job search less expensive and in such a way promoting more efficient labor resources allocation. On the other hand, longer unemployment spells have detrimental effect on human capital, make people less attached to labor market thus promoting their social exclusion. Moreover having experience of long unemployment spell may have a stigma effect on employee. It impedes the future employment by causing more cautious attitude to job applicants with long unemployment periods in their work history – they are considered to possess obsolete skills or to have been already rejected by other employers. In such a way, optimal government support of unemployed should favor better job match and prevent unnecessary job search prolongation.

Granting unemployment benefit, either in the form of assistance or insurance, is one of the ways governments help people during the periods of unemployment. However, unemployment benefits are proved to prolong unemployment spells in developed countries; though having insignificant effect on unemployment duration in formerly socialist countries because of their small size. Furthermore, in Ukraine particularly labor income constitutes only half of population income which is significantly lower than in developed countries. Thus temporary loss of job, on average, does not deprives a person of all sources of subsistence. Combining it with the fact that social transfers

(pension, social assistance, subsidies, and other) make up to 30% of all resources of households, we may make an assumption that other state transfers also may influence people decision on exiting unemployment. It was proved by Kupets (2005) for the micro level unemployment data of 1998-2002 that having household income (income of spouse or parents), casual income or state financed pension as main sources of subsistence during unemployment prologs unemployment duration in Ukraine.

Pensions constitute the largest part of state transfers as pension system in Ukraine is non-contribution which makes government being obliged for support of pensioners. However till 2004 pensions were very low sometimes even not exceeding the subsistence level (see Figure 1). This stimulated some groups of population to postpone their retirement and loopholes in the law allowed people of pension age to continue working and receiving both salary and pension.

Another problem is that pay-as-you-go pension system is financed through contributions of current generation and due to many reasons (among which ageing of population, low retirement age and low official salaries) the number of economically active population in Ukraine decreases and number of pensioners increases, which causes decrease of Pension Fund revenues. In early 2000s government faced difficulties in financing Pension Fund deficit thus it was decided to carry out more conservative pension policy.

In spite of moderate spending policy, on 18 September 2004 by decree of Cabinet of Ministries the minimum pension was increased to the level of minimum subsistence. As can be seen from Figure 1 this increase was large enough to outweigh inflation for several year thus keeping real pension higher than real minimum wages. This unanticipated change affected 10 million pensioners, some of whom were now entitled to three times higher pensions.

According to Danzer (2010) due to such a drastic pension increase the labor supply of working pensioners decreased significantly as pension became large enough for them to retire.

However, in view of tight family relation in Ukraine and tradition of parental support of children we should also account for influence of household income increase, caused by pension hike, on the labor decision of the members of these households. According to job search theory higher non-labor income, particularly household income, leads to longer unemployment spells, thus pension increase may also lead to increase of unemployment duration of members of the household which has pension in the structure of the income.

Though this unexpected pension growth decreases poverty, it also reduces incentives to work which is revealed in hike in exits in inactivity and possible increase of unemployment duration. This may lead to decrease in revenues of Pension Fund further aggravating the problem of fund's deficit. In future it will limit possibilities of the state to provide further pension increases under non-contribution pension system, thus making the need for pension reform more evident.

Our hypothesis is that pension increase in 2004 has ambiguous influence on unemployment duration. Unemployment duration can increase due to longer transition from unemployment to employment as hike in pension size leads to higher household income thus reducing cost of job search for members of these household and giving them an incentive to search for job longer. However, duration of unemployment spell can also decrease due to people exiting from unemployment to inactivity as pensions are now sufficient for retirement of working pensioners (Danzer, 2010).

To our knowledge it is the first study that investigates the effect of pension increase on unemployment duration. It became possible due to large scope of pay as you go pension system in Ukraine while most developed countries have pension systems based mainly on personal contributions.

The data used for the model is one obtained in first and third waves of Ukrainian Longitudinal Monitoring Survey in 2003, 2007, respectively. To see the overall picture of unemployment duration we will use Kaplan-Meier estimators. It will show the probability of exiting to employment in current month conditional on staying unemployed till current period. This conditional probability is estimated using hazard function, where hazard is switching from unemployment to employment. For further analysis we apply difference-in-difference methodology for Cox proportional hazard in order to find the effect of pension increase on unemployment duration of pensioners and members of their households. As a “dependent” variable for duration analysis we will use month of unemployment duration and as independent possible individual characteristics of a person that may matter for her employment status and dummies to eliminate the effect of pension increase. Moreover we should control for macro situation in the country and for local labor market conditions.

The remainder of the paper is organized as follows. Section 2 presents overview of relevant literature. Section 3 describes data set and provides descriptive statistics. The methodology is explained in Section 4 and the results of empirical testing are discussed in Section 5. Finally, Section 6 concludes.

Chapter 2

LITERATURE REVIEW

The theoretical fundamentals on duration of unemployment may be traced to Stigler (1962), who was the first to study information on the labor market. He claimed that information about potential employers and their wage offers is costly for the employee, as it takes time and resources to study demand for labor, but this cost repays as having information about job offers on the market let a person choose the best offer. In such a setting employee will look for the wage offers until the moment when marginal cost of job search will be lower or equal to possible marginal return. Further the theory was developed by McCall (1970) who stated that duration of job search is a result of optimal implementation of stopping rule. According to this rule, unemployed searches for a job until he decides to accept the job offer. In such a case the duration of the search depends on the person valuation of his skills on the market and search cost. If individual value his skills high he will refuse all offers lower than his valuation and if cost of search are high than employer will search for less time.

Mortensen (1970) updates job search theory by making it more realistic and including unemployment insurance into analysis. In his setting there is a distribution of wage offers on the market and individual samples offers from this distribution during job search. The individual will accept the first offer that will happen to be larger than reservation wage, the lowest wage that an unemployed is ready to work for. Reservation wage is an outcome of interaction of discounted future labor income and search cost. Unemployment benefits reduce the cost of the search but do not affect future

earning thus increasing unemployment duration. Moreover the availability of any non-labor income increases reservation wage thus giving a possibility to worker to search for a longer period.

Most of the works devoted which study non-labor income influence on unemployment duration focus more on unemployment benefits as they are considered to be the main substitutes for labor income during the unemployment spell. A number of works study the effect of size of unemployment benefits on unemployment duration (Meyer 1988, Meyer and Katz 1988, Lalive, 2006, Caliendo 2009). From one side, unemployment benefits are important for effective job search. On the other side too generous unemployment insurance may result in prolongation of unemployment spell. And only a few papers study the effect of change in benefit duration or size on unemployment duration applying difference-in-difference methodology to duration analysis or using regression discontinuity framework. However Pellizzari (2004) noticed that decrease of unemployment benefit has small effect on unemployment duration in Europe. After further research, it was shown that many of unemployed who are both entitled to unemployment benefits and other mean-tested social assistance that makes their job decision less sensitive to changes in unemployment benefits. Terracol (2009) studies the effect of minimum guaranteed income on duration of unemployment in France showing that it has significant effect on disincentive to work for first 6 months.

Corsini (2011) finds a positive relation between household wealth and unemployment duration, showing that wealthy households have less tight liquidity constraints and thus experiencing longer unemployment spells.

Lentz and Tranæs (2005) show that not only wealth but income of the spouse can influence unemployment duration. They showed that earnings of the

husband have negative effect on probability of re-employment of women, however if his wife earns more a man is more likely to exit to employment.

In this respect, interesting are findings of Svarer et.al(2008) who using Danish micro data showed that unemployment duration is longer if person is a homeowner and shorter if she has to pay rent. However in this case effect from non-labor income is combined with mobility constraint.

Klasen and Woolard (2001) in their working paper study a case of South Africa in 1995 when unemployment benefits were miserable. They showed that people in order to find sources of subsistence are likely to change the structure of the household for example by delaying setting up own households or returning some to their previous households. Moreover such returns of unemployed were more likely to households where one of the members was entitled to non-contribution pension.

Most of the research for transition countries (Jones and Kotzeva, Gora and Schmidt, Earle and Pauna) dates back to 1998, when these countries were living through the period of transformation. Due to this unemployment duration was high and negligible unemployment benefits and social assistance was insignificant in the process of job search. Grogan and Berg (1999) used RLMS to study unemployment duration in Russia. They focused on individual level covariates and pay almost no attention to additional income of an individual as a part of household.

The first to implement duration analysis in order to study unemployment duration in Ukraine, namely in a view of active labor market policies, was Stetsenko (2003). He used administrative micro level data from Kyiv regional employment centers and showed that unemployment benefit has little effect

on unemployment duration. Later on Mikhed (2007) confirmed his findings using the same data but implementing survival analysis.

The fundamental research of unemployment duration was made by Kupets (2005). She was able to generalize the analysis to the country level by using Ukrainian Longitudinal Monitoring Survey 2003. Furthermore she included additional sources of subsistence in her analysis and that having income of parents or spouse or pension as main source of subsistence increases the duration of unemployment.

In the respect of pension increase and its influence on unemployment it is worth regarding the research made by Danzer (2010). Though he says nothing about unemployment duration he shows that labor supply of retirement age cohort should decrease due to hike in pensions. This will more affect people who were entitled to small pensions before the change. Due to the structure of pension system this people usually are having little working experience or are less educated. As more working pensioners are exiting to inactivity we assume that unemployed pensioners may also stop job search thus contributing to shortening of unemployment duration. On the other hand increase in household income due to pension increase will motivate their members to search for job longer as search is less expensive now.

The analysis performed will be the first work that studies the effect of pension increase on unemployment duration under the framework of pay-as-you-go pension system. More over it will contribute to the study of influence of social assistance on unemployment duration for lower-income counties for period of large scale government transfers to population. A lot of research is done on relation of social assistance and unemployment benefits for developed counties, but its study was poor for transition counties dues to small size of social assistance which increased with economic growth.

Chapter 3

METHODOLOGY

The unemployment duration will be estimated using hazard function $\lambda(t)$ which reflects probability of leaving unemployment conditional on being unemployed until current point in time. In order to specify the form of hazard function we should introduce some notation. If we define T_i as length of period of unemployment of individual i and assume that it is a random variable than $f(t)$ will be a continuous density function where t is realization of T_i . The cumulative distribution function is:

$$F(t) = \int_0^t f(s) ds = \Pr(T_i < t) \quad (1)$$

The cumulative distribution function reflects probability that randomly selected individual will be unemployed less than t . On the contrary, the probability of observing unemployment time greater than or equal t is described by survivorship function:

$$S(t) = 1 - F(t) = \Pr(T_i \geq t) \quad (2)$$

Finally the hazard function is defined as:

$$\lambda_i(t) = \frac{f(t)}{S(t)} \quad (3)$$

In order to analyze data on unemployment duration we will use non-parametric estimation method (Kaplan-Meier product limit estimator) and semi-parametric methods (Cox proportional hazard model).

Kaplan-Meier estimator of survivorship function gives a possibility to get a shape of distribution of unemployment duration in general or by specific groups. Let the number of risks of exiting unemployment at t is denoted by n_t and the number of those exited to employment is denoted by d_t , then Kaplan-Meier estimator is obtained by multiplying out conditional survival probabilities estimators (Hosmer, Lemeshow, 1999):

$$\hat{S}(t) = \prod_{t_i \leq t} \frac{n_i - d_i}{n_i} \quad (4)$$

The usage of Kaplan-Meier estimator for unemployment duration is limited by the fact it assumes that the sample is homogeneous, thus it does not accounts for individual characteristics and their influence on employment decision. That is why we will use Kaplan-Meier estimator only for deriving general characteristics of unemployment duration.

We may overcome this drawback of non-parametric method by using semi-parametric methods allowing for heterogeneity in observations. Thus using semi-parametric estimation methods grant a possibility to study joint effect of covariates on probability of exiting unemployment. For this let's modify hazard function by allowing for several covariates and denoting it as $\lambda(t, X)$. The baseline hazard function is denoted as $\lambda_0(t, X)$ and corresponds to null variables of covariates. Then Cox proportional hazard model will be:

$$\lambda_i(t, X_i) = \exp(\beta' X_i(t)) \lambda_0(t) \quad (5)$$

It implies that ratio of hazard functions is constant over time. The estimated coefficients are :

$$\beta_i = \frac{\partial \ln \lambda(t, X)}{\partial X_i} \quad (6)$$

The coefficient shows that change in covariate has a proportional influence on change in hazard rate.

Further we assume that exit to inactivity and exit to employment are two independent mutually exclusive risks, that is why we are able to apply

competing risk framework for the analysis. We will distinguish $\lambda(t, X)$ hazard

rate for exit to any destination in contrast to $\lambda_{inact}(t, X)$ and $\lambda_{empl}(t, X)$ denoting hazard rate for exit to inactivity and employment respectively. Due to the assumption of competing risks being independent:

$$\lambda(t, X) = \lambda_{inact}(t, X) + \lambda_{empl}(t, X) \quad (7)$$

And the survival function may be represented as a product of two survival functions with exits to competing destinations.

Chapter 4

DATA DESCRIPTION

The data for the research is taken from first and third waves of Ukrainian Longitudinal Monitoring Survey (ULMS) which was held by Kyiv International Institute of Sociology (KIIS) on behalf of international consortium led by Institute for the Study of Labor (IZA) in 2003 and 2007 respectively.

Based on framework of survey the shortest unemployment period constitutes one month. However definition of unemployment we employ is slightly different from ILO definition. We treat a person as unemployed if she is out of work, is searching for a work and is ready to start to work. This allows us to include working pensioners in the group of unemployed, which are treated as economically inactive by ILO classification. Though the number of such people is quite low in our sample we may include them in the sample without any loss as retirement age in Ukraine is low comparing to other countries.

The period of unemployment may end with employment if a person finds job or inactivity if a person is out of work but stopped her job search. The period of unemployment continues and an unemployment spell is censored if at the time of interview a person was unemployed. Our sample consists of 619 censored spells and of 701 full spells 156 of which ends in activity and 701 in employment. We treat different spells of unemployment experienced by one person as independent.

Following Kupets (2005) in order to control for individual characteristics we use such variables as: gender (female=1), marital status (married=1), age,

number of children, education (primary, secondary, professional, higher). Moreover we include a dummy for pension being one of the sources of household income and a dummy for period after 2004. In such a vein we assume that our treatment group is the group of unemployed from households earning pensions, thus the control group is the group of unemployed coming from households not receiving pension

In order to control for difference in local labor demand we will use local unemployment rate provided by state statistical office (due to the absence of ILO quarter rate for earlier period we will use the rate of registered unemployment) and type of settlement. The covariates that control for macroeconomic conditions are year and quarter of becoming unemployed. The descriptive statistics is in Table 1 and decomposition of the sample by waves is provided in Table 2.

The average duration of a spell is almost 9 months and almost 50% of households where the unemployed live receive pension.

Chapter 5

EMPIRICAL RESULTS

The estimated with the help of non-parametric analysis survival function is on Figure 1. It shows that the probability of random person being unemployed decreases with the duration of unemployment.

The smoothed hazard function is depicted on Figure 2. It shows that probability of exiting to employment (a) or inactivity (b) conditional on being unemployed till the moment of interest increases with the time of unemployment duration, however after some time it drops drastically.

Before testing the effect of pension increase we would like to check whether pension as one of the possible household incomes has effect on unemployment duration. For this we include in analysis the size of different sources of income measured in 1999 grynias. For the unemployed whose unemployment period started before 2004 we use household income reported in ULMS-2003 and for unemployed with period starting after – we use household income reported in ULMS-2007. The estimates obtained with Cox-proportional hazard model are in Table 3.

All control variables have expected influence on unemployment duration. Female are less likely to exit in employment than men, married female are even more likely to have prolonged unemployment spells. However being married increase the possibility of exit from unemployment. Higher level of education increases the probability of exit to employment, but interesting fact is that people with professional education, keeping all other factors unchanged, are likely to have shorter unemployment spells than people with

higher education. It is more difficult to find job with age. As we assumed, however members of households receiving pension are less likely to exit from employment to inactivity however perceiving pension does not affect conditional probability of exiting to employment.

Chapter 6

CONCLUSIONS

Granting unemployment benefit, either in the form of assistance or insurance, is one of the ways governments help people during the periods of unemployment. However, unemployment benefits are proved to prolong unemployment spells in developed countries; though having insignificant effect on unemployment duration in formerly socialist countries because of their small size. Furthermore, in Ukraine particularly labor income constitutes only half of population income which is significantly lower than in developed countries. Thus temporary loss of job, on average, does not deprives a person of all sources of subsistence. Combining it with the fact that social transfers (pension, social assistance, subsidies, and other) make up to 30% of all resources of households, we may make an assumption that other state transfers also may influence people decision on exiting unemployment. It was proved by Kupets (2005) for the micro level unemployment data of 1998-2002 that having household income (income of spouse or parents), casual income or state financed pension as main sources of subsistence during unemployment prologs unemployment duration in Ukraine.

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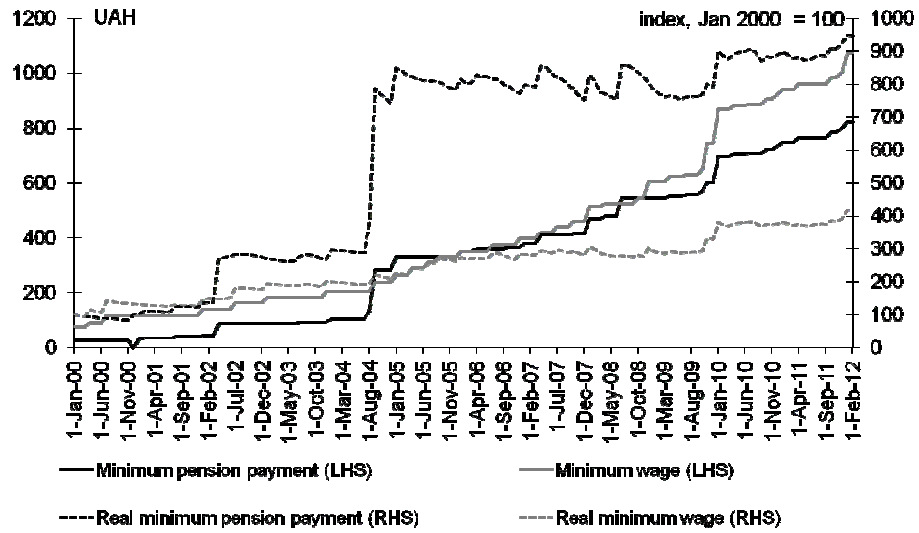


Figure 1. Dynamics of real and nominal pensions and wages

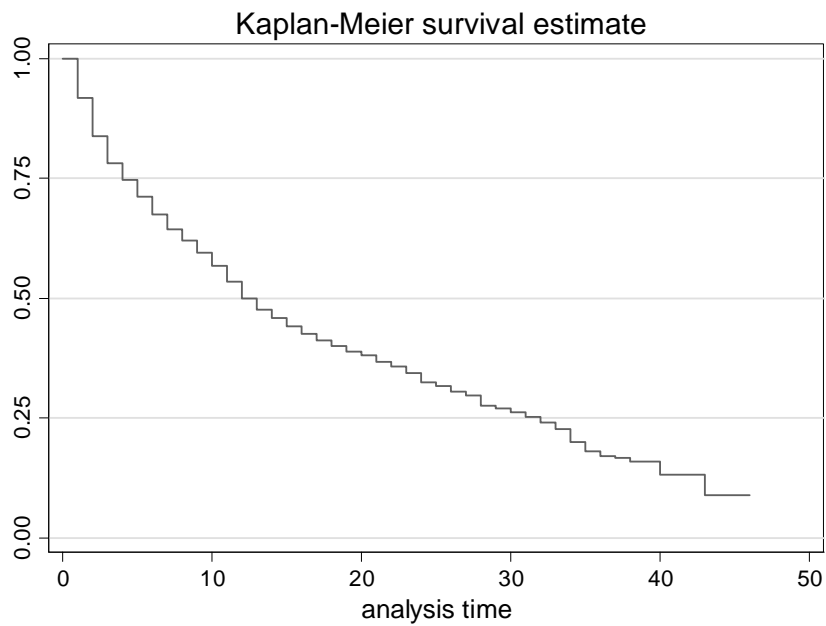


Figure 2. Kaplan-Meier survival estimates for exit to inactivity and employment

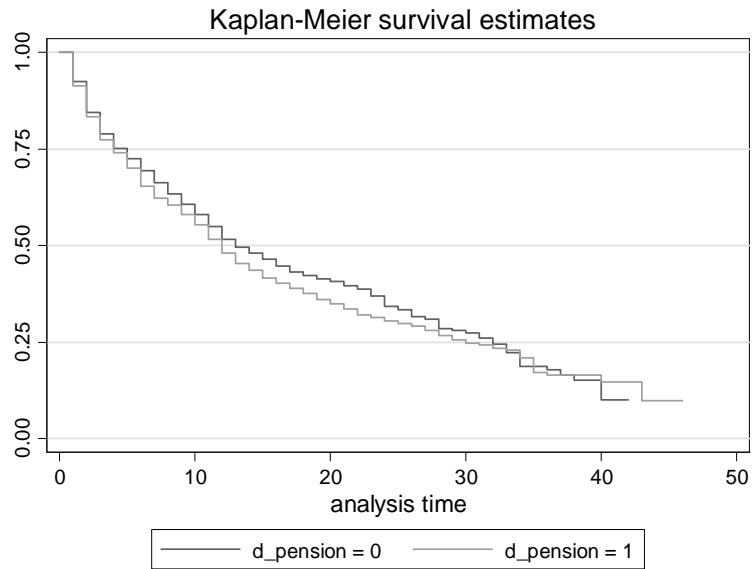


Figure 3. Kaplan-Meier survival estimates for exit to inactivity and employment (stratified by households receiving pension)

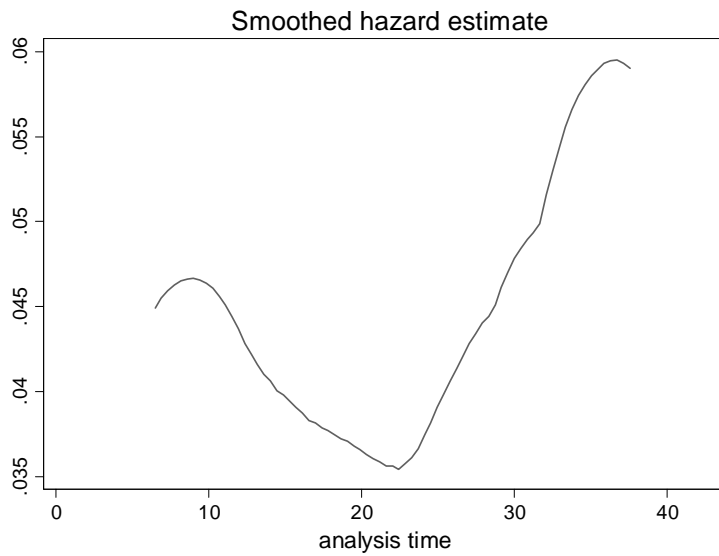


Figure 4. Smoothed hazard estimates for exit to inactivity and employment

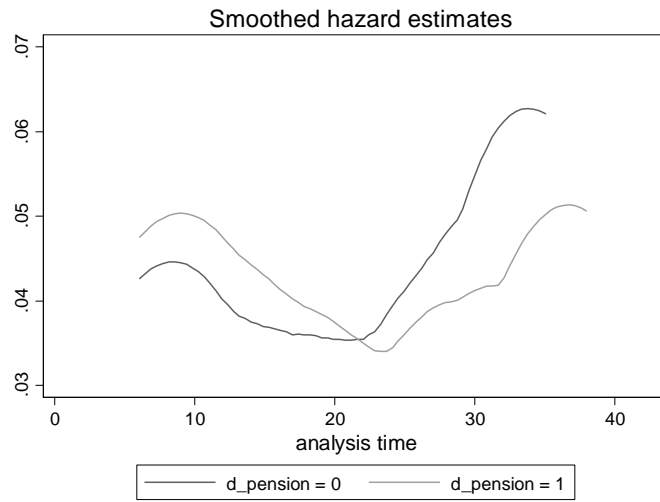


Figure 5. Smoothed hazard estimates for exit to inactivity and employment (stratified by households receiving pension)

Table 1: Descriptive statistics

Variable name	Mean	St.d.	Min	Max
Duration of all spells (with censored)	11.227	10.401	1	46
Duration of full spells	10.744	9.801	1	43
Share of censored spells	0.419		0	1
Share of exit to inactivity	0.106		0	1
Share of exits to employment	0.475		0	1
Size of real pension (thousands)	0.144	0.235	0	2.627
Size of real household income	0.790	0.836	0	7.537
Share of households receiving pension	0.458		0	1
Gender (female if 1)	0.475		0	1
Marital status (Married if 1)	0.581		0	1
Number of children	1.080	1.023	0	6
<i>Age groups</i>				
Less than 24	0.299		0	1
25-39	0.318		0	1
40-54	0.327		0	1
More than 55	0.057		0	1
<i>Education</i>				
Primary or unfinished secondary	0.107		0	1
General secondary or vocational	0.558		0	1
Professional secondary or unfinished higher	0.212		0	1
Higher	0.123		0	1
<i>Type of settlement</i>				
City	0.188		0	1
Town	0.359		0	1
Village	0.453		0	1
Regional unemployment level	3.658	1.485	0.3	8.2
Size of household	3.573	1.233	1	9

Table 1: Descriptive statistics - continued

Variable name	Mean	St.d.	Min	Max
<i>Year of exit to unemployment</i>				
2000	0.149		0	1
2001	0.150		0	1
2002	0.228		0	1
2003	0.085		0	1
2004	0.136		0	1
2005	0.102		0	1
2006	0.085		0	1
2007	0.064		0	1

Table 2: Descriptive statistics (sample construction)

Variable	Mean	Min	Max	Mean	Min	Max
	ULMS 2003			ULMS 2007		
Duration of all spells (with censored)	11.077	1	39	11.463	1	46
Duration of full spells	11.468	1	40	9.138	1	43
Share of censored spells	0.492	0	1	0.304	0	1
Share of exit to inactivity	0.125	0	1	0.075	0	1
Share of exits to employment	0.383	0	1	0.621	0	1
Size of real pension (thousands)	0.082	0	0.6	0.242	0	2.6
Size of real household income	0.435	0	3.9	1.351	0	7.5
Share of households receiving pension	0.427	0	1	0.507	0	1
Gender (female if 1)	0.455	0	1	0.507	0	1
Marital status (married if 1)	0.601	0	1	0.549	0	1
Number of children	1.144	0	6	0.979	0	5
<i>Age groups</i>						
Less than 24	0.267	0	1	0.350	0	1
25-39	0.319	0	1	0.316	0	1
40-54	0.364	0	1	0.267	0	1
More than 55	0.051	0	1	0.066	0	1
<i>Education</i>						
Primary or unfinished secondary	0.138	0	1	0.058	0	1
General secondary or vocational	0.537	0	1	0.593	0	1
Professional secondary or unfinished higher	0.207	0	1	0.220	0	1
Higher	0.118	0	1	0.129	0	1

Table 2: Descriptive statistics (sample construction) - continued

Variable	mean	min	max	mean	min	max
	ULMS 2003			ULMS 2007		
<i>Type of settlement</i>						
City	0.208	0	1	0.156	0	1
Town	0.362	0	1	0.355	0	1
Village	0.430	0	1	0.490	0	1
Regional unemployment level	3.888	0.5	8	3.294	0.3	8.2
Size of household	3.427	1	5	3.804	1	9
<i>Year of exit to unemployment</i>						
2000	0.243	0	1	0	0	0
2001	0.246	0	1	0	0	0
2002	0.373	0	1	0	0	0
2003	0.138	0	1	0	0	0
2004	0	0	0	0.351	0	1
2005	0	0	0	0.262	0	1
2006	0	0	0	0.220	0	1
2007	0	0	0	0.166	0	1

Table 3: Cox proportional hazard estimation results

	(1) Exit to unemployment and inactivity	(2) Exit to unemployment and inactivity
Treatment effect	-0.562** (0.278)	-0.057 (0.154)
After increase	0.520*** (0.095)	0.380*** (0.113)
Pension (size)	0.354 (0.225)	
Pension (dummy)		0.082 (0.086)
Female	-0.016 (0.114)	-0.009 (0.114)
Married	0.343** (0.136)	0.354*** (0.136)
Number of children	-0.095 (0.068)	-0.076 (0.068)
Female*married	-0.135 (0.174)	-0.140 (0.174)
Female*children	0.117 (0.086)	0.114 (0.086)
Age group 25-39	-0.305*** (0.101)	-0.294*** (0.102)
Age group 40-54	-0.435*** (0.125)	-0.443*** (0.127)
Age group more than 55	-0.163 (0.175)	-0.201 (0.179)
Secondary education	-0.138 (0.116)	-0.146 (0.117)
Proficient education	0.009 (0.131)	-0.001 (0.130)
Higher education	0.128 (0.145)	0.089 (0.145)
City	0.389*** (0.107)	0.345*** (0.108)
Town	0.137* (0.081)	0.114 (0.081)
Level of registered unemployment	-0.087*** (0.027)	-0.079*** (0.027)
Size of household	-0.025 (0.030)	-0.053* (0.031)
Household income		0.099** (0.039)
-Log likelihood	5546.27	5544.64
N	1476	1476

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Competing risk estimation results

	(1) Exit to employment		(1) Exit to inactivity	
	(1)	(2)	(1)	(2)
Treatment effect	-0.561*	-0.152	0.061	0.620
	(0.326)	(0.164)	(0.540)	(0.514)
After increase	0.647***	0.466***	-0.861***	-0.876*
	(0.097)	(0.110)	(0.285)	(0.451)
Pension (size)	0.015		0.963**	
	(0.277)		(0.414)	
Pension (dummy)		-0.090		0.530***
		(0.094)		(0.177)
Female	-0.002	0.022	0.062	0.039
	(0.117)	(0.120)	(0.288)	(0.291)
Married	0.310**	0.324**	0.174	0.231
	(0.145)	(0.144)	(0.337)	(0.339)
Number of children	-0.115	-0.090	-0.049	-0.068
	(0.076)	(0.076)	(0.164)	(0.159)
Female*married	-0.203	-0.234	0.185	0.220
	(0.187)	(0.186)	(0.395)	(0.395)
Female*children	-0.025	-0.026	0.392**	0.386**
	(0.096)	(0.095)	(0.179)	(0.179)
Age group 25-39	-0.092	-0.050	-0.625***	-0.737***
	(0.106)	(0.106)	(0.242)	(0.244)
Age group 40-54	-0.200	-0.186	-0.632**	-0.698**
	(0.136)	(0.137)	(0.278)	(0.275)
Age group more than 55	-0.331	-0.329	0.480	0.347
	(0.215)	(0.218)	(0.312)	(0.311)
Secondary education	0.036	-0.001	-0.378*	-0.339
	(0.132)	(0.130)	(0.223)	(0.227)
Proficient education	0.260*	0.212	-0.588**	-0.448*
	(0.146)	(0.144)	(0.274)	(0.264)

Table 4: Competing risk estimation results - continued

	(1)	(2)	(1)	(2)
	Exit to employment		Exit to inactivity	
Higher education	0.412** (0.161)	0.322** (0.161)	-0.821** (0.338)	-0.706** (0.332)
City	0.408*** (0.113)	0.336*** (0.114)	-0.213 (0.270)	-0.144 (0.276)
Town	0.095 (0.088)	0.058 (0.088)	0.110 (0.174)	0.167 (0.174)
Level of registered unemployment	-0.087*** (0.029)	-0.074** (0.029)	0.028 (0.062)	-0.011 (0.060)
Size of household	0.023 (0.030)	-0.022 (0.034)	-0.092 (0.069)	-0.037 (0.074)
Household income		0.165*** (0.052)		-0.375** (0.185)
-Log likelihood	4615.40	4610.32	1032.48	1027.76
N	1476	1476	1476	1476

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

