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Staying Longer on Unemployment Register in Russia: Lack of Education, Bad Luck or Something Else? ¹

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Abstract

Using individual-level data on registered unemployed collected by the Federal Employment Service in Voronezh province of Russia (1996-2000), we test some basic hypotheses on the influence of individual attributes (gender and education, in particular), working history, the specifics of the regulatory framework, and regional labor market characteristics on the hazard ratios, and hence, on duration of unemployment. We obtain empirical support for gender and educational differentials in unemployment duration: women tend to stay longer in the pool, and there are gender asymmetries in the influence of employment history on unemployment duration; those with junior professional education have significantly higher exit rates from unemployment as compared with those with general secondary education, while secondary professional and university degrees do not help you leave unemployment. There appears to be a “premium” in terms of higher exit rate for males with experience in private enterprise, but not for females, while the configuration of the local labor market does matter for both: those living in municipalities with highly concentrated labor markets tend to have longer unemployment spells.

We find positive duration dependence, with the relevant coefficient in Weibull specification being around 1.8. The result could be driven by the increasing with unemployment time liquidity constraint that reduces reservation wage significantly. Together with almost infinite downward wage flexibility in the Russian labor market, that implies that the demand for whatever job could arise at certain time and be met by the offers available in the labor market. Positive duration dependence seems to suggest that this liquidity constraint argument overweigh the influence of education, experience and other factors on reservation wage at some point in time.

Themes: Microeconomics of unemployment, labor markets in transition economies

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1. Introduction

One of the peculiarities of transition economies, including Russia, is the stagnant unemployment pool: the ratio of long-term unemployed² in Russia's unemployment pool is more than thirty per cent. The destabilizing effect of the phenomenon for social development is well known, as well as the fact that the effectiveness of various means to fight it depends crucially on the nature of the labor market.

As many scholars note, unemployment in transition economies increased mainly due to a very low outflow from the unemployment rather than due to the high inflow into it, as opposed to developed economies. The unemployment inflow (the ratio of the increment in the number of the unemployed to the labor force) was around 0.5% per month as compared with 1% in Western Europe and 2-3% in the United States (Boeri (1998)). The outflow from unemployment was low: only 5 out 100 unemployed found jobs, and about one third of those exiting unemployment exit the labor force.

An intensive movement of workers from one enterprise to another, i.e., without entering unemployment, is suggested as an explanation for the co-existence of long-term unemployment and developing private sector in transition economies (Brixiova (1997), Boeri (1999)). The reasons for this kind of behavior of employers are suggested to be mainly the discrepancy between the qualification profile of the unemployed and the relevant qualification profile of vacancies.

Little is known, however, about who are those unemployed, and long-term unemployed in particular, and what are the factors that determine probabilities to exit unemployment and to re-enter it. The paper aims at improving our understanding of the issues for the Russian economy. In particular, we investigate transitions of registered unemployed into and out of unemployment using Federal Employment Service data and survival analysis framework. Proportional hazard models which allow to introduce economic factors which are most likely to explain duration of unemployment spells are estimated. The pool of registered unemployed is in the focus of our research. We use individual-level data on registered unemployed collected by the Federal Employment Service in Voronezh province in 1996-2000.

As a part of the project, we test whether there are differences in male/female patterns. We also expect education level, family connections, employment history, properties of regulatory arrangements and local labor market characteristics be important determinants of unemployment duration. The sign of duration dependence is tested.

Studying the unemployment structure, and survival analysis in particular, are popular topics of research (Van den Berg and van Ours (1994, 1996, 1998), van den Berg (2000), Micklewright and Nagy (1998), Partridge and Rickman (1998), and many others³). Most empirical papers analyze developed economies, however, and there are only a few studies for Russia. It is mainly the lack of appropriate data that explains the scarcity.

Speaking about the studies in transition countries, we should mention Lubyova and van Ours (1997a,b) who study unemployment duration and the influence of changes in benefit provision schemes in Slovakia using employment service data. The authors find positive dependence of the hazard rate on the level of education. Ham, Svejnar and Terrell (1996) study unemployment

² Unemployed for more than 12 months.

³ A survey is presented in Machin and Manning (1999).

pools in the Czech and Slovak republics and find that males of older ages with less education have less chances to exit unemployment.

The issue of the influence of education on the duration of unemployment spell in Russia is still an open question. Foley (1997), using RLMS data for 1992-94, finds that those with university degree tend to have relatively longer unemployment spells. Grogan and van den Berg (2000), using RLMS data for 1994-96, distinguished between four types⁴ of unemployment and estimated duration for each type separately. They find that those with university degree have relatively better chances to exit unemployment. Nivorozhkina et.al. (2000) study registered unemployment in Rostov-on-Don city, using the Federal Employment service data for the city, and find that less qualified are easier in finding jobs.

With respect to gender differentials, it is widely believed that unemployment in Russia has a 'female face'. The features of the face are not clear though: Grogan and van den Berg (2000) find that females tend to have higher frequency of unemployment spells as compared with males, with shorter duration of the spells; Nivorozhkina et.al. (2000) find that females tend to spend longer in unemployment than males. The sources of gender differences is to be explained as well: is it mainly the difference in qualification and experience or rather discrimination that increases the spell for females; or could getting registered be simply a way of getting access to the welfare program for those out of labor force (women)?

The type of data and the approach we use in our study resembles those chosen by Nivorozhkina et.al. (2000). However, it is not only that the region is different, but the range of questions we are interested in is broader. Nevertheless, it is important that our results are compared with those in Nivorozhkina et.al.

We obtain empirical support for gender and educational differentials in unemployment duration: women tend to stay longer in the pool, and there are gender asymmetries in the influence of employment history on unemployment duration; those with junior professional education have significantly higher exit rates from unemployment as compared with those with general secondary education, while secondary professional and university degrees do not help you leave unemployment. There appears to be a "premium" in terms of higher exit rate for males with experience in private enterprise, but not for females, while the configuration of the local labor market does matter for both: those living in municipalities with highly concentrated labor markets tend to have longer unemployment spells.

We find positive duration dependence, with the relevant coefficient in Weibull specification being around 1.8. The result could be driven by the increasing with unemployment time liquidity constraint that reduces reservation wage significantly. Together with almost infinite downward wage flexibility in the Russian labor market, that implies that the demand for whatever job could arise at certain time and be met by the offers available in the labor market. Positive duration dependence seems to suggest that this liquidity constraint argument overweigh the influence of education, experience and other factors on reservation wage at some point in time.

The paper is organized as follows: section 2 introduces briefly the unemployment benefit provision rules and presents some statistics on Voronezh province. Section 3 presents the methodology used and the data. Results are presented in section 4. Section 5 concludes.

2. Unemployment benefit system in Russia: a brief overview

⁴ The authors defined unemployment as the state in which you "do not have work", "do not have a job", "are not paid for work", "are unemployed according to ILO definition".

An unemployment benefit system in general has two major functions: to provide insurance against becoming unemployed, and to provide social assistance to the long-term unemployed. The Russian system⁵ is believed to be not successful in both of the tasks: the coverage ratio, i.e. the ratio of those getting unemployment benefit or unemployment assistance to the total number of unemployed, is rather low, unemployment benefits are very small, and unemployment assistance is practically non-existent.

One of the explanations of the low coverage ratio in Russia is the level of unemployment benefit: it is very low in comparison to both developed countries and the transition economies of Eastern Europe. Replacement ratio proxied with the average unemployment benefit as percentage of the average wage was 20% in 1995 and rose to 30% in 1997. The same ratio was 40-60% in most Eastern European countries in the early 90-s and declined to about 35% by 1995. Half of the registered unemployed in Russia are eligible for the minimum UB, which is equivalent to 8% of the average wage or 20% of the subsistence level of a working person. The average UB amounts to only 30-50% of regional subsistence level. Widespread UB arrears reduce the size of effective UB even further.⁶

The coverage ratio is not very high in OECD countries too - about 40%. However, the reason for the low coverage ratio in Russia and in OECD countries is completely different. In OECD countries it is UB eligibility restrictions, which result in effectively unemployed individuals not getting any benefit, while in Russia there is a large proportion of discouraged workers or unemployed reluctant to register with the employment agency because they do not believe it could give them any advantages. The benefits are small and paid irregularly, payment arrears are rampant,⁷ and the probability of finding a good job with the help of the employment agency is small, while the transaction costs of registration are too high.

Social assistance in the form of monthly benefits is practically non-existent in Russia. This is a major difference with Eastern Europe, where social assistance is common and every unemployed person can get UA of infinite duration and of non-negligible magnitude. While the Russian system looks certainly better from the point of view of distortions to the incentives to work, it is also much worse in terms of preventing the unemployed from falling into poverty⁸.

Voronezh province is an interesting case to study unemployment in: first, the province is one of the largest provinces in central Russia; second, this is the province where a lot of defense-oriented manufacturing enterprises were situated during the Soviet era, and hence, the degree of structural distortions is believed to be very high in the region. However, there is still not too much of restructuring which is reflected in the pattern of regional production decline and regional unemployment (Table 1).

With respect to unemployment, Voronezh province followed the average RF pattern, though both registered and general unemployment rates were lower in Voronezh oblast as compared with all Russia level. Registered unemployment throughout the period was about 20-30% of ILO-based unemployment (both for the province and the country as a whole).

⁵ Some details on the piece of legislation could be found in Appendix.

⁶ Thirty per cent of expenditure on UB provision in 1998 was to repay benefit arrears.

⁷ In some regions unemployment benefits are paid with an average delay of 12 months. In the 1996 round of RLMS, 51% of individuals, who said that they are entitled to unemployment benefits said that they did not receive unemployment benefits in the last month.

⁸ The proportion of those in long-term unemployment (more than a year) in Russia is reported to amount to 30% of the unemployed.

It is sometimes believed that registered unemployment is not the phenomenon to look at since it is mainly low skilled workers or “marginal” social groups who keep staying on the register. However, little empirical evidence is provided to support or to oppose this point of view, with the main reason being non-availability of data. We are lucky to have the data, and thus could get some answers to the question: “Who are those registered as unemployed, and long-term unemployed in particular?”.

One of the interesting facts we obtain while looking at the registered unemployed data in the region is that there is only a slight downward shift in the educational structure in the pool of registered unemployed as compared to those employed, and a moderate shift into younger ages (Table 2). This is an argument against the aforementioned point of view which considers those on the register as “marginal” people. Moreover, if it is long-term unemployed that are in the focus, then the pool of registered unemployed should be looked at since there is little rationale not to get registered when looking for a job for a long time. Likewise, labor market policies, both passive and active, are applied to those on the register. Hence, to design a policy with predictable impact, one needs to look at the sample.

3. Methodology and data.

The problem of fighting long-term unemployment is complicated by the fact that the longer a person is unemployed, the harder it is for him to find a job, i.e., the probability to exit unemployment decreases as duration of unemployment spell increases. The latter is typically a combination of two effects: the so-called *heterogeneity effect* (the unemployed are different with respect to their qualification, abilities, motivation, etc.; those possessing the most attractive from the labor market point of view set of attributes leave the unemployment pool the first); and the so-called *spell duration effect* (duration of the unemployment spell itself could affect the probability to find a new job).

We should mention here that the policy implications would depend on the prevalence of this or that effect: if individual characteristics of the unemployed are the main factors behind the duration of the unemployment spell, then re-training programs should be chosen, while if the second effect dominates, the duration of unemployment spell itself needs to be the target. To distinguish between the two effects one needs to study the unemployment pool.

Search models provide theoretical framework underlying the choice of factors which are likely to affect the rate of escape from unemployment for employment, and, hence, duration of unemployment. According to the basic framework with stationary reservation wage (see Mortensen (1986), e.g.), the exit rates depend on reservation wage, offer arrival rate and employment opportunities (characteristics of wage offer distribution). Reservation wage itself is a function of offer arrival rate, employment opportunities, cost of search, interest rate and value of leisure. It is not straightforward to identify the empirical proxies for each of the factors separately, and most of the variables discussed below reflect the influence of several factors simultaneously.

The core methodology of our empirical study is survival analysis (duration analysis). The approach allows to exploit the features of longitudinal data. The survey of the approach could be found in Kiefer (1988).

The central idea of the approach is to estimate the so-called hazard ratios (exit functions), defined as the probability that the unemployment spell ends at time t conditional that the spell last till period t . Hazard ratio allow to define duration dependence: it is said to be positive (negative) at time t^* if the hazard ratio is increasing (decreasing) around t^* .

One of the popular functional form used in the analysis is proportional hazard model which allow to analyze the influence of various economic factors on the duration of the unemployment spell. The general form of the model is as follows: $\lambda(t, x, \beta, \lambda_0) = \phi(x, \beta)\lambda_0(t)$,

where λ_0 - base hazard function, corresponding to $\phi(\cdot) = 1$, x - vector of explanatory variables, β - estimated coefficients.

The following specification of $\phi(\cdot)$ is typically used (mainly due to interpretation easiness): $\phi(x, \beta) = \exp(x' \beta)$. Under this specification coefficient β shows the (constant) effect of a change in x on the change in conditional probability of the spell completion: $\partial \ln \lambda(t, x, \beta, \lambda_0) / \partial x = \beta$. Additionally, one of the most popular assumptions about the type of base hazard function is that it has Weibull distribution: $\lambda(t) = \lambda p (\lambda t)^{p-1}$. If $p > 1$ ($p < 1$), then the probability to exit unemployment positively (negatively) depends on the duration of the unemployment spell. When the base hazard function is left not specified, the Cox proportional hazard model is obtained.

Along with proportional hazard models, there is another popular specification - the so-called accelerated failure-time (AFT) model, where the natural logarithm of the survival time $\ln t$ is expressed as a linear function of the covariates:

$$\ln t_j = x_j \beta + \varepsilon_j ,$$

where x_j is a vector of covariates, β_j is a vector of regression coefficients, and ε_j is the error with density $f()$. Depending on the distributional form of the error term, lognormal model ($f()$ - normal density function), log-logistic ($f()$ - logistic density function) and some other models are obtained. In what follows, we try lognormal model. Unlike Weibull distribution, the lognormal distribution allows for non-monotonic hazard rates: initially increasing, and then decreasing rates.

In what follows, we attempted three specifications: Cox model, Weibull proportionate hazard model, and lognormal accelerated failure time model.

The vector of explanatory variables x , which are supposed to influence the duration of the unemployment spell, include the following groups:

- demographic (gender, age, marital status);
- qualification (level of education, experience, including in the private sector);
- the pre-unemployment state on the labor market (employed, out of the labor force, unemployed)
- local labor markets characteristics

The database we use is based on entries in personal registration form (Form 1) collected in Voronezh city and Voronezh province by the Federal Employment service of the region for the years 1996-2000. The information on the “treatment” provided for those registered is also available. The list of variables used in the study and the relevant summary statistics is presented in Table 3. The database is enlarged so that to include local labor market characteristics obtained from CEFIR database on municipalities.

The data are translated into survival format data with a week as time unit. STATA statistical software is used. All the estimation procedures used allow for right-censored observations.

4. Results

First, we looked at the characteristics of the sample and tested our guess that there are gender and educational differences in both the incidence rates and the survival time/hazard rates. Table 4 and graphs in Appendix summarise some results with respect to the distribution of survival time on the total sample and on the gender, education, age and pre-/after- crisis of 1998 sub-samples. The table and the graphs show the following.

The average incidence rate for the whole sample is 0.02, and the median registered unemployment spell is 36 weeks (about 8.5 months).

Males have higher incidence rate as compared with females, i.e., men tend to exit the pool of registered unemployed more often than women. Moreover, women have lower hazard rates⁹, or put it differently, have longer unemployment spells: the median unemployment spell (survival time) of females is about 44 weeks (10 months), as compared to 25 weeks (6 months) for males.

There are substantial differences between different educational groups with respect to the survival time distribution. As is seen from the Table, those with junior professional education (edu 3) are relatively worse in exiting the pool at early times (their survival time is longer as compared with the first two groups), while performing relatively better later on. Exit rates after August 1998 became higher.

Table 5 reports the results of estimation of proportional hazard rates for the sample of registered unemployed since January 1996 to December 2000. Three model specifications were attempted: Box model, Weibull proportionate hazard model, and lognormal accelerated failure time model. The three specifications provide close estimates of the coefficients.

As is seen from the table, almost all the groups of explanatory variables are statistically significant. In particular, holding other factors constant, we have the following results. Younger people (up to 30) tend to exit unemployment quicker (the relevant hazard ratios are higher), while older ages tend to stay longer in the pool as compared to those of 30-39 years old. Notice, that, as Table 3 shows, the three broad age categories (young-medium-senior) are rather equally represented in the pool.

Females have significantly lower hazard rates as compared with males even after controlling for education, experience, marital status, etc.

There are differences in duration of unemployment spells based on educational differences: those with junior professional education have significantly higher exit rates from unemployment as compared with those with secondary general education. Moreover, secondary professional and university degrees do not make your chances to exit unemployment higher. One of the reasonable explanations for the finding suggests could be that the structure of vacancies suits workers with low qualification more, and, hence it is offer arrival rate that explains the difference. Another plausible explanation is that the reservation wage itself is affected by education level, and hence, explains the observed differences.

Holding other factors constant, older ages with low qualification tend to exit unemployment quicker (the relevant interaction term is weakly significant and positive). A lower reservation

⁹ Here we consider exiting to employment as “failure” event. In later versions we plan to consider exits to out of the labor force as well.

wage and, as a result, a higher acceptance rate, could be suggested as a rationale for this. Diminishing with age (controlling for other factors) reservation wage could be a result of rapid skill deterioration in the new economy, as well as of well documented age discrimination in the Russian labor market.

We get two different results with respect to experience: experience in the last year before registration at FES is (weakly) significant and positive, while general experience has significant negative influence on hazard rate. The finding suggests that most of the human capital accumulated by those who chose to register at FES is obsolete and is not required by the labour market. At the same time, being employed in recent periods is a “good” signal for employers, and thus facilitates exit from unemployment to employment.

Being granted the status of an unemployed, and thus (in most cases) a benefit, decreases hazard rate, though the coefficient is rather small. Hence, there is either a de-stimulating effect of the status of an unemployed, or, those who are granted the status do have some characteristics (other than experience, education, etc.) that result for them in staying longer in the pool. Both could affect search intensity and reservation wage.

The so-called “type of non-employment” (the previous state in which a person was before getting into register, with distinction between redundancy and loss of job), has some influence on the duration. Those who became redundant at their previous job have relatively lower exit rates (and hence, longer duration periods) as compared with those who lost their job, while entering the register (and in this sense the labour force) after a long break (long-term not employed) or for the first time (those who never worked before) is not statistically significant (i.e., not difference with the reference category). The result for redundant workers could be related either to the better incentives to get registered (since they get redundancy payments), or to the less favourable individual characteristics or bad signals for potential employers. The differences in male/female patterns discussed below are of relevance here as well.

Controlling for the sector of previous employment, it turns out that being associated with agriculture and transport worsens chances to exit unemployment, as compared to industry, while working in the sectors of communal service and healthcare adds to the chances. The results seem to be in line with the recent trends in sectors’ development. What is a bit surprising are negative (and significant) signs for credit and finance. A plausible explanation could be the higher incentives to stay on the register to collect benefits, which could be rather high in this case.

Type of ownership of the enterprise of last employment turns out to be statistically significant for males. Hence, there appears to be a “premium” in terms of higher exit rate for males with experience at private enterprise, though there is no such ‘premium’ for females.

The configuration of the local labor market does matter: those living in municipalities with highly concentrated labor market tend to have longer unemployment spells. Moreover, there is certain symmetry in the relationship: those in municipalities with low labor market concentration have relatively higher exit rates from unemployment to employment. The results are rather intuitive since, controlling for other factors, having more options in terms of alternative employers facilitates job finding.

The specifics of the unemployment benefit provision scheme (see Appendix) explain why we introduced the dummy for being on the register for more than a year. It turns out to be highly

significant and negative: those who stay on the register for more than a year have lower chances to find jobs.

Since the period under study covers years 1996-2000, it was interesting to check whether the financial crises of August 1998 had affected the unemployment spells' duration. Our results suggest that the hazard rate became higher after 1998, implying that it either became easier to find a job, and/or those unemployed became more ready to accept jobs.

When estimating Weibull proportional hazard model, we obtained the so-called basic hazard function which shows how the chances to get out of unemployment are related to the duration of the spell itself. We find that the dependence is positive (in Weibull specification p coefficient is higher than 1), thus suggesting that the longer you are on the register, the higher are your chances to get out of unemployment independent of your individual characteristics (simply because you are on the register for so long). The result could be driven by the increasing with unemployment time liquidity constraint that reduces reservation wage significantly. Together with almost infinite downward wage flexibility in the Russian labor market, that implies that the demand for whatever job could arise at certain time and be met by the offers available in the labor market. Positive duration dependence seems to suggest that this liquidity constraint argument overweigh the influence of education, experience and other factors on reservation wage at some point in time.

When the sample is divided into male and female sub-samples, and the estimations are done for the sub-samples separately, some peculiarities of gender-related patterns could be identified (Table 6).

There are some differences in male/female patterns with respect to the influence of age on unemployment duration: males of 25-29 age group tend to have shorter unemployment spells as compared to 30-39 age group, while there is no such effect for females; moreover, males of 40-49 age group are not disfavoured in contrast to females of the same age group.

Entering the register (and in this sense the labour force) after a long break (long-term not employed) or for the first time (those who never worked before) results in higher chances to exit unemployment for females, while being not significant for males.

Having work experience with state (as opposed to private) enterprise brings negative premium for males but not for females.

There are certain male/female asymmetries with respect to the influence of sector of last employment (having experience with sales and catering, education and healthcare is 'beneficial' for females and 'unhelpful' for males).

5. Conclusions

The study we attempted sheds some light on the pool of registered unemployed in Russia (on the example of Voronezh province). We managed to test some basic hypothesis on the influence of individual attributes (demographic; those, related to the accumulated human capital, general and specific; those, related to the regulatory framework) on the hazard ratios, and hence, on duration of unemployment.

We've got some interesting results with respect to the influence of various types of education (controlling for other factors) on the unemployment spell duration. In particular, our results are in favour of non-linear influence of education on unemployment spell: higher education does not

increase your chances to exit unemployment; it is rather junior professional education which facilitates employment.

We also got support to the gender and age differentials in unemployment duration, and identified some peculiarities of male and female patterns of unemployment spells. Our results point to gender asymmetries with respect to senior people employment that could be an indication of discrimination practices.

There appears to be a “premium” in terms of higher exit rate for males with experience at private enterprise, but not for females, while the configuration of the local labor market does matter for both: those living in municipalities with highly concentrated labor market tend to have longer unemployment spells.

We find positive duration dependence, with the relevant coefficient in Weibull specification being around 1.8. The result could be driven by the increasing with unemployment time liquidity constraint that reduces reservation wage significantly. Together with almost infinite downward wage flexibility in the Russian labor market, that implies that the demand for whatever job could arise at certain time and be met by the offers available in the labor market. Positive duration dependence seems to suggest that this liquidity constraint argument overweigh the influence of education, experience and other factors on reservation wage at some point in time.

6. Appendix

Unemployment Benefit Provision

Only individuals who are officially registered as unemployed with an employment centre can be eligible for unemployment benefits.¹⁰ Unemployment benefit is conditional on the individual making genuine efforts to look for new employment and being available for work. Children under 16, retired individuals who receive normal retirement pension, and individuals, who did not register as job-seekers or refused to accept two suitable¹¹ job offers within 10 days after registration, cannot be registered as unemployed.¹² Registered unemployed are required to reregister at least twice a month. Benefits to individuals, who failed to reregister, or refused to take 2 suitable jobs, or were dismissed for infractions of work discipline, can be suspended for a period of up to 3 months. The benefits can be decreased by 25% if an individual did not show up for an interview with an employer within 3 days or if an individual failed to show up in the employment office for job posting.

For individuals, who worked for at least 26 weeks (out of 52) during the last 12 months before they became unemployed, benefits are equal to 75% of their average wage in the first three months of unemployment, 60% in the next four months, and 45% afterwards. However, the benefits cannot be lower than the minimum wage and cannot exceed the regional average wage.

¹⁰ There are several ways of being registered with the employment agency:

1. Initial registration, which is used to compute the number of people interested in getting a job, and does not require any document be submitted.
2. Registration as a job-searcher (the individual registered as a job searcher does not need to be unemployed).
3. Registration as an unemployed.

¹¹ A temporary job is also considered as suitable.

¹² A disabled individual can only be registered as unemployed if he/she has work certificate.

The size of benefits paid to all other categories (i.e., those who worked for less than 26 weeks in the last 12 months before becoming unemployed, those who are seeking for a job for the first time and have no skills, or those unemployed for more than 1 year) is set at the level of the minimum wage.¹³

The size of benefits increases by $\frac{1}{2}$ of the minimum wage for each dependent unable to work, but not by more than 1.2 minimal wages in total. If both parents are unemployed, each of them qualify for additional benefits for children.

Unemployment benefits cannot be provided to an unemployed person for more than 12 months in 18 consecutive calendar months.

A person registered as unemployed who has not found a job in 12 months, qualifies for social assistance from the Employment Fund if the average per capita income in his/her family does not exceed two minimum wages, and if he/she re-registers as unemployed as often as the rules require, and if he/she is immediately available for work. Social assistance can include monthly or one-off payments, subsidies for kindergartens, housing, utilities, transport, health care and catering. The amount of subsidies is regulated on the regional level according to regional standards.¹⁴

The monthly social assistance payment should not be higher than the minimum wage. The size of one-off cash payments is limited to 2 minimal wages. An unemployed person who ceases to be eligible for unemployment benefit because his/her unemployment spell has lasted too long, can receive social assistance payments for a period of up to 6 months. The dependents of an unemployed person can receive social assistance for a maximum of 12 months.

Unemployment benefits are administered by the formerly independent Federal Employment Service, which now reports to the Employment Policy Department of the Ministry of Labour. The FES registers the unemployed, directs them to job vacancies offered by employers, pays unemployment benefits to the unemployed and arranges professional re-training. In addition, there is the Federal Migration Service (FMS), responsible for providing mortgages and housing construction for migrants within Russia.

¹³ As usual, additional benefits are paid to individuals, who received radiation after Chernobyl or other catastrophes.

¹⁴ For example, there are regulations on the maximum size of the apartments to get housing subsidies, or minimal length of the commute to the employment center, and so on.

7. Tables

Table 1. *Real industrial production and unemployment (general and registered) in Russia and Voronezh province 1992-2000*

	1992	1994	1996	1997	1998	1999	2000
Real industrial production index (% to previous year)							
Russian Federation	82	79	95	102	95	111	112
Voronezh oblast	87	62	85	102	90	120	105
General unemployment (ILO)							
Russian Federation	5.2	8.1	9.7	11.8	13.2	13.0	10.5
Voronezh oblast	4.7	5.6	9.2	8.1	9.7	11.4	10.0
Registered unemployment							
Russian Federation	0.8	2.3	3.6	2.9	2.9	1.8	1.4
Voronezh oblast	0.5	1.3	2.6	2.2	1.9	1.5	1.3

Source: Goskomstat

Table 2. *The comparative age and educational structures of the pools of the employed and the registered unemployed in the Voronezh province*

	Pool of registered unemployed	Voronezh province summary statistics (Pool of employed)
<i>Age structure</i>		
15-29	39%	21%
30-49	47%	63%
50-59	12%	13%
60-70	2%	3%
<i>Education structure</i>		
Basic general (9 years)	10%	11.5%
General secondary	37.4%	32%
Junior professional	12.5%	4.5%
Secondary professional	22.2%	28%
High professional (university)	18%	24%

Source: Goskomstat and authors' calculations

Table 3. List of variables used in the study and the summary statistics

	Sample characteristics	Sample structure or mean
Dummy for unemployment status	Have status of unemployed	72.4%
	Do not have the status	27.6%
Gender	Male	39%
	Female	61%
Age	16-19	9.9%
	20-24	17.9%
	25-29	11.6%
	30-39	23.7%
	40-49	23.4%
	50-54	7.3%
	55-59	4.5%
	≥60	1.7%
Marital status	Married	59%
	Not married	30%
	Divorced/widow	11%
Education categories	Basic general (9 years)	10%
	General secondary	37.4%
	Junior professional	12.5%
	Secondary professional	22.2%
	High professional (university)	17.8%
	Post-graduate	0.1%
	Additional professional	0.1%
Type of non-employment	Redundant	21%
	Lost job	43.5%
	Long-term not employed	16.3%
	Never worked before	19.2%
Type of ownership of last employment	State	48%
	Non-state	52%
General experience	In half years	8.9
Experience within the last year before registering	In months	7.5
Dummy for getting registered after August 1998	Got registered after Aug98	53.2%
	Got registered before Aug98	46.8%
Dummy for being in register for more than 12 months	On the register >12 month	60.5%
	<=12months	39.5%
Reason for taking out of register	Got job or became entrepreneur	28.2%
	Quit the register or did not appear	12.2%
	Retirement (include. early)	0.1%
	Starts education	4.6%
	Migration/army/elected	0.3%
	Other reasons	0.6%

Table 4. Survival time summary statistics and incidence rates: total sample, gender and educational groups

	Incidence rate	Number of subjects	Survival time (weeks)		
			25%	50%	75%
<i>Total sample</i>	0.02	232549	12.3	35.7	68.7
<i>By gender</i>					
Males	0.026	90570	8.3	25	57
Females	0.018	141975	15.6	43.7	75.2
<i>By education groups</i>					
Basic general	0.024	22589	7.6	27.6	68.3
General secondary	0.022	85083	8.9	30.9	67.4
Junior professional	0.024	28631	11.1	28	57.4
Secondary profess.	0.017	51708	17.1	43	74.1
University	0.016	41419	18.1	46.6	73.1
Post-graduate	0.020	212	15.4	35.4	64.6
Additional profess.	0.015	162	22	46.6	95
<i>By age categories</i>					
16-19	0.029	20346	9.3	22.1	49.6
20-24	0.025	41834	9.4	26.7	56.9
25-29	0.022	27240	11	32	62
30-39	0.019	54854	13	38.6	65.9
40-49	0.018	54946	14	40.6	70.9
50-54	0.015	17654	16.4	51.3	85
55-59	0.014	10976	17.9	55.7	105.3
≥60	0.012	4699	17	85	227.9
Before Aug98	0.017	100771	17.8	44.4	77.1
After Aug98	0.024	131778	8.1	28.4	61.4

Table 5. Estimation of proportional hazard models for the sample of non-employed registered at the FES, 1996-2000

Explanatory Variables	Hazard rate	Hazard rate		Hazard rate
	Cox model Hazard Ratio	Weibull model Hazard Ratio	Coefficient from AFT model	Lognormal model ^{^^} Coefficient
Gender (1- female)	-0.7936 (0.0069)*	-0.7923 (0.0069)*	0.1322 (0.0049)*	0.15507 (0.0052)*
Age1 (16-19)	1.2778 (0.0560)*	1.3348 (0.0624)*	-0.1640 (0.0266)*	-0.1645 (0.0282)*
Age2 (20-24)	1.1353 (0.0176)*	1.1484 (0.0187)*	-0.0786 (0.0092)*	-0.0806 (0.0097)*
Age3 (25-29)	1.0279 (0.0131)*	1.0388 (0.0135)*	-0.0216 (0.0073)*	-0.0114 (0.0078)
Age5 (40-49)	- 0.9484 (0.0095)*	- 0.9611 (0.0098)*	0.0225 (0.0058)*	0.0262 (0.0060)*
Age6 (50-54)	- 0.7685 (0.0111)*	- 0.8026 (0.0119)*	0.1249 (0.0085)*	0.1389 (0.0086)*
Age7 (55-59)	- 0.4881 (0.0105)*	- 0.4865 (0.0111)*	0.4093 (0.0128)*	0.4317 (0.0131)*
Age8 (≥60)	- 0.2342 (0.0095)*	- 0.2259 (0.0095)*	0.8449 (0.0236)*	0.8689 (0.0231)*
Edu1 (basic general)	0.9963 (0.0160)	1.0129 (0.0179)	-0.0073 (0.0100)	-0.0107 (0.0095)
Edu3 (junior professional)	1.0522 (0.0129)*	1.0312 (0.0132)*	-0.0174 (0.0073)*	-0.0184 (0.0075)*
Edu4 (secondary professional)	- 0.9098 (0.1275)	- 0.8955 (0.1254)	0.0627 (0.0795)	0.0559 (0.0064)
Edu5 (high professional, university)	- 0.9142 (0.1281)	- 0.9035 (0.1264)	0.0577 (0.0795)	0.0547 (0.0.639)
Edu7 (additional professional)	- 0.6662 (0.1171)*	- 0.8068 (0.1387)	0.1219 (0.0977)	0.1841 (0.0922)*
Experience during the last year before entering register	1.0086 (0.0012)*	1.0045 (0.0012)*	-0.0026 (0.0007)*	0.0021 (0.0007)*
Total lifetime experience	-0.9979 (0.0004)*	-0.9976 (0.0004)*	0.0013 (0.0002)*	0.0015 (0.0002)*
Marital status 1 (married)	1.0598 (0.0126)*	1.0625 (0.0133)*	-0.0344 (0.0071)*	-0.0375 (0.0071)*
Marital status 3 (divorced/widow)	1.0496 (0.0159)*	1.0416 (0.0165)*	-0.0232 (0.0090)*	-0.0353 (0.0091)*
Dummy for having one dependant	-0.7096 (0.0082)*	-0.6750 (0.0079)*	0.2233 (0.0067)*	0.2142 (0.0069)*
Dummy for having two dependants	-0.7141 (0.0117)*	-0.6800 (0.0112)*	0.2191 (0.0094)*	0.2180 (0.0098)*
Dummy for having no dependants	-0.8031 (0.0079)*	-0.7736 (0.0081)*	0.1458 (0.0059)*	0.1254 (0.0059)*
Dummy for those with the status of the unemployed	- 0.2238 (0.0035)*	- 0.1725 (0.0032)*	0.9982 (0.0090)*	1.1000 (0.0073)*
Type 1 of non-employment (got redundant)	- 0.7547 (0.0076)*	- 0.7569 (0.0077)*	0.1582 (0.0058)*	0.1911 (0.0061)*
Type 3 of non-employment (long-term not employed)	1.0391 (0.0157)*	1.0241 (0.0167)	-0.0135 (0.0093)	-0.0053 (0.0092)
Type 4 of non-employment (never worked before)	- 0.8691 (0.1862)	- 0.7997 (0.2190)	0.1270 (0.1556)	0.0111 (0.1148)
Dummy for getting registered after 1998 crises	1.1575 (0.0095)*	1.1355 (0.0095)*	-0.0722 (0.0047)*	-0.0822 (0.0049)*
Dummy for being registered for more than 12 months	0.0000	- 0.1384 (0.0012)*	1.1233 (0.0057)*	1.3104 (0.0049)*
Dummy for state sector of previous employment	0.9897 (0.0084)	-0.9808 (0.0085)*	0.0109 (0.0049)*	0.0075 (0.0051)

Interaction variable (Senior ages&Low qualification)	0.9414 (0.1319)	0.9371 (0.1312)	0.3690 (0.0795)	0.0328 (0.0639)
Dummies for sector of previous employment	agric. (-) transp.(-) commun.(+)	agric. (-) transp.(-) comm. (+)	agric. (+) transp.(+) comm.(-)	agric. (+) transp.(+) comm.(-)
Significant sectors are listed	health (+) culture (-) defence(-)	health (+) credit (-) defence(-) culture (-)	health (-) credit (+) defence(+) culture (-)	health (-) credit (+) defence(+)
Dummy for high concentration ratio (using Herfindahl index of 5 largest (by employment) enterprises in the municipality)	-0.9400 (0.0136)*	-0.9177 (0.0127)*	0.0488 (0.0079)*	0.0645 (0.0094)*
Constant			2.3092 (0.0813)*	1.8642 (0.0653)*
Sigma				0.7559 (0.0022)*
P parameter		1.7603 (0.0057)	1.7602 (0.0057)	
Log Likelihood	-791129	-120550	-120550	-120451
Wald chi ² (42) /(41 for Cox) (Prob>chi ²)	15539 (0.0000)	65039 (0.0000)	80213 (0.0000)	173858 (0.0000)
Number of observations	137077	137077	137077	137077

Note: Robust estimates are reported; standard errors in parentheses; * - statistically significant at 1% level
Reference categories for dummy variables are as follows: males for gender; age category 4 (30-39 years old); education category 2 (general secondary education); marital status 2 (not married); 2nd type of non-employment (lost job); economic sector of previous employment 1 (industry).

^{^^} Note that lognormal model is estimated in accelerated failure time mode.

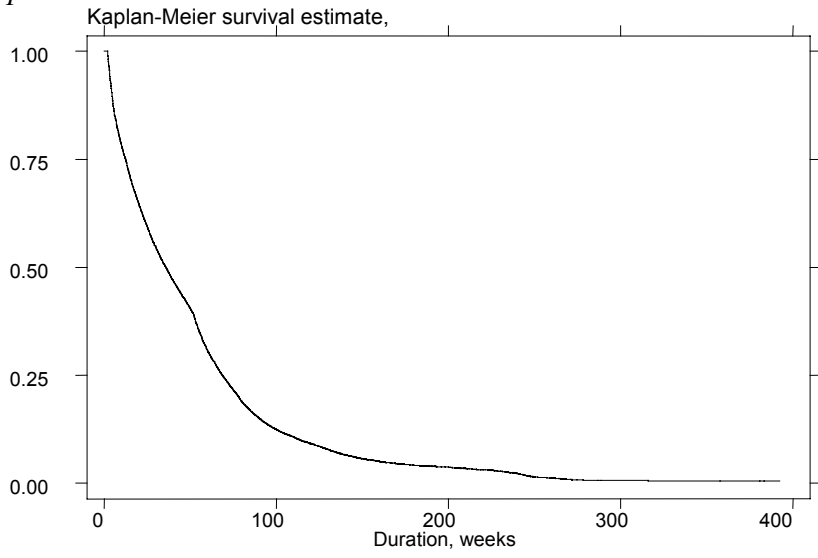
Table 6. Estimation of proportional hazard models for the sample of non-employed registered at the FES, 1996-2000, separate for males and females

Explanatory Variables	MALES		FEMALES	
	Hazard rate	Hazard rate	Hazard rate	Hazard rate
	Weibull model	Cox model	Weibull model	Cox model
Age1 (16-19)	1.1249 (0.0953)	1.1018 (0.0832)	1.4568 (0.0796)*	1.3598 (0.0724)*
Age2 (20-24)	1.2133 (0.0329)*	1.2100 (0.0308)*	1.1067 (0.0225)*	1.0854 (0.0213)*
Age3 (25-29)	1.0831 (0.0226)*	1.0860 (0.0219)*	1.0128 (0.0169)	-0.9236 (0.0117)
Age5 (40-49)	- 0.9707 (0.0163)	- 0.9723 (0.0198)	- 0.9437 (0.0122)*	- 0.9236 (0.0118)*
Age6 (50-54)	- 0.8763 (0.0211)*	- 0.8626 (0.0199)*	- 0.7379 (0.0141)*	- 0.6975 (0.0129)*
Age7 (55-59)	- 0.7123 (0.0187)*	- 0.6868 (0.0174)*	- 0.1842 (0.0096)*	- 0.1976 (0.0098)*
Age8 (≥60)	- 0.2312 (0.0112)*	- 0.2319 (0.0109)*	- 0.2082 (0.0189)*	- 0.2391 (0.0205)*
Edu1 (basic general)	1.0048 (0.0234)	-0.9883 (0.0213)	1.0130 (0.0252)	-0.9966 (0.0233)
Edu3 (junior professional)	1.0345 (0.0202)	1.0442 (0.0193)*	1.0287 (0.0172)	1.0569 (0.0171)*
Edu4 (secondary professional)	1.2114 (0.2416)	1.4354 (0.2893)	1.1049 (0.1278)	1.3564 (0.1728)*
Edu5 (high professional, university)	1.2067 (0.2405)	1.4244 (0.2871)	1.1277 (0.1306)	1.3744 (0.1729)*
Edu6 (post-graduate)	1.5592 (0.3561)*	1.8593 (0.4286)*	-0.9703 (0.2662)	1.1559 (0.3140)
Experience during the last year before entering register	1.0072 (0.0020)*	1.0109 (0.0019)*	1.0034 (0.0016)*	1.0072 (0.0015)*
Total lifetime experience	-0.9992 (0.0006)	-0.9995 (0.0006)	-0.9983 (0.0005)*	-0.9984 (0.0005)*
Marital status 1 (married)	1.1186 (0.0224)*	1.1211 (0.0210)*	1.0123 (0.0161)	1.0057 (0.0154)
Marital status 3 (divorced/widow)	-0.9890 (0.0253)	-0.9979 (0.0245)	1.0689 (0.0217)*	1.0728 (0.0207)*
Dummy for having one dependant	-0.6779 (0.0139)*	-0.7052 (0.0143)*	-0.6692 (0.0096)*	-0.7063 (0.0099)*
Dummy for having two dependants	-0.6998 (0.0215)*	-0.7237 (0.0222)*	-0.6634 (0.0132)*	-0.7001 (0.0136)*
Dummy for having no dependants	-0.7852 (0.0122)*	-0.8108 (0.0119)*	-0.7839 (0.0109)*	-0.8141 (0.0108)*
Dummy for those with the status of the unemployed	- 0.1823 (0.0045)*	- 0.2264 (0.0047)*	- 0.1590 (0.0045)*	- 0.2120 (0.0049)*
Type 1 of non-employment (got redundant)	- 0.7018 (0.0118)*	- 0.7089 (0.0118)*	- 0.8061 (0.0102)*	- 0.7974 (0.0101)*
Type 3 of non-employment (long-term not employed)	-0.9808 (0.0255)	-1.0012 (0.0240)	1.0587 (0.0221)*	1.0662 (0.0207)*
Type 4 of non-employment (never worked before)	-0.6735 (0.2184)	-0.7519 (0.1989)	1.6291 (0.4221)*	1.5029 (0.4302)
Dummy for getting registered after 1998 crises	1.1977 (0.0162)*	1.1991 (0.0156)*	1.0984 (0.0117)*	1.1343 (0.0119)*
Dummy for being registered for more than 12 months	-0.1419 (0.0023)*	0.0000	-0.1303 (0.0014)*	0.0000
Dummy for state sector of previous employment	-0.9568 (0.0131)*	-0.9681 (0.0127)*	0.9999 (0.0113)	1.0049 (0.0111)
Interaction variable (Senior ages&Low qualification)	1.2597 (0.2509)	1.4652 (0.2992)*	1.1692 (0.1352)	1.4154 (0.1778)*
Dummies for sector of previous employment	agric. (-) transp.(-) communal .(+)	agric.(-) transp.(-) communal .(+)	agric. (-) transp.(-) communal.(+)	agric. (-) transp.(-) communal.(+)

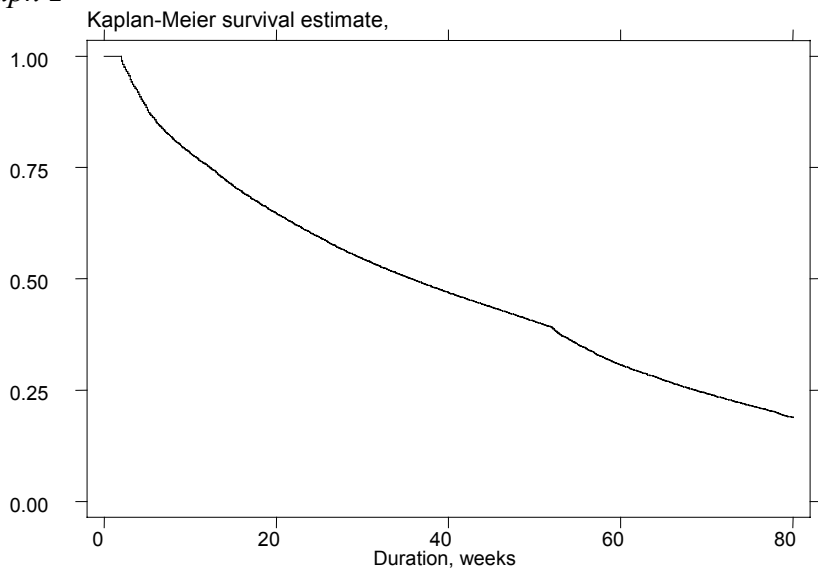
Significant sectors are listed	sales (-) manag.(-) culture (-) insurance (-) defence(-)	sales (-) manag.(-) culture (-) insurance (-) defence(-)	sales (+) health (+) educ (+) credit (-) defence(-)	sales (+) health (+) educ (+) credit (-) defence(-)
Dummy for high concentration ratio (using Herfindahl index of 5 largest (by employment) enterprises in the municipality)	-0.8927 (0.0188)*	-0.9009 (0.0197)*	-0.9576 (0.0174)*	-0.9869 (0.0187)*
P parameter	1.6441 (0.0080)		1.8623 (0.0077)	
Log Likelihood	-49200	-291028	-70483	-448483
Wald chi ² (46) /(45 for Cox) (Prob>chi ²)	22739 (0.0000)	7487 (0.0000)	41823 (0.0000)	7834 (0.0000)
Number of observations	52752	52752	84325	84325

Note: Robust estimates are reported; standard errors in parentheses; * - statistically significant at 1% level
Reference categories for dummy variables are as follows: age category 4 (30-39 years old); education category 2 (general secondary education); marital status 2 (not married); three and more dependants; 2nd type of non-employment (lost job); economic sector of previous employment 1 (industry).

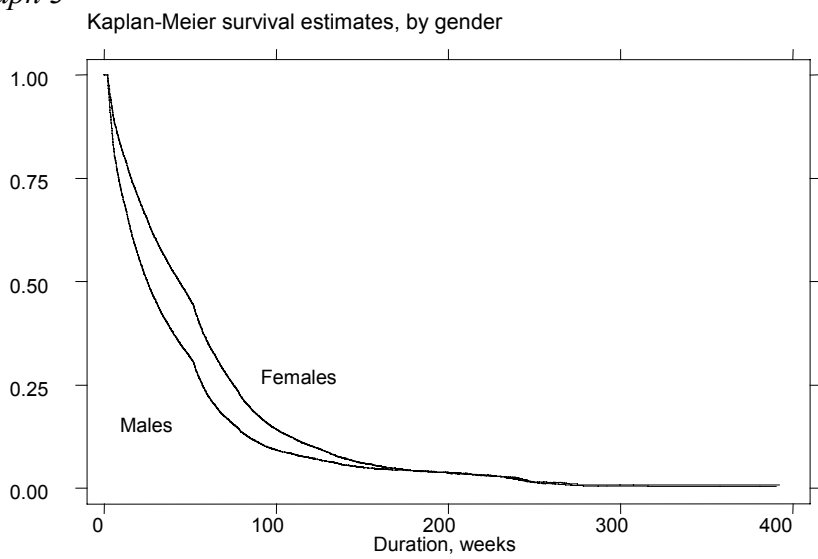
Graph 1.



Graph 2

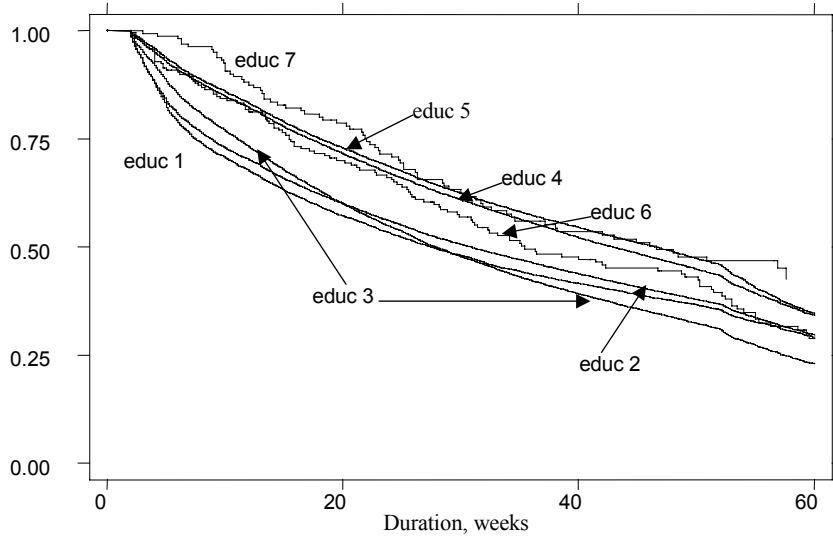


Graph 3



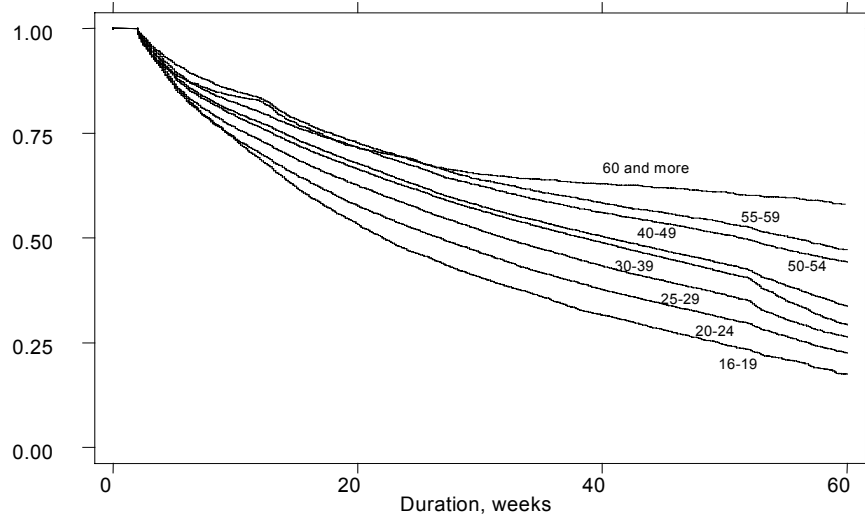
Graph 4

Kaplan-Meier survival estimates, by education



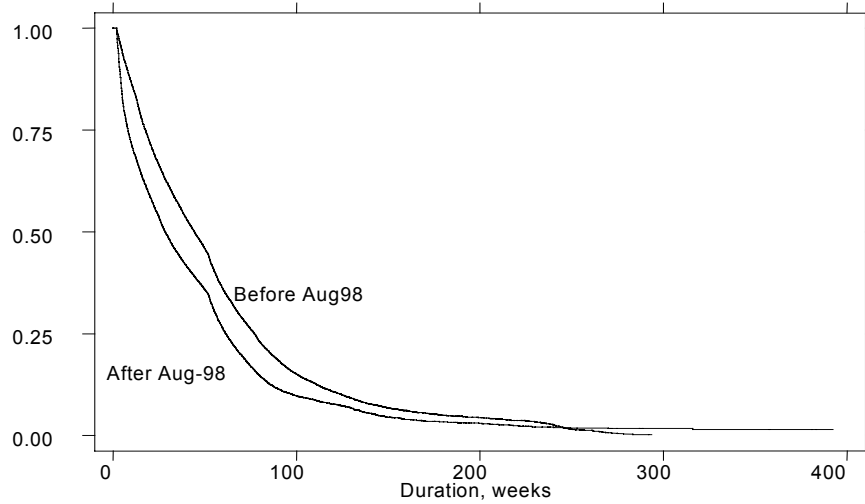
Graph 5

Kaplan-Meier survival estimates, by age



Graph 6

Survival estimates, before and after Aug98



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