

PART TWO

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LABOR MARKET DYNAMICS IN SLOVENIA: TRANSITIONS FROM UNEMPLOYMENT

Abstract

The rate of transition out of unemployment in Slovenia in the 1974-1994 period is estimated, using retrospective longitudinal individual-level data and event history methods. Unemployment episodes are on the average very long and - as a rule - terminate in (re)employment rather than inactivity. The model specification allows the hazard rate to vary with the duration; the baseline rate first tends to increase and then decrease over time. Schooling has a significant positive effect on the escape rate, whereas gender has no effect on unemployment duration. Also the previous incidence of unemployment has no effect on the hazard rate. Results indicate a considerable dynamics in the Slovenian labor market during the transition period.

Keywords: labor market, unemployment duration, Slovenia, event history analysis

INTRODUCTION

The restructuring of the Slovenian labor market has been accompanied by a dramatic increase of unemployment rate, decline of working population, and significant increase in long-term unemployment. By the mid-1990s, two thirds of registered job seekers were long-term unemployed, measured as a percentage of those seeking employment for more than 12 months. This increase of long-term unemployment critically highlights the necessity to investigate factors affecting unemployment durations and dynamics of flows within the labor market.

When analyzing the unemployment stock, growth of unemployment figures can reflect a relative growth of inflow into unemployment, an increase of mean unemployment duration, or both. Nevertheless, most of the empirical models concerned with unemployment are restricted to analysis of stock itself, and are based on cross-sectional data. In Slovenia, the standard statistical data on registered unemployment have been relatively rich and available for long periods of time. However, data that would allow analyses

of dynamic processes in the labor market are scarce, and there is little empirical knowledge about the structure and main determinants of the duration of unemployment. Therefore, it is particularly important that the data collected for the Quality of Life in Slovenia project allow us to analyze transitions between various labor market states over time.

In this paper, transitions out of unemployment are examined. In particular, we analyze the influence of the following factors on the rate of leaving unemployment: (a) the importance of duration dependence effects for an individual's unemployment dynamics; (b) the effect of past employment and unemployment history (work experience, previous incidence of unemployment); (c) individual characteristics, such as age, birth cohort, education, gender, and social origin; (d) structural characteristics, such as the overall unemployment rate and regional variations in employment conditions.

To address these questions, retrospective data from the Quality of Life study with detailed information on employment and unemployment episodes in the individuals' career in the period 1974-1994 are used. The analysis is based on hazard rate models that allow assessing changes between discrete states over time.

CROSS-SECTIONAL VERSUS LONGITUDINAL APPROACH

For many processes in the social sciences, a continuous measurement of qualitative variables seems to be the only adequate method of assessing empirical changes and developments over time. This is achieved by utilizing an event oriented observation design that records all changes in qualitative variables and their timing (Blossfeld and Rohwer 1995; Blossfeld, Hamerle and Mayer 1989; Tuma and Hannan 1984; Kalbfleisch and Prentice 1980; Drobnič 1992). The advantages of the event oriented observation plan are illustrated by Figure 1. In a cross-sectional survey, the occupational history of a person is represented by a single point. Somewhat more information is obtained by a three-wave panel in which the respondent can be observed at three different points in time. This observation design captures some of the dynamics in the occupational career; however, the career path between the waves remains unknown. Only the event oriented collection design records all changes in states and their precise times. Such a design allows the individual's occupational career to be reconstructed in detail in its various phases and at each point in time.

Also the regularly available data on the duration of unemployment collected by the Labor Force Surveys is subject to shortcomings as a source of information on the distribution of durations. In such a survey, information on the length of unemployment is collected only on those individuals unemployed at the time of the data collection (Kiefer 1988). Individuals who are employed in consecutive surveys but unemployed between surveys will be omitted. Examples are given in Figure 2, where t_1 and t_2 are two survey dates. Only unemployment spells that are in progress at times t_1 and t_2 will be recorded. In general, short spells will be under-represented in the sample; this problem is known as length-biased sampling.

State space:

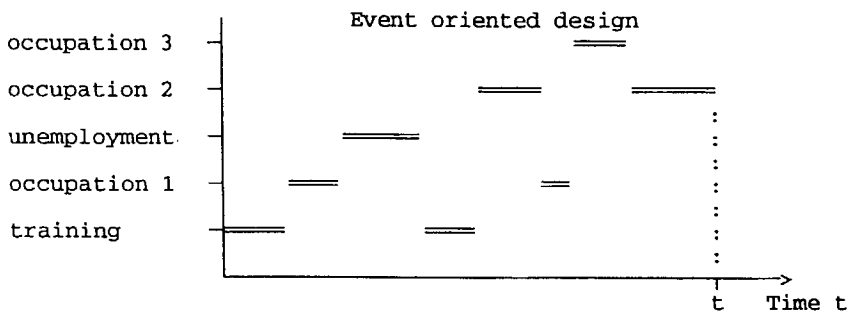
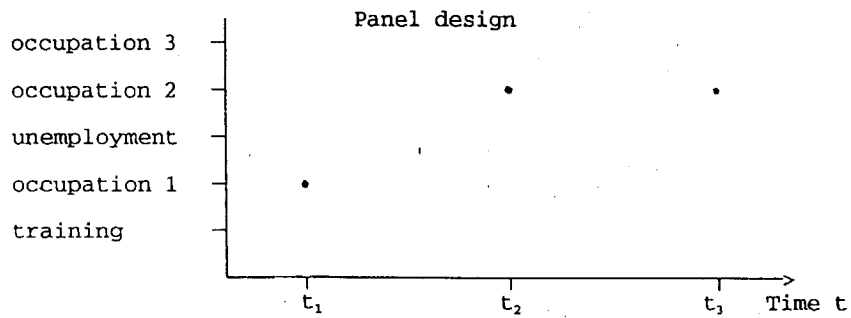
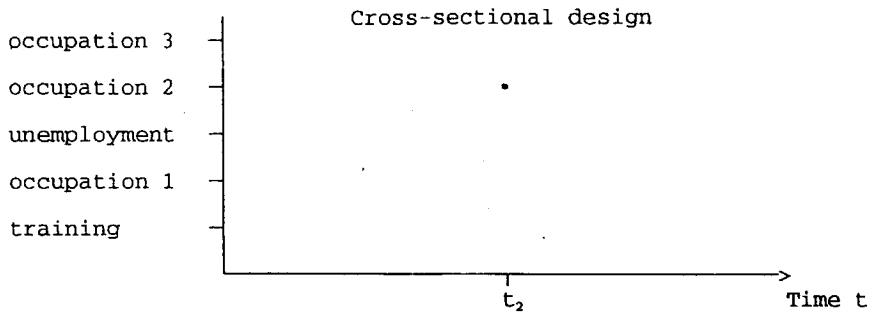


Figure 1:
RECODING OF A PERSON'S OCCUPATIONAL CAREER ON THE BASIS OF A CROSS-SECTIONAL SURVEY, PANEL STUDY, AND EVENT HISTORY ORIENTED DESIGN (ADAPTED FROM BLOSSFELD AND ROHWER 1995).

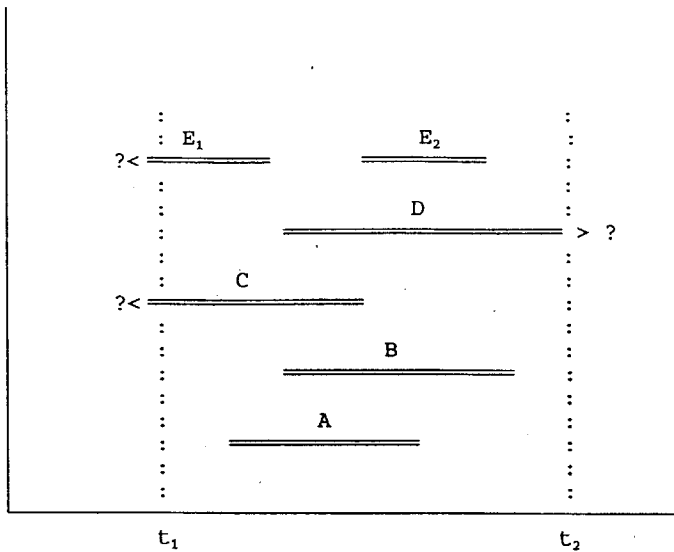


Figure 2:
DURATION OF UNEMPLOYMENT SPELLS

t_1 : first labor force survey

t_2 : second labor force survey

C, E₁: left censored episodes, partial information available in the first labor force survey

D: right censored episode, partial information about this spell collected in the second labor force survey

A, B, E₂ : completed episodes but no information available.

Another consequence of gathering information on unemployment duration from persons unemployed at the time of interview is that these individuals have not completed their unemployment spells (Kiefer 1988). The survey interrupts spells that are still in progress. For example, spell C in Figure 2 will be recorded in the first survey; however, only the duration from the beginning to the interception of the spell at the survey date will be measured. There is no information on the future duration of unemployment; the spell is right-censored.

Because of both right-censoring and length-biased sampling, the only suitable research design to collect information on unemployment duration is either a prospective study that samples individuals and records their labor market experience continuously until an ending date, or a study that asks for information retrospectively. Although it has been estimated that unemployment may be “under-represented” in retrospective studies when short-term unemployment lies in the distant past (Mayer 1989), such sampling schemes do result in observations on completed spells, such as A, B,

and E2 in Figure 2. Moreover, the problems associated with right-censored spells (spell D in Figure 2) can be successfully dealt with by applying appropriate statistical methods.

CONCEPTUAL FRAMEWORK

The variable of main interest for our current analysis is the rate of leaving unemployment, which can be calculated from the beginning date of the unemployment spell and the date of transition into another labor market state. In an influential study on the effects of unemployment compensation on the duration of unemployment, Atkinson and Micklewright (1991) demonstrated how important it is to distinguish between various labor market states. Therefore, two destination states of unemployment spells were distinguished if the unemployment was terminated within the observation period: employment/self-employment and inactivity. Inactivity included various out-of-labor-market statuses, such as retirement, military service, schooling, housekeeping. The aim was to estimate competing risk models, where transitions to (re)employment and transitions out of the labor market would be estimated and compared¹. Unemployment spells that were still in progress at the time of interview are right censored.

Following the labor economics literature that address the special problems associated with duration data (Heckman and Borjas 1980; Heckman and Singer 1985; Flaig, Licht and Steiner 1993; Steiner 1993, 1994; Licht and Steiner 1991; Kiefer and Neumann 1989; Devine and Kiefer 1991; Hujer and Schneider 1990; Kraus and Steiner 1995), several factors that may influence the transition out of unemployment are considered in our analysis:

- duration dependence
- individual's characteristics
- individual's past employment history
- structural characteristics of the labor market.

Conceptually, duration dependence is a particularly critical element in a longitudinal study of long-term unemployment. Empirical evidence has shown that past unemployment as well as duration of the current unemployment spell have a positive impact on the likelihood that an individual will again become unemployed and be unemployed for a longer period of time. Explanations for this empirical regularity have been given by labor market theories (true state dependence), and statistical rules associated with the specification of the econometric model (spurious state dependence)(Heckman and Borjas 1980; Flaig, Licht and Steiner 1993).

The *true state dependence* argument is based on the hypothesis that unemployment impairs an individual's future employment prospects because it leads to a depreciation of human capital and/or operates as a negative signal and stigma for employers screening job applicants. This effect may be particularly strong in the event of long-term unemployment. However, persistence in unemployment need not necessarily be due to causal factors; it can result from spurious correlation. *Spurious state*

dependence arguments seek explanation in a sampling scheme, in the fact that individual characteristics correlated with the propensity to experience unemployment are not adequately controlled for, or the initial conditions are not taken into account. We will address these issues in our analysis by explicitly modeling the baseline time-dependence of the process, and control the individuals' previous unemployment history.

Also, duration of unemployment is often analyzed in connection with unemployment benefits. The disincentive effects of unemployment insurance compensation on reemployment have been one of the most widely studied topics in labor economics (Devine and Kiefer 1991), although some authors challenge the assumptions and restrictions in a simple disincentive model (Atkinson and Micklewright 1991; Belzil 1995; Fallick 1991).

DATA AND METHODS

The Quality of Life (QLS) data were collected on a representative sample of the resident population in Slovenia. The survey was carried out in 1994, and data were collected retrospectively for the 20-year period 1974-1994. The employment career of an individual is described as a sequence of labor market states, such as employed (full-time or part-time), self-employed, unemployed, or out of the labor market. Information on changes in employment status is available on a monthly basis.

In addition to the primary representative sample, for which data on several dimensions of living conditions were collected, co-resident partners of the respondents were interviewed with a shorter questionnaire, and asked about their educational and employment career. This approach enables us to combine both samples when setting up the event history data set on unemployment.

In an event-oriented data set each record of the file is related to a duration in a state or episode. Since unemployment can occur several times in an individual's employment career (repeated events), and the number of unemployment spells may vary among individuals, the number of records in the data set corresponds to the sum of the person-specific unemployment episodes. In the 1974-94 observation period, primary respondents and their partners generated 501 episodes of unemployment. For these spells, starting dates of unemployment are known, as well as ending dates for completed spells. Spells that were still in progress at the time of interview have the destination state equal to the origin state and are thus right censored.

A standard approach to modeling moves between various labor market states is a transition rate. To define this concept, let us first introduce a random variable T to represent the duration, beginning at t_0 , until a change in the dependent variable, that is a transition from (origin) state j to (destination) state k , occurs. To simplify the notation, $t_0=0$ is assumed. Then, the following probability can be defined:

$$\Pr(t \leq T < t' \mid T \geq t) = t < t'$$

This is the probability that an event occurs in the time interval from t to t' , given that no event (transition) has occurred before, that is, in the interval from 0 to t .

One can let $t'-t$ in the above expression approach zero. However, as the length of the time interval approaches zero, the concept of change in the dependent variable would disappear because the probability that a change takes place in an interval of zero length is zero. To avoid this, one can regard the ratio of the transition probability to the length of the time interval to represent the probability of future changes in the dependent variable per unit of time (see details in Blossfeld and Rohwer 1995). This allows one to define the limit

$$r(t) = \lim_{t' \rightarrow t} \frac{\Pr(t \leq T < t' | T \geq t)}{t' - t}$$

and to arrive at the central concept of the *transition* (hazard, risk, failure, mortality) rate. One can interpret $r(t)$ as the *propensity* to change the state, from origin j to destination k , at time t . However, one should note that this propensity is defined in relation to a risk set at time t (i.e. the set of individuals who can experience the event because they have not already had the event before t).

Having introduced the basic concept of the transition rate, the basic modeling approach can be formulated as

$$r(t) = f(t, X)$$

where the transition rate depends on time and on a set of covariates, X . In our study, time-constant and time-varying covariates are used in the analysis. The values of time-constant covariates are fixed at the beginning of the episodes under study and do not change while the process is going on. The values of time-dependent covariates can change over process time. To estimate the effects of time-varying covariates on the rate of exiting unemployment, we applied the method of episode splitting. At all the points in time when at least one of the time dependent qualitative covariates changes its value, the original unemployment episode is split into sub-episodes and the values of covariates are updated accordingly.

VARIABLES

The dependent variable is the *hazard rate of leaving unemployment*. As noted earlier, our intention was to estimate competing risks for transitions into (re)employment and transitions into inactivity. However - somewhat surprisingly - only a few transitions from unemployment into inactivity were recorded in the QLS data. This indicates that the Slovenian labor market differs qualitatively from the labor markets in most developed-market economies. Out of 501 spells, generated by the respondents in the 1974-1994 period, only 35 completed unemployment spells ended in non-participation². The QLS data show no support for the assumption that women are moving from the labor market into household production, or that the proportion of discouraged workers is growing.

This examination of destination states for completed spells required a change in the analysis design. Instead of distinguishing between moves into employment and out-of-the-labor-market, only one destination state was assigned to all completed spells. One should keep in mind, however, that for a large majority of cases this transition means in effect "(re)employment." For simplification, this terminology is used in the interpretation. *Move into inactivity* is then coded as a dummy, and incorporated as a covariate in some of the model estimations.

Independent variables include individuals' characteristics and structural characteristics in the labor market. In general, young people without much work experience as well as older workers are in a precarious position. If we assume that this is also valid for the duration of unemployment, the expected transition rate out of unemployment would have a reversed U-curve form. To test these changing conditions in the life cycle of individuals, *age* as a time-varying covariate is included in the data set.

Next, *birth cohorts and historical periods* are included as possible explanatory factors. Problems inherent in distinguishing age, cohort and period effects are not negligible (Ryder 1985; Hobcraft, Menken, and Preston 1982; Blossfeld 1986); however, it is necessary to distinguish between these factors in order to disentangle (a) individual variations in the unemployment behavior during individuals' life course, (b) those effects which are experienced by an aggregate of the unemployed, and (c) the historical constellations which affect all unemployed persons in a similar way during a certain historical time (Drobnič 1996).

Dummy variables representing birth cohorts in five-year intervals are included in our estimations. Historical time is divided in two periods to distinguish the pre-transition and transition period. In 1989, first signs of rapidly changing conditions in the Slovenian labor market were recorded but full-fledged labor market changes emerged in 1990 (Drobnič 1994; Drobnič and Rus 1995). This year was also the cutting point for our period dummy.

Gender and *education* are usually considered important factors of individual unemployment duration. The dummy for gender and the years of schooling as a proxy for the human capital are therefore included in the analysis. In addition, *social origin* of an individual, measured by the father's education, is included as a proxy for potential informal resources that may facilitate job search.

The previous "history" of an individual is depicted by two variables: (1) a dummy indicating whether the person had been *unemployed in the past*, before the current unemployment spell; (2) cumulated duration of *work experience* before the occurrence of unemployment, measured as a time-dependent covariate.

The aggregate *unemployment rate* in Slovenia (showing general conditions in the labor market) is also included as a time-varying covariate. We interpret it as an indicator of objective opportunities and demand for labor, as well as the level of competition between job seekers. A further structural

factor is the *place of residence* which can be used as a proxy for the differences in local labor markets. Since a complete residential mobility of respondents is available for the observation period, we include the size of the place of residence in a time-varying form.

Finally, a control variable *INCOMPLETE_DATA* needs some explanation. This variable has been created due to peculiarities of data collection. The observation window 1974-1994 is relatively short and encompasses complete employment/unemployment careers for younger respondents only; therefore, some covariates for older respondents may be distorted. For example, no information on previous unemployment spells is available for people whose unemployment spells started and terminated before 1974. Likewise, work experience may be underestimated for older respondents due to data truncation. To control for the differences between younger and older respondents, a dummy variable that indicates that part of this information is missing for an individual is included in the analysis.

RESULTS³

SURVIVAL FUNCTION AND BASELINE HAZARD RATE

To describe the general characteristics of the unemployment process, the Kaplan-Maier (or product limit) estimator is calculated. The graphical presentation of the survival function, showing the plot of the shape of the function against unemployment duration is shown in Figure 3⁴. It is evident that the survivor function declines faster in the initial periods than after several years. The median of the unemployment duration is 25 months, i.e. half of all unemployment spells terminate in about two years.

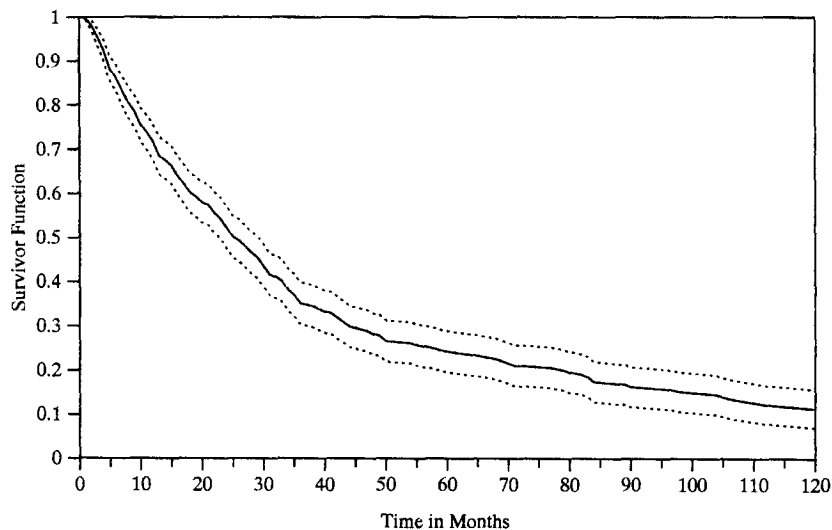


Figure 3: DURATION OF UNEMPLOYMENT (PRODUCT LIMIT SURVIVOR FUNCTION)

To estimate the baseline hazard rate, a piecewise constant exponential model is used. This is a generalization of the standard exponential model and particularly useful in many practical research situations. As there are no clear postulates about the form of the time-dependence in the unemployment process, it is advantageous to use this very flexible instrument of analysis. The basic idea behind the piecewise constant model is to split the time axis into duration periods and assume that the baseline transition rate is constant within each of these intervals but can change between them.

In Figure 4, the estimates of the baseline transition rate with the following intervals are plotted: up to 6 months, 6-12 months, 1-2 years, 2-3 years, 3-5 years, 5-10 years, and 10 and more years. The shape of the function shows that the hazard rate is not constant over time. The hazard rate increases - with some variations - during the first three years and declines considerably afterwards.

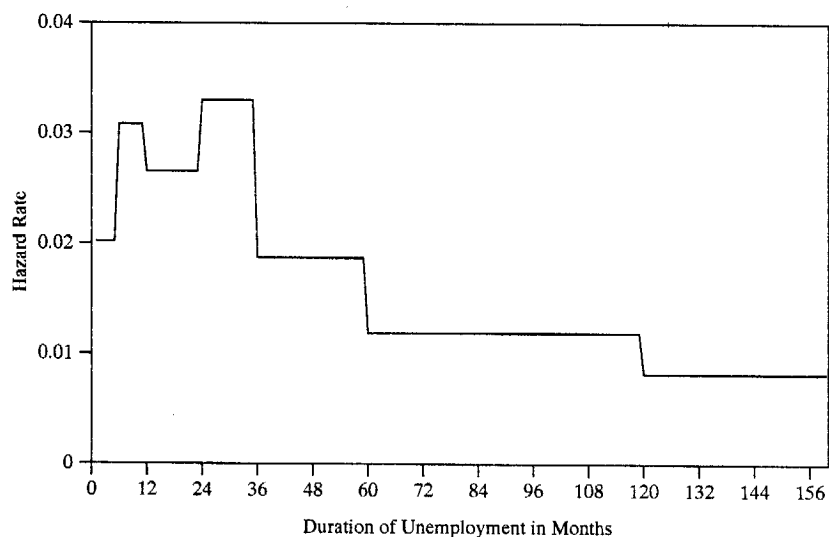


Figure 4: ESTIMATED HAZARD RATE (PIECEWISE-CONSTANT MODEL)

AGE, BIRTH COHORT, HISTORICAL PERIOD

In the continuation of analysis, we constructed more complex models by gradually adding covariates to the baseline model. Age was first included as a continuous variable in a linear and quadratic form but the parameter estimates were not statistically significant (not shown). After we recoded age into four categories, it became evident that middle-aged category (30-55) in particular had difficulties in escaping from unemployment (Table 1, model 1). This contradicts our initial hypothesis which predicted that younger and

older workers would face more difficulties in the labor market. This is not supported by our data. Perhaps prime-aged workers are less likely to *become* unemployed, but when they are unemployed, their spells are longer. The escape rate for 30-55 year-olds is 56% lower than that for other workers.

Also, when information on birth cohort and historical time is included (Table 1, model 2), the age effects remain. Concerning the birth cohorts, individuals born since the mid-50s tend to leave unemployment faster, regardless of when they became unemployed.

Episodes that started in the 1990s are on the average shorter than earlier unemployment spells. In later, better specified models, this effect disappears. Nevertheless, this result may be surprising when we take the dramatic increase in the unemployment rate since 1989 into account. Two explanations are plausible in this case. First, the effect may be partly an artefact: the episodes starting in 1990 or later can last at most four years before the time of interview. Second, these results demonstrate substantial dynamics in the labor market. The unemployment rate has indeed been growing but this does not mean that the unemployment has statically cumulated over this time period. When looking at the inflows and outflows from registered unemployment, remarkable dynamics become apparent (Drobnič and Rus 1995), but the outflows did not reach the inflows.

Two control variables are added in model 3 (Table 1). Episodes that end in inactivity are much shorter than those ending in employment. The hazard rate is, *ceteris paribus*, 117% higher, since $(\exp(0.775)-1)*100\% = 117\%$. This confirms a distinctive character of the labor market in Slovenia and refutes the assumption of growing numbers of discouraged workers. The INCOMPLETE_DATA covariate controls for the incompleteness of data collection for persons older than 15 in 1974.

Table 1:
ESTIMATES OF THE EFFECTS OF COVARIATES ON TRANSITION RATES FROM UNEMPLOYMENT, PIECEWISE-CONSTANT MODEL.

	Models			
	1	2	3	4
Duration of episodes				
up to 6 months	-3.6900** (0.137)	-4.3861** (0.276)	-4.7297** (0.385)	-6.4017** (0.475)
6-11 months	-3.2621** (0.127)	-3.9473** (0.269)	-4.2922** (0.380)	-5.9188** (0.466)
12-35 months	-3.3401** (0.090)	-3.9897** (0.250)	-4.3124** (0.365)	-5.8808** (0.448)
36-59 months	-3.8281** (0.169)	-4.3903** (0.283)	-4.6841** (0.388)	-6.1818** (0.460)
60 months and more	-4.2996** (0.184)	-4.6838** (0.262)	-4.9503** (0.374)	-6.3955** (0.446)
Age/Birth Cohort/Period				
age 25-30 ^a	-0.1341 (0.179)	-0.1861 (0.201)	-0.1332 (0.203)	-0.1347 (0.204)
age 30-55 ^a	-0.8193** (0.150)	-0.7102** (0.226)	-0.7362** (0.229)	-0.7185** (0.234)
age over 55 ^a	-0.9132 (0.711)	-0.5204 (0.768)	-0.4670 (0.770)	-0.3164 (0.776)
cohort 1949-53 ^b		0.3989 (0.288)	0.5021* (0.290)	0.4657 (0.289)
cohort 1954-58 ^b		0.6011** (0.255)	0.7590** (0.260)	0.6413** (0.263)
cohort 1959-63 ^b		0.5711** (0.248)	0.8055** (0.325)	0.9383** (0.327)
cohort 1964-68 ^b		0.7556** (0.274)	0.9746** (0.375)	1.2068** (0.381)
cohort 1969 and younger ^b		0.4903* (0.298)	0.7432* (0.395)	1.0396** (0.407)
period ≥ 1990 ^c		0.2904* (0.157)	0.3215** (0.158)	0.1213 (0.165)
Individual Characteristics				
women				0.0687 (0.116)
years of schooling				0.1419** (0.022)
father's education				-0.0296 (0.035)
Control Variables				
destination state: inactivity			0.7750** (0.186)	0.8062** (0.192)
INCOMPLETE_DATA			0.1577 (0.259)	0.3783 (0.263)
Number of Spells	501	501	501	501
Number of Events	336	336	336	336
Max. log likelihood	-1572	-1564	-1556	1536

Note: Standard Error in Parentheses

** p<0.05, * p<0.1

^a Reference category: age under 25

^b Reference category: born before 1949

^c Reference category: period before 1990

INDIVIDUAL CHARACTERISTICS

A further distinction of Slovenia as compared to developed-market economies concerns the labor market situation of women. Gender has no effect on the transition rate from unemployment (Table 1, model 4). Education, however, is an important factor promoting (re)employment. Each additional year of schooling increases the escape rate from unemployment by about 15%. Father's education that is included as a proxy for the socioeconomic origin and access to informal social networks has no statistically significant effect on the hazard rate.

PAST EMPLOYMENT CAREER

In Table 2, a dummy which indicates that the person had been unemployed in the past, and the cumulated work experience are added to the previous specification of the model (model 5). Both coefficients are statistically insignificant and alternative specifications or differently operationalized work experience⁵ do not alter the results. However, the interaction effect between work experience and INCOMPLETE_DATA does have an impact on the transition rate. This indicates that the truncation does indeed have an effect on the results.

STRUCTURAL CONDITIONS

Annual average unemployment rate in Slovenia is included in Model 7 (Table 2). The coefficient is not statistically significant; however, it remains very stable and robust even in other specifications of the model. Unemployment rate is highly correlated with the indicator for historical period (period \geq 1990), which means that the period effect already captures the effects of a high unemployment rate to a large extent.

Finally, the place of residence is included in Model 8, Table 2. Since this information is available in a time-varying form for primary respondents only, their partners are excluded from the analysis⁶. There are no differences in hazard rates amongst smaller settlements, communal and regional centers. Job seekers in Ljubljana and Maribor, however, need significantly more time to escape from unemployment. Unfortunately, the data do not allow us to distinguish between the two largest cities in Slovenia. We assume that this result reflects the severe economic and employment problems in Maribor in particular.

Table 2:
ESTIMATES OF COVARIATE EFFECTS ON TRANSITION RATES OUT OF UNEMPLOYMENT,
PIECEWISE-CONSTANT MODEL. EPISODE DURATION, AGE, BIRTH COHORTS AND PERIOD
≥1990 ARE CONTROLLED.

	Models			
	5	6	7	8
Individual Characteristics				
women	0.0165 (0.117)	-0.0047 (0.118)	-0.0064 (0.118)	0.0085 (0.150)
years of schooling	0.1500** (0.022)	0.1617** (0.024)	0.1571** (0.024)	0.1285** (0.030)
father's education	-0.0239 (0.036)	-0.0189 (0.035)	-0.0189 (0.036)	0.0293 (0.046)
Career in the Past				
previous unemployment	0.1241 (0.155)	0.1916 (0.158)	0.1938 (0.158)	0.1147 (0.219)
work experience	-0.0016 (0.013)	-0.0072** (0.002)	-0.0073** (0.002)	-0.0056** (0.003)
work exper.*INCOMPLETE DATA		0.0074** (0.002)	0.0073** (0.002)	0.0052* (0.003)
Structural Conditions				
unemployment rate in Slovenia			0.0399 (0.026)	0.0301 (0.031)
communal center ^a				0.0390 (0.184)
regional center ^a				0.0951 (0.264)
Ljubljana, Maribor ^a				-0.3831* (0.220)
Control Variables				
destination state: inactivity	0.7656** (0.197)	0.6715** (0.197)	0.6659** (0.197)	0.6678** (0.220)
INCOMPLETE_DATA	0.3484 (0.264)	0.0995 (0.275)	0.0862 (0.275)	-0.0281 (0.352)
Number of spells	492	492	492	326
Number of events	333	333	333	219
Max. log likelihood	-1510	-1505	-1504	-981

Note: Standard error in parentheses

** p<0.05, * p<0.1

^a Reference category: settlement or village outside communal center

The interpretation of the model 6 is fairly complex because the effects of work experience and its interaction with INCOMPLETE_DATA have to be taken into account simultaneously. In short, for respondents who were older than 15 in 1974, the effect of work experience cancels out. However, the effect of work experience is negative and significant for younger respondents with a complete career information.

CONCLUSIONS

This paper has analyzed the transition rate from unemployment in Slovenia in the 1974-1994 period, based on retrospective longitudinal individual-level data. It should be noted that the inspection of data gave us the impression that the unemployment spells did not comply with the standard ILO definition of unemployment in a few cases. This is particularly valid for some very long unemployment episodes, for which we have no information on job search intensity. In some cases, such episodes or parts of episodes should perhaps be redefined as "inactivity".

We can draw the following conclusions from afore-mentioned results:

- Only about 7% of all completed unemployment episodes in Slovenia end in inactivity and such episodes are of shorter duration than those that end in (re)employment. There is no empirical evidence which shows that the number of discouraged workers is increasing or that women are moving from paid work to housekeeping.

- Unemployment episodes are on the average very long. Only 15% of unemployment spells terminate within six months; median duration is about two years. It is known that short-term unemployment in a distant past tends to be under-represented in retrospective data collection, but it is difficult to estimate the potential effects of research design in our case.

- The baseline hazard rate is not constant over time. After the first 6 months, the escape rate from unemployment increases significantly, drops in the second year, and reaches the highest level in the third year. Afterwards, the transition rate keeps falling. Such results with typical "spikes" in the re-employment rate are intriguing as they comply with analyses showing that the re-employment rate rises considerably when unemployment benefits lapse (Vodopivec 1995). Unfortunately, no information on unemployment insurance entitlement is available in our data set and this line of research cannot be investigated.

- The hazard rate for women does not differ from that for men. In spite of anecdotic evidence that gender discrimination in the labor market has been increasing during the transition period, our data do not support such views. We interpret this as a consequence of substantial sex segregation in the Slovenian labor market. Women are under-represented in traditional heavy manufacturing industries with frequent mass layoffs, and over-represented in the service sectors and in jobs that offer better employment chances and higher job security.

- Schooling increases the re-employment rate. Thus, education should be an important integral part of the labor market policies.

- The effects of age are somewhat unexpected. Workers under 30 have the shortest unemployment duration, whereas prime-aged workers (30-45) have the most difficulties in leaving unemployment. Older workers do not carry the heaviest burden of transition in Slovenia as for these people, early retirement was introduced as a systemic reaction to threatening unemploy-

ment in the most critical period of transition. Early retirement has been used as an alternative to unemployment rather than a solution, used when all other options for displaced workers are exhausted.

- Previous incidence of unemployment does not have an effect on the duration of subsequent unemployment spells.

- The exit rate from unemployment decreases with a longer work experience. We assume there are two possible explanations for this. First, the duration of previous employment prolongs the duration of unemployment insurance benefits entitlement which may have adverse effects on job search and re-employment. Second, lay-offs are often related to nationwide difficulties in a particular industrial or occupational segment. Thus, finding another job in the same occupation or industrial branch is very difficult, especially if the job seeker's skills are obsolete and do not fit the requirements of the labor market.

- In periods of high unemployment (which coincide with the economic and political transition in Slovenia), unemployment episodes are somewhat shorter than otherwise. This reveals a significant dynamics in the labor market. Thus, the dramatic increase in the aggregate unemployment rate in the 1990-1994 period does not reflect a crude piling up of the unemployed, but a growing gap between strong outflows and even stronger inflows of workers into unemployment.

NOTES

1. It is prevailing practice in labor market research to distinguish employment and inactivity as separate destination states for unemployment episodes. In particular, there are two categories of people with a high probability of transition into non-participation: discouraged workers and women who move from unemployment into housekeeping.

2. Of those, 15 unemployment episodes ended with conscription. In most cases, the following pattern was evident: completed education, short unemployment, military service, employment. This strongly suggests that the expected draft "induced" unemployment spells for young men in the first place. Among other unemployment episodes, 9 spells terminated in retirement, 3 in housekeeping, 4 in schooling and 4 in other statuses.

3. This analysis has been carried out with a specialized program Transition Data Analysis - TDA (Rohwer 1994).

4. Dotted lines delineate the 95% confidence interval.

5. I.e. dichotomous distinction between workers with work experience and those without it, non-monothonic specification, logarithmic transformation of the duration of previous employment.

6. The number of episodes is thus smaller, which weakens the statistical power of the model. It is reassuring that the parameter estimates for all previous covariates remain basically unchanged in this analysis with fewer spells.

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