Subsidized Jobs for Unemployed Workers in Slovakia

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Abstract. *This paper uses an administrative dataset from the Slovak Republic on durations of individual unemployment spells. The focus of the analysis is on the effect of the duration of temporary subsidized jobs on the job finding rate of unemployed workers. It appears that the duration of the temporary jobs is an important determinant of the speed by which unemployed workers find regular jobs. In this sense shorter temporary jobs are more effective than long temporary jobs. The main reason for this is probably that temporary jobs with a long duration induce workers in the first period on the temporary job to search less intensive for a regular job than temporary jobs with a short duration do.*

Keywords: unemployment, active labor market policy, temporary subsidized jobs, duration models

1 Introduction

Temporary subsidized jobs aim to improve the labor market position of unemployed workers. Subsidized jobs, both in the market sector and the government sector affect the job opportunities of unemployed workers because of the increased number of jobs available. Furthermore, they may upgrade individual unemployed workers when there is a training element involved. The work experience that unemployed workers collect on a subsidized job may also make them more valuable for employers. Employers in search for new employees may prefer workers who have been on temporary subsidized jobs to other unemployed workers. If they find a regular job more quickly temporary subsidized jobs can be considered as a "treatment" for unemployed workers.

This paper uses an administrative dataset from the Slovak Republic on durations of individual unemployment spells. The focus is on the individual treatment effects from temporary subsidized jobs. The Slovak labor market is one of the transitional labor markets of Central and Eastern Europe (see Svejnar (1999) for an overview). Like many other countries with a transitional economy, Slovakia experienced a sharp increase of unemployment at the initial stage of the transition. In the course of 1991, unemployment increased from practically zero to 300,000 persons which corresponded to an unemployment rate of about 12% (OECD 1996).

In the course of the 1990s the Slovak government introduced a range of ALMP. Important elements of these ALMP were temporary subsidized jobs known as socially purposeful jobs (SPJ) and publicly useful jobs (PUJ). SPJ were mainly created in the private sector and concerned higher qualified functions while PUJ were low ranking jobs in the public sector best described as "community works" (OECD (1996)). ALMP were introduced in 1991 and gradually developed into a comprehensive system of several programs. SPJ were the most important throughout the period, both in terms of number of created jobs and expenditures. The maximum duration of PUJ changed from 6 months at the introduction to 9 months later on and finally to 12 months. The last major re-organization occurred in 1997 when SPJ and PUJ were combined into one program of subsidized jobs.

There have been some studies on the impact of ALMP in transition economies, but there is not an abundant number. From an overview of studies on labor-market reforms in transition economics Boeri (1997) concludes that active policies, such as subsidized employment schemes and public work programs have not been very successful. According to Boeri this may have to do with the phenomenon that slots in training courses are often offered to job seekers with rather favorable labor market characteristics who would have found a job anyway. Furthermore,

participation in ALMP may stigmatize the participants, which will reduce their chances of finding a regular job. The effectiveness of Slovak labor market policies has been investigated in a number of studies. In Lubyova and Van Ours (1999) the effects of PUJ, SPJ and training on the transition rate from unemployment to a regular job are investigated. The main conclusion is that PUJ have a positive effect on the job finding rate. In Van Ours (2000) the effects of ALMP are studied more closely, by also investigating whether the separation rate from a new job is related to whether or not the worker previously participated in an ALMP. Here the conclusion is that PUJ reduce the job separation rate. The current paper focuses on the job finding rate. The main issue addressed here is the question why PUJ have a positive effect on the job-finding rate while SPJ have a negative effect. Possible explanations are the length of the subsidized jobs that differs or the difference in characteristics between workers flowing into the two categories. To investigate the effect of the duration I exploit the changes in the maximum length of PUJ that were introduced in the first half of the 1990s. I use a sample of 3 Slovak districts of which I have detailed labor market information with respect to the workers that started their unemployment spell in 1993. I focus on the labor market position of male workers.

The paper is set up as follows. Section 2 provides stylized facts about the system of passive and active labor market policies in Slovakia. I also discuss the results from a previous study on the effects of Slovak ALMP. Section 3 describes the data and the sampling procedure. Section 4 gives some stylized facts. Section 5 presents the statistical model and Section 6 presents the estimation results. Section 7 concludes.

2 Labor market policies

The Slovak Republic has a system of passive and active labor market policies. The system of unemployment benefits in the Slovak Republic has been discussed elsewhere (for a detailed description of institutions I refer the reader to OECD (1996)). For the current paper I only note that for many unemployed workers replacement rates are quite high. Even for average wage jobs the replacement ratio for adults with children and unemployment benefits was no less than about 80%. After transfer to the social assistance benefits their replacement ratio was about 50-60% (for more details see Lubyova and Van Ours (1997, 1998)).

Active labor market policies consist of a range of measures from subsidized jobs to training. I focus on SPJ and PUJ. SPJ were subsidized jobs in the private sector. The concept of SPJ and the rules of administration have undergone numerous revisions as the authorities learned how to tailor the programs to labor market conditions. In 1991 SPJ were considered to be every job created on the basis of an agreement with the labor office by an employer in production, business or other activities aimed at making profits. In 1992 the profit-seeking requirement was eliminated and the requirement that the job had to be occupied by registered

unemployed was introduced. The latter was partially relaxed in 1994 when the school-leavers, persons younger than 18 years and those who would be full-time self-employed under SPJ were allowed to participate without prior registration. The main forms of support introduced in 1991 were subsidies, interest repayments and loans, later reduced to 2-years loans and subsidies. The minimum duration of SPJ was introduced in 1992 and set to 2-years period. In case of lay-off or quit, the job had to be occupied by another registered unemployed within 30 days.

Publicly useful jobs were designed mostly for lower qualified workers for a limited period of time. In 1991 PUJ were introduced as short-term employment opportunities created on the basis of agreements between labor offices and non-profit employers (for example, organs of state administration, municipalities, and local administration). The requirement for non-profit orientation of the employer was canceled in 1992. State budgetary organizations and state contributory (partial budgetary) organizations were excluded from PUJ programs in 1994. The upper limit for financial support was originally set at the wage costs of the participant, later extended to cover also participant's social insurance contributions. The maximum duration of PUJ in 1991 was 6 months. Given that the participation renewed unemployment benefit entitlement, many unemployed workers were shifting between PUJ and open unemployment. Therefore, the maximum duration of PUJ was raised to 9 months in 1994 and to 12 months in 1995. The stocks were strongly built up after two major inflows of about the same size, which occurred in the financing boom of 1992, and in the first half of 1995. The latter inflow was a result of changed priorities in 1995 - more means were put into PUJ, partly at the expense of other programs.

The implementation of ALMP was in the hands of the Public Employment Service (PES) that had a network of district offices where every district office had a number of local centers. So, the services were never far away (OECD (1996)). Although priority of placement was given to long-term unemployed workers, the target group of the wage subsidies was not limited to the long-term unemployed. Every unemployed person who could not get a normal job was entitled to a subsidized job offered through the PES system. According to the OECD (1996) the incentive to establish a subsidized job usually came from interested employers. Among the subsidized jobs were jobs that required no special training and education, including caretaking, cleaning, kitchen work and unskilled jobs in general. The creation of subsidized jobs was a matter of negotiation between employers and PES. The wage subsidy was granted to individuals but paid to the employer. The wage was comparable to other workers that had a low skilled industrial job and was usually at the minimum wage or somewhat above. This means that for some workers the replacement rate was quite high. If someone refused a job offered by the PES he or she may have gotten a benefit sanction imposed but the labor offices were usually reluctant to use this instrument.

In 1997 the structure of ALMP programs was substantially reformed. The original SPJ and PUJ were formally unified into one program of subsidized jobs, although some distinction between the two types of jobs was preserved.

3 Data

The data used in our analysis come from the unemployment registers of labor offices in three Slovak districts. The first district is Bratislava (excluding the capital Bratislava) with a December 1993 unemployment rate of 4.1%, the second district is Dolny Kubin with an unemployment rate of 12.9% and the third district is Bardejov with an unemployment rate of 19.3%.

In the selected districts the data collection was exhaustive, i.e. all the registered unemployed were selected. Several types of information are used in order to reconstruct individual histories. An individual history consists of a sequence of spells representing three possible labor market states: employment, unemployment and out of labor force. In addition to that the spells of participation in SPJ and PUJ programs are identified. From the unemployment register and unemployment archives an inflow sample was selected of all the unemployed that became registered in the course of 1993. The censoring point is April 1998. The use of 1993 inflow is justified by the relative stability in the institutional set-up of the labor market (major reforms occurred at the beginning of 1992 and 1995). Another reason was a sufficient time period elapsed before the censoring point in order to avoid large shares of censored spells. In the analysis I use information about the length of the first spell of unemployment that started in 1993 and if this spell ended about the labor market status after unemployment. If the spell ended in a transition to a job the unemployment spell was considered to be completed. If the spell ended in a transition to an ALMP-program the unemployment duration was considered to continue until another transition occurred either to a job or back to unemployment. When a transition to a job occurred the unemployment spell was considered to be complete. When a transition occurred back to unemployment the spell was still considered to be incomplete. In the analysis the duration of unemployment up to a transition to an ALMP-job or to training is also important. This duration is the search period until an ALMP measure is met. If the spell did not end or ended in a transition to out of the labor force the unemployment spell is considered to be right censored.

The explanatory variables I use in the analysis refer to age, education and marital status. Appendix 1 gives details about our dataset. As shown there, on average 35% of the unemployed in our sample was younger than 30 years, 59% had a lower education and 58% was married. Apart from the unemployment rate the largest differences between the unemployed in the three districts seem to be age or age-related. In Bratislava on average the unemployed are older than in the other two districts, they are lower educated and have a higher share of married man.

Table 1 gives some indication about the transitions in labor market statuses that were used in the analysis. Over the period of observation 332 unemployed entered

a PUJ, 275 entered a SPJ and 3525 unemployed found a regular job without having been on an ALMP program. For 746 unemployed the unemployment spell is right censored. There are several reasons for the spells to be considered as right censored. Some of them really are right censored in the sense that at the end of the sample period they were still unemployed. Other workers have left unemployment with unknown destination. Then, there are people who left unemployment and re-entered immediately, probably for administrative reasons.

Furthermore, Table 1 shows that of the 332 unemployed workers that have been on a PUJ 128 entered a regular job, 177 entered a regular job after being on a SPJ and 132 entered a regular job after being on a training program. The remaining spells are considered to be right censored unemployment spells. A lot of unemployed workers that have found a regular job during the sampling period have lost their job and reentered unemployment.

4. Stylized facts

Figure 1 shows quarterly transition rates from unemployment. From Figure 1a it appears that the transition rate to a regular job peaks in the second quarter. After the second quarter this transition rate gradually declines. Figure 1a also shows the transition rate to other destinations (including the transition to training[1]), that has a similar pattern. Maybe the peak in both transition rates has to do with the expiration of unemployment benefits after 6 months. The transition rates to PUJ and SPJ are rather low and therefore are also shown separately from the other transition rates in Figure 1b. From this figure it appears that both transition rates are remarkably different from each other. The transition rate to SPJ is about 0.02 in the first quarter, so 2% of the 1993 inflow into unemployment goes to SPJ already in the first quarter. After that the transitions to SPJ gradually decline. The transition rate to PUJ is almost zero in the fist quarter, but increases strongly in subsequent quarters. After 2 years of unemployment the transition rate to PUJ is 6 times as high as the transition rate to SPJ.

Figure 2 shows the transitions to a regular job from both PUJ and SPJ. These are direct transitions, before the temporary job expires. The figure shows that the transition rate from SPJ is rather low in the first quarter. After that this transition rate rises from 5% to 15% to be practically constant with the exception of the fourth interval when the transition rate is about 10%. The transition rate from PUJ to regular jobs is quite different. This transition rate is about 35% in the first quarter and goes down afterwards. Except for the third quarter the transition rate from PUJ to regular jobs is always higher than the transition rate from SPJ.

[1] I consider transitions to training as right censored unemployment durations. Though in theory training is an active labour market policy in practice I serious doubts about the way people are selected for these programmes. See Van Ours (2000) for more details.

Figure 3 also presents information about transition rates from SPJ and PUJ to regular jobs, but now also indirect transitions are included. This means that transitions from SPJ and PUJ to unemployment or to withdrawal from the labor market, that are later followed by a transfer to a regular job are also taken into account. Figure 3a show the cumulative probability to transfer to regular jobs conditional on having started on SPJ or PUJ. The direct transfer from PUJ levels off after 2 quarters, while the total transfers level off after 8 quarters at about 70%. The transfers from SPJ are much lower in the beginning but increase over a longer period. After 3 years the cumulative transition probability to a regular job is about 90%.

Figure 3b gives similar information about cumulative transfers from PUJ and SPJ to regular jobs, but now distinguished by year of start on the temporary subsidized job. I make a distinction between a start in 1994 and a start in 1995 or a later year. There are insufficient observations of starts in 1993 to include them in the graph. For SPJ there is no institutional difference between 1994 and later years, but for PUJ there is. In 1994 PUJ lasted maximum 9 months, from 1995 onwards this was maximum 12 months. Figure 3b shows that the cumulative transition probability from SPJ has the same pattern irrespective of the starting year. For PUJ there is a remarkable difference. The level of transition from the 1994-PUJ is substantially higher than the level of transition from the 1995-onwards-PUJ. Since there is hardly any difference for SPJ the labor market conditions are probably very much the same when comparing 1994 and later periods. Therefore, as a preliminary conclusion I infer from Figure 3b that the ex ante length does matter. The shorter ex ante length in 1994 may have induced higher transition rates from PUJ. We will consider this in more detail below.

5. Statistical model

We consider an ALMP program as a 'treatment' that may affect the behavior of the unemployed workers. In order to establish the effect of an ALMP program on the exit rate from unemployment to a regular job we have to set-up a model that accounts for possible selectivity in the inflow into ALMP. Heckman et al. (1999) gives an overview of the relevant issues when one wants to establish treatment effects. There have been many treatment effect studies but studies that estimate the effects of the treatment in the context of an event history model of labor force dynamics are rare[2]. In my analysis I exploit information with respect to the duration of unemployment, the duration of the stay in an ALMP, the destinations after that and the duration of a subsequent employment spell. In multivariate duration models the variation in the durations at which treatment is administered to individuals, and data on the corresponding pre- and post-treatment durations can be exploited to identify the treatment effect. The intuition is as follows.

[2] An early example of the use of duration models in an evaluation study is Ridder (1986).

Consider the transition rate from unemployment to a regular job, which is affected by unobserved heterogeneity that has a discrete distribution with two points of support. Consider also the transition rate from unemployment to an ALMP that is affected by a similar type of unobserved heterogeneity. If the two types of unobserved heterogeneity are correlated this means that conditional on observed characteristics there are four groups of individuals that differ in terms of transition to a job (high/low) and transition to an ALMP (high/low). Conditional on observed characteristics each of these four groups is homogenous. So, within the groups selectivity of the inflow into an ALMP cannot be present. Therefore, we are able to estimate the unbiased effect of the ALMP on the transition rate from unemployment to a regular job if we can identify the unobserved heterogeneity in both the transition rate to a regular job and the transition rates to ALMP. This means that the data should contain information about all relevant transitions over some period of time, which they do[3].

A formal proof of the identification of the treatment effect is given in Abbring and Van den Berg (1998). Van den Berg (2000) presents an overview of duration models and has a general discussion on the use of duration models in estimating treatment effects. He indicates that in order to avoid biased estimates of the impact of ALMPs on unemployment durations it is necessary that individuals do not behave in anticipation to future events.

Examples of the use of multivariate duration models in evaluation studies are Gritz (1993), Bonnal et al. (1997), Abbring, Van den Berg and Van Ours (1997), Van den Berg, Van der Klaauw and Van Ours (1998). These and other studies are discussed in more detail in Van Ours (2000)

I start with a simple version of the model in Van Ours (2000)[4]. The baseline model has for every transition rate a proportional specification with a flexible baseline hazard. Differences between unemployed individuals in the transition rate from unemployment to a job can be characterized by the observed characteristics x, the elapsed duration of unemployment itself[5], and a variable indicating whether or not the individual started participating in an ALMP. I assume x to be time-invariant. Furthermore, t_a (a = PUJ, SPJ) is the time at which the individual starts participating in an ALMP and $I(t_a<t)$ is the dummy variable indicating whether the individual has already started participating. I use a similar specification for the transition rate to PUJ and SPJ.

[3] If all unemployed would enter an ALMP at the same elapsed duration of unemployment we could not identify potential selectivity.

[4] The model in the current paper is more simple because I do not consider the effects of ALMP on job separation rates.

[5] As indicated above in the calculation of the unemployment duration I add the time spend during ALMP. So, if t_1 is the unemployment spell until entering an ALMP-program, t_2 is the time spend in the program and t_3 is the time unemployed after the program and before entering a regular job, total unemployment duration $t = t_1+t_2+t_3$.

The transition rate from unemployment to a regular job at time t conditional on x and t_a, the transition rate to SPJ or PUJ at time t conditional on x can be specified as follows:

$$\theta_{ue}(t; x, t_a) = \lambda_{ue}(t).\exp(x'\beta_{ue} + \delta_{ue,a}.I(t_a<t))$$

$$\theta_a(t; x) = \lambda_a(t).\exp(x'\beta_a) \qquad (1)$$

where the $\lambda_j(t)$-functions, j = ue, a represent individual duration dependence and $\delta_{ue,a}$ measures the effect that participation in an ALMP has on the transition rate from unemployment to a regular job. In both cases I assume the treatment to be an incidence effect (Gritz (1993))[6]. There could be a lot of aspects of the ALMP that potentially affect the transition rate to a regular job and the job separation rate, but I only take the effect of the participation in an ALMP into account. Flexible duration dependence is modeled by using step functions:

$$\lambda_j(t) = \exp(\Sigma_k(\lambda_{j,k} I_k(t)) \qquad (2)$$

where j = ue, a is an indicator for the type of transition, k (= 1,..,4) is a subscript for time-intervals and $I_k(t)$ are time-varying dummy variables that are one in subsequent time-intervals. I distinguish four time intervals: 1-2 quarters, 3-4 quarters, 4-8 quarters and 8+ quarters[7]. Because a constant term is also estimated I normalize $\lambda_{ue,1}=\lambda_{a,1}=\lambda_{eu,1}=0$.

The conditional density functions of the completed unemployment durations t_u, and the completed durations until entrance of an ALMP can be written as

$$f_{ue}(t_u; x, t_a) = \theta_{ue}(t_u; x, t_a) \exp(-\int_0^{tu} \theta_{ue}(s; x, t_a)\, ds)$$

$$f_a(t_a; x) = \theta_a(t_a; x) \exp(-\int_0^{ta} \theta_a(s; x)\, ds) \qquad (3)$$

Since we have an inflow sample and the transition rates are uncorrelated, the log-likelihood L of the model factorizes where the components are specified as

$$L_j = d_j.\Sigma \log(f_j) + (1-d_j).\Sigma \log(1-F_j) \qquad (4)$$

where the F_j's are distribution functions, d_j is a dummy variable with a value of 1 if the transition j is completed and a value zero is the duration of the spell is right censored.

[6] Note that because of this the changes in the length of PUJ-jobs that occured in the course of time do not have to be taken into account explicitly.

[7] The intervals were chosen because they are related to the social security system (the workers that became unemployed during 1993 had a UB-entitlement period of 6 months) or because of convention (the border line between short-term and long-term unemployment is 1 year, the border line between long-term and very-long-term is 2 years).

In the second model I allow for unobserved heterogeneity to affect the transitions to both a regular job and to one of the ALMP programs:

$$\theta_{ue}(t; x, u, t_a) = \lambda_{ue}(t).\exp(x'\beta_{ue} + \delta_{ue,a}.I(t_a<t) + u)$$

$$\theta_{a}(t; x, v_a) = \lambda_{a}(t).\exp(x'\beta_{a} + v_a) \quad (5)$$

where u, and v_a are the components of unobserved heterogeneity in the transitions. These components are assumed to follow a discrete distribution with two points of support (p_j and $1-p_j$).

The basic assumption so far is that the inflow into the ALMP programs is a random process in the sense that it is independent of the process by which unemployed find jobs and subsequently loose jobs. The selection into the treatment-program is assumed to be exogenous and not dependent on unobserved characteristics that also affect the job finding rate. In other words, conditional on observed characteristics and the duration of unemployment the quality of the unemployed flowing into an ALMP is as good (or as bad) as the quality of the unemployed workers that remain unemployed. Then, if there is an effect of an ALMP ($\delta_{ue,a} \neq 0$), this is a 'true' effect. This effect can go both ways. If $\delta_{ue,a} < 0$ the ALMP has a negative effect on the re-employment hazard, which could be caused by stigmatization. If $\delta_{ue,a} > 0$ the workers on an ALMP have a higher exit rate to a job than the non-participants. Note that in the specification of the hazard in equations (1) and (5) the effect of an ALMP occurs immediately. Also note that I consider the duration of a stay in an ALMP as extended unemployment duration. This concept does not coincide with the official statistics but I take the point of view of a labor economist: a person is unemployed until he or she finds a regular job or leaves the labor market.

In the second model the unobserved heterogeneity terms are allowed to be correlated. Now selectivity in the inflow into one of the ALMP programs is accounted for. If unobserved characteristics have a negative effect on the job finding rate and a positive effect on the transition rate to an ALMP, then conditional on the observed characteristics and the elapsed duration of unemployment the average quality of the workers in an ALMP is lower than the average quality of workers who do not enter an ALMP. Then, if one would simply compare the transition rates to regular jobs of both groups one compares workers with unfavorable characteristics and ALMP with workers with more favorable characteristics and no ALMP. Therefore, one would underestimate the true effect of participating in an ALMP. The opposite effect is also possible. One can imagine that the people in control of the entrance to ALMP want their programs to be a success. Therefore they prefer workers with good characteristics to flow into their program. This implies that there is a positive correlation between the unobserved heterogeneity components in both transition rates. Then, the effect of an ALMP program is overestimated. $G(u,v_a)$ is defined to be the joint distribution of the unobserved characteristics u and v_a. Then, the joint density function of t_{ue} and t_a conditional on x equals

$$f_{ue,a}(t_{ue}, t_a \mid x; u, v_a, t_a) = \int_u \int_{va} f_{ue}(t_{ue} \mid x, u, t_a)\, f_a(t_a \mid x, v_a)\, dG(u, v_a,) \quad (6)$$

Each of the error terms is assumed to follow a discrete distribution with two points of support, and each error term can be correlated to another. I assume that there is perfect correlation. Therefore, G is a discrete distribution of unobserved heterogeneity with two points of support $(u^a, v_a^a,)$, (u^b, v_a^a). The associated probabilities are denoted as follows:

$$\Pr(u=u^a, v=v_a^a) = p_1 \qquad \Pr(u=u^b, v=v_a^a) = p_8 \quad (7)$$

where $0 \leq p_i \leq 1$ and $\sum_i p_i = 1$, i = 1,2. The set-up of the likelihood is similar to the one presented in equation (4). Note that because of the introduction of correlated unobserved heterogeneity it is not possible to factorize the likelihood as we did for the previous model, so we have to estimate all the coefficients jointly.

6 Estimation results

Of all the workers in our sample we have information with respect to the length of the unemployment spell, the destination after the unemployment spell, the length of the subsequent spell, et cetera. On the basis of this information we estimate the coefficients of the models presented in the previous section using the method of maximum likelihood. Apart from the personal characteristics age, education and marital status we also include fixed effects for two of the three districts in the analysis.

I started with a re-estimation of the model in Van Ours (2000), to illustrate the effects of omitting training as a separate ALMP and not including the job separation process. The results of the re-estimation are given in Appendix 2 and the parameter estimates of the explanatory variables are almost the same as in the original estimates. The parameter estimates for the transition rate to a job indicate that age is not relevant for this transition. Furthermore, low educated unemployed workers have a smaller transition rate to a job than workers with an incomplete, secondary or higher education. Married men have a higher job finding rate than their counterparts. In the districts with a high unemployment rate the direct transition to a regular job is smaller than in districts with a lower unemployment rate. There is also some negative duration dependence in the transition rate from unemployment to a job. However it is only the first six months in which the transition rate is significantly higher than later on. Beyond six months the job finding rate is sort of constant. Finally, it appears that unemployed that have entered a PUJ have a significantly higher transition rate to a job than those that did not have a PUJ. Unemployed that entered a SPJ have a lower transition rate to a regular job than those that did not. So, as before the re-estimation results indicate the PUJ increase the job-finding rate, while SPJ decreases it.

For the transition rate to a PUJ the only personal characteristic that has a coefficient significantly different from zero is the dummy for secondary and

higher education. As was to be expected lower educated unemployed workers have a higher transition rate into PUJ. There is positive duration dependence in the transition rate to PUJ. The transition rate in the first six months is substantially below the one in later periods. SPJ and training have higher entrance rates for younger, higher educated and married unemployed.

Appendix 2 also shows the estimation results for the model in which possible selectivity is accounted for. The estimation results indicated that there is hardly any selectivity in the inflow into ALMP. The two mass points in the job finding rate are very close to each other. The two mass points for the transition into PUJ differ, because there seems to be a group of unemployed that never go into PUJ. The same holds for the transition rate to SPJ, the non-entrance group being complementary to the non-entrance group to PUJ. Allowing for selectivity does not affect the so-called treatment effects of SPJ and PUJ. Therefore, in the remainder I proceed with a simple model that does not allow for selectivity and I concentrate on the way in which the SPJ and PUJ are modeled in the job finding rate.

The results with respect to SPJ and PUJ seem to be counterintuitive since PUJ were focused on disadvantaged groups while SPJ were targeted on unemployed with favorable labor market prospects. However, in the empirical model the explanatory variables account for some of the differences with respect to labor market prospects. And, perhaps the SPJ were too much like regular jobs. The PUJ effects could have to do with signaling. The workers on PUJ may have unfavorable labor market characteristics, by accepting a PUJ the unemployed worker signals a positive attitude towards work.

To investigate to what extent the differences between the effects of PUJ and SPJ can be attributed to differences in the ex ante duration of these jobs, I start with re-estimating a model that allows for these effects to depend on the year of entrance into on of these jobs. Since the other parameter estimates turned out to be hardly affected by the specification of the PUJ and SPJ-effects I only report coefficients of these effects ignoring the other parameter estimates. The estimation results are shown in Table 2. The first column gives the treatment effects if we ignore the differences in starting year and are merely a replication of the estimate without unobserved heterogeneity presented in Appendix 2. The second column shows that the year in which the worker started on a temporary job makes a difference. For PUJ that started in 1993 the treatment effect is the largest, for PUJ that started in 1995 or thereafter the treatment effect is the smallest. This order is consistent with the increase in the ex ante duration of the PUJ, which was the smallest in 1993 and the largest since 1995. The negative treatment effect of SPJ that started in 1993 is the same as those that started in 1994, while those that started in 1995 do not have a negative treatment effect at all. If we compare the values of the loglikelihoods of both estimation results in Table 2, it is clear that those in the second column are significantly better than those in the first column.

To investigate the treatment effects further I replaced the dummies used in the second column of Table 2 by a linear relationship between the treatment effect and the ex ante duration of the temporary job. The estimation results are shown in the first column of Table 3. They indicate that for every quarter of duration of a temporary job the treatment effect is reduced by 0.25, so that for 5 quarter temporary jobs the treatment effect is almost zero and from 6 quarters onward the treatment effect is negative. Of course it may be that the relationship between ex ante duration and treatment effect is non-linear, but the variation in ex ante duration is insufficient to pursue this point.

The second column of Table 3 shows what happens if I introduce personal characteristics in the treatment effect. The negative effect of the ex ante duration is somewhat smaller but still significantly different from zero. Furthermore it appears that for young workers the treatment effect is larger than for workers older than 30 years of age. The educational level and marital status are irrelevant, but the geographical area matters. In district 3 the treatment effect is substantially smaller than in the other two districts.

7 Conclusions

This paper studies job-finding rates of male workers in three districts in the Slovak Republic. The main interest is in the effect that ALMP-programs have on job finding rates. PUJ and SPJ are used as a treatment to stimulate unemployed workers to find a regular job. It is important to evaluate whether the treatment actually works. SPJ appear to have a negative effect on the job finding rate. PUJ seem to be the most efficient active labor market policy. Workers that are or have been on a PUJ have a higher job finding rate than other unemployed workers have.

The focus of the paper is on the difference in effect between PUJ and SPJ. PUJ are substantially shorter in duration than SPJ are. It appears that the duration of the temporary jobs is an important determinant of the speed by which unemployed workers find regular jobs. In this sense shorter temporary jobs are more effective than long temporary jobs. The main reason for this is probably that temporary jobs with a long duration induce workers in the first period on the temporary job to search less intensive for a regular job than temporary jobs with a short duration do.

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Appendix 1- Definition and means of variables of the 1993 inflow sample from the three Slovak districts; males

All variables are dummy variables (with value 1 where indicated and value 0 for the reference group)

Definitions of variables

Age<30: age is below 30 years as measured in 1998

Reference group age: age is 30 years or more in 1998

Incomplete secondary education

Secondary and higher education (including university)

Reference group education: no education - basic education – apprentice

Married: married or cohabiting person

Reference group marital status: single-divorced – widow/widower - unknown

Means of variables	**Bratislava**	**Dolny Kubin**	**Bardejov**	**Total**
(Number of observations)	*(1499)*	*(1902)*	*(1656)*	*(5057)*
Age < 30 years	0.23	0.39	0.42	0.35
Age ≥ 30 years	0.77	0.61	0.58	0.65
Lower education	0.72	0.72	0.32	0.59
Incomplete sec education	0.06	0.06	0.40	0.17
Sec and higher education	0.22	0.22	0.28	0.24
Married	0.70	0.58	0.46	0.58
Other marital status	0.30	0.42	0.54	0.42
Unemployment rate (%)	4.1	12.9	19.3	12.4

Appendix 2 Results re-estimating the model of Van Ours (2000)

	JOB	**PUJ**	**SPJ**
Age<30	-0.02 (0.5)	-0.06 (0.5)	0.30 (2.0)
Inc Sec ed.	0.22 (4.0)	-0.33 (1.5)	0.74 (4.0)
Sec higher ed.	0.15 (3.8)	-0.44 (2.7)	0.59 (4.1)
Married	0.17 (4.6)	-0.22 (1.8)	0.43 (2.9)
District 2	-0.08 (2.1)	-0.02 (0.1)	-0.10 (0.7)
District 3	-0.52 (10.5)	-0.12 (0.7)	-0.32 (1.7)
Mass points	-2.47 (52.6)	-6.81 (24.7)	-5.46 (28.8)
3-4 Quarters	-0.27 (6.2)	1.75 (6.3)	-0.42 (2.6)
4-8 Quarters	-0.37 (8.1)	2.69 (10.1)	-0.56 (3.2)
8+ Quarters	-0.39 (6.8)	3.41 (12.7)	-0.65 (2.4)
SPJ-treatment	-0.57 (7.7)		
PUJ-treatment	0.41 (3.8)		
-Loglikelihood		17,431.2	
Age<30	-0.02 (0.5)	-0.21 (1.3)	0.31 (2.0)
Inc Sec ed.	0.22 (4.0)	-0.38 (1.6)	0.77 (3.9)
Sec higher ed.	0.15 (3.7)	-0.49 (2.6)	0.58 (3.7)
Married	0.17 (4.5)	-0.45 (2.9)	0.46 (2.9)
District 2	-0.08 (2.1)	-0.05 (0.3)	-0.10 (0.6)
District 3	-0.52 (10.5)	-0.24 (1.2)	-0.30 (1.5)
Mass point 1	-2.46 (15.3)	-6.02 (15.5)	-∞
Masspoint 2	-2.47 (17.6)	-∞	-4.65 (11.9)
3-4 Quarters	-0.27 (6.2)	1.72 (6.1)	-0.38 (2.2)
4-8 Quarters	-0.37 (8.1)	2.68 (9.6)	-0.54 (2.6)
8+ Quarters	-0.39 (6.3)	3.68 (11.9)	-0.84 (2.5)
SPJ-treatment	-0.58 (3.6)		
PUJ-treatment	0.42 (2.3)		
Probability		0.44 (2.7)	
-Loglikelihood		17,430.5	

Table 1 Transitions in the sample; numbers of workers in different subsequent labor market states[a)]

State 1	State 2	State 3
U (5057)	PUJ (332)	E (128)
		C (204): unknown (7), SPJ (1), PUJ (40), U (114), c (42)
	SPJ (275)	E (177)
		C (98): unknown (30), SPJ (3), U (61), c (4)
	E (3525)	U (2452)
		C (1073): unknown (1), E (776), c (296)
	C (925): unknown (462) U (240), c (44), Tr (179)	

[a)] E = regular job, U = unemployed, PUJ = publicly useful job, SPJ = socially purposeful job, Tr = training, C = considered to be censored, c = actually censored

Table 2 Estimation results extended PUJ- and SPJ-effects

	I	**II**
PUJ	0.41 (4.2)	
SPJ	-0.57 (8.2)	
PUJ*start ’93		1.52 (4.6)
PUJ*start ’94		1.03 (6.1)
PUJ*start ≥’95		-0.23 (1.6)
SPJ*start ’93		-0.64 (7.5)
SPJ*start ’94		-0.66 (7.5)
SPJ*start ≥’95		-0.00 (0.0)
-Loglikelihood	13,954.4	13,922.0

Table 3 Estimation results extended PUJ- and SPJ-effects (continued)

	I	II
Constant	1.38 (8.0)	1.09 (4.8)
Ex ante duration	-0.25 (10.2)	-0.20 (6.6)
Age<30		0.38 (2.4)
Inc Sec ed.		-0.25 (1.3)
Sec higher ed.		-0.11 (0.6)
Married		0.09 (0.6)
District 2		0.11 (0.6)
District 3		-0.74 (4.1)
-Loglikelihood	13,943.2	13,918.6

Figure 1a Transition rates from unemployment

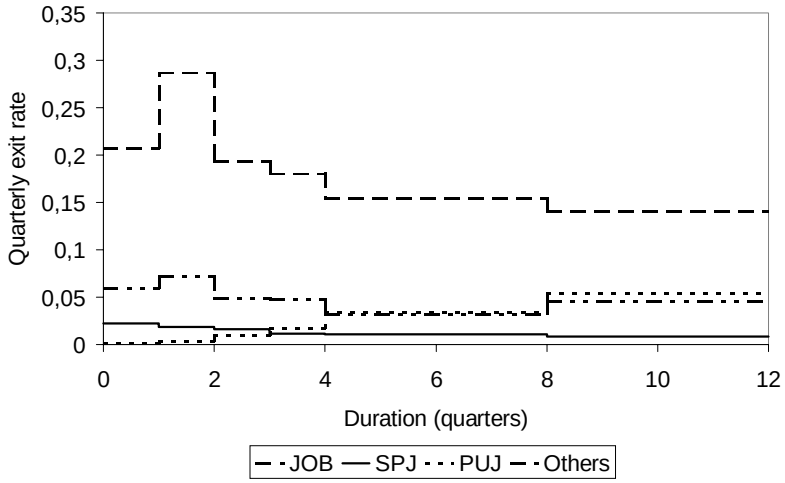

Figure 1b Transition rates to SPJ and PUJ

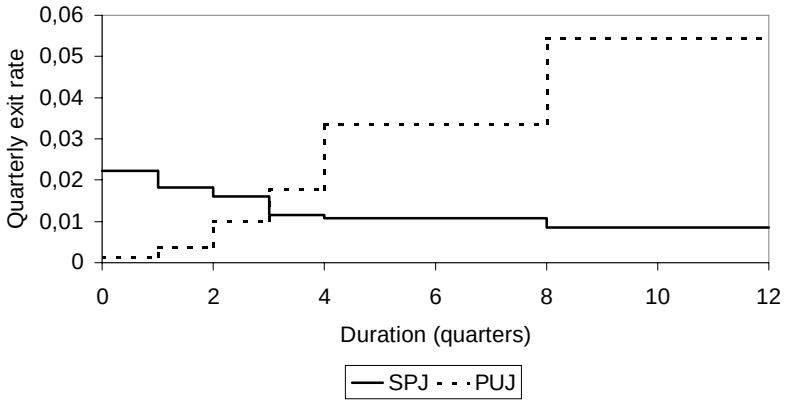

Figure 2 Transition rates to regular jobs

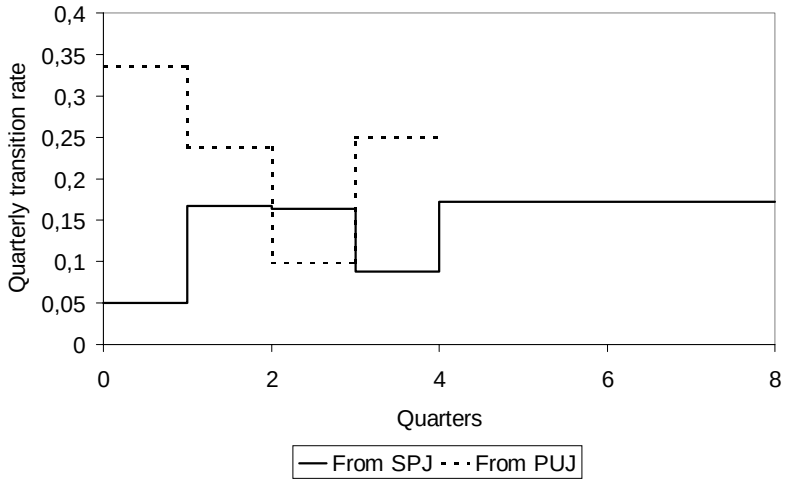

Figure 3a Cumulative transfers to regular jobs

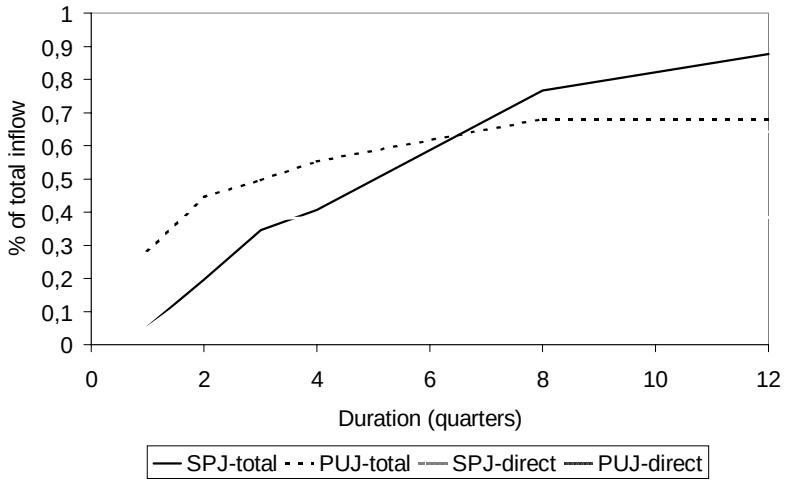

Figure 3b Cumulative inflow to job by year of entrance into PUJ and SPJ