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**Labor Market Policies and  
Unemployment in the Czech Republic**

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**LABOR MARKET POLICIES AND UNEMPLOYMENT  
IN THE CZECH REPUBLIC<sup>1</sup>**

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## ABSTRACT

We analyze the impact of the active labor market policies (ALMPs) and the unemployment compensation system (UCS) on unemployment durations of different groups in the Czech population by estimating hazard functions with new microeconomic data. We conclude these programs were effective in improving the functioning of the labor market. The UCS system has allowed the unemployed to search for jobs but has not unduly prolonged unemployment spells. This first analysis of the effectiveness of ALMPs on unemployment durations shows that job brokering shortened spells of the groups that tended to have longer unemployment durations: women, Romanians, handicapped, less educated, and those with an unemployment history. Overall our results suggest that the UCS and the ALMPs increased the social acceptability of the painful economic transition.

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## **Non-Technical Summary**

### *Labor Market Policies and Unemployment in the Czech Republic*

In this paper we take a fresh look at the effect of both active and passive labor market policies in the Czech Republic from the end of 1992 to the middle of 1994, a period that followed the severe economic downturn of the early 1990s and was characterized by a developed legal framework and labor market institutions. The two important policy questions that we address in this paper are: (a) To what extent did the unemployment compensation system (UCS) – passive policies – deter people from leaving unemployment and increase unemployment duration during this period? (b) To what extent did the active labor market policies (ALMPs) help people leave unemployment more rapidly than they would have on their own, without the assistance of the District Labor Offices (DLOs), and to what extent were the hard-to-employ targeted for ALMP assistance?

To answer the first question, we estimate the probability that someone exits unemployment in a given week (the hazard) as a function of the UCS features as well as the individual's demographic characteristics and local demand factors. Using the estimated coefficients from the hazard function, we calculate the base duration of unemployment for men and women with certain characteristics. We then calculate the effect of marginal changes in the UCS on the duration of unemployment for men and women separately. We find that the elasticities of duration with respect to the length of entitlement period is generally small (compared to the U.S. literature) and smaller for women (0.28) than for men (0.38). We did not find a significant benefit effect. We conclude that the UCS system is not unduly prolonging unemployment.

With respect to differences in unemployment duration by demographic group, we find that age is not a factor differentiating the length of spells. However, education is, with the less educated have longer spells. Marital status does not differentiate the length of men's spells, but married women have much longer spells than single women do. Finally, we find that men who were unemployed before have spells that are 5.6 weeks longer than those who have never been unemployed. However previous unemployment history does not explain the length women's current spells.

Local demand conditions affect the probability that one leaves unemployment and hence the length of the spell. The elasticities of unemployment duration with respect to the education-specific-vacancy-rate in the district is 0.18 for women and 0.21 for men. The structure of employment in the district is also important. The higher the proportion of public service sector employment in the district, the longer the unemployment spells for men (by 0.4 of a week) but the shorter the spells for women (albeit by only 0.02 of a week). On the other hand, the higher the proportion of employment in private services in a district, the higher the probability that men exit for a job, and the shorter the duration of their spells (by 0.1 of a week). The effect on women's spells is insignificant. These findings are consistent with the fact that public administration and the health and education sectors (public services) tend to hire women, while transportation and finance (private services) hire relatively more men.

Women's spells are 8.6 weeks longer than men's spells. To explain this difference in length of unemployment spells, we carry out a Oaxaca decomposition on the nonlinear expected unemployment durations. We find that one-third of the difference in

their spells can be attributed to differences in the demographic characteristics and local demand conditions of the individuals ( $X$ 's). Two thirds of the difference is due to differences in the  $B$ 's, which are a function of the behavior of the unemployed individuals, employers, and institutions.

Ours is the first study that evaluates ALMPs in terms of how effective they are in their targeting and in reducing the length of unemployment spells of different groups in the Czech Republic. We examine the effect of primarily one active program – that of job brokering. The DLO staff assists the unemployed by setting up interviews with firms. A small fraction of the unemployed received assistance in the form of job subsidies. Our methodology is to estimate the probability that someone leaves unemployment in a given week by finding a job with the help of the DLO and compare it to the probability that someone leaves unemployment by finding a job on their own. Although the latter group is not a randomized control group, those people who find a job on their own reflect the preferences of the market. To the extent that the characteristics of the people in each type of exit differ, we can learn how the DLO intervenes to help certain groups over others. We calculate the conditional probability that someone leaves unemployment with a DLO assistance given that one leaves unemployment in a given week and plot this over time.

We learn that ALMPs lower unemployment duration of the groups that tend to have longer unemployment spells: women, Romanies, handicapped, less educated, and those who have been unemployed before. Moreover, the DLOs assist more individuals who receive unemployment benefits than those who do not receive unemployment benefits. This finding is intriguing in that it is consistent with the hypothesis that the DLOs are motivated to reduce costs of the programs. Finally, the plots of the conditional probabilities indicate that DLO assistance for the recipients of unemployment benefits starts at a low level at the beginning of the unemployment spell and increases over time. Hence, the incidence of help is higher among those that have been unemployed longer.

Overall, from the political economy standpoint, our results suggest that by providing support to the unemployed job seekers and assisting them in finding employment, the UCS and the ALMPs increased the social acceptability of the painful economic transition.

## 1. INTRODUCTION

As the transition to a market system started in the early 1990s, all Central and East European economies except for the Czech Republic registered unemployment rates that rose dramatically from zero to double digits. The Czech Republic was an outlier with its low unemployment rate throughout the early-to-mid 1990s. A number of hypotheses have been advanced to explain the Czech case, ranging from relatively slow restructuring of firms to relatively efficient labor market policies. However, the evidence provided with respect to all these hypotheses to date has been limited.<sup>2</sup>

In this paper we take a fresh look at the effect of labor market policies in the Czech Republic from the end of 1992 to the middle of 1994, a period that followed the severe economic downturn of the early 1990s and was characterized by a developed legal framework and labor market institutions. As may be seen from Table 1, by the end of 1992 the Czech economy started to gain momentum after three years of negative economic growth and in 1993 and 1994 it registered a 0.6 percent and 2.7 percent growth rates of GDP, respectively. What is interesting is that the registered unemployment rate remained at approximately the same low level of from 1992 to 1994, in spite of the return to growth in 1993. However, the average outflow rate was relatively high in 1992, when the economy was still in decline, compared to the rates in 1993 and 1994. This may have been due to the relatively high budget for active labor market policies (ALMPs) in 1992 compared to other years.<sup>3</sup>

### **Insert Table 1 about here**

In examining the determinants of the flows out of unemployment, we focus on both parts of unemployment policies: passive labor market policies (i.e., the unemployment compensation system – UCS) and the ALMPs (focusing on job brokering programs). We use a new data set with weekly observations on individuals who registered as unemployed between October 1992 and March 1993. The two important policy questions that we address are: (a) To what extent did the UCS deter people from leaving unemployment and increase unemployment duration during this period? (b) To what extent did the ALMPs help people leave unemployment more rapidly than they

would have on their own, without the assistance of the District Labor Offices (DLOs), and to what extent were the hard-to-employ targeted for ALMP assistance?

Answering the first question is important because a high elasticity of unemployment duration with respect to unemployment compensation implies that, in addition to imposing a burden on the budget, generous compensation creates inefficiencies in the economy by distorting people's willingness to accept jobs. Yet, a relatively generous compensation may be needed if the population is to provide political support for completing the transition. We will compare our results in this paper with those from parallel studies of Ham, Svejnar, and Terrell (HST, 1998, 1999) for an earlier period in order to assess whether there was any change in the effect of the UCS as the transition evolved and economic conditions improved. The effect is not clear a priori. It is possible that the UCS has a greater impact on unemployment duration when demand is strong and people believe they are able to receive several good job offers; conversely, during recessions the impact of the UCS may be smaller as people take the first suitable job believing not many good offers will come their way.<sup>4</sup>

An analysis of the second question is important in assessing the efficiency and orientation of the DLO activities. The general goal of ALMPs is to mitigate the duration and incidence of unemployment spells by placing unemployed individuals in jobs with a good match. Hence, evaluations of ALMP performance usually assess whether participants leave unemployment more rapidly than they would have in the absence of such a program and/or whether they stay employed and do not become unemployed again "soon." Since these goals can be achieved in various ways, evaluations also typically address the relative efficiency of the different programs and whether there are potential gains from redistributing resources from one program to another.

The evidence from EU countries (OECD, 1993) shows that job search assistance and counseling in the form of scheduled interviews, back-to-work plans and job clubs have positive outcomes with limited use of resources. Training programs, in contrast, have mixed results in terms of increasing employment and earnings prospects of the participants *vis-a-vis* non participants. Direct job creation programs in the form of subsidies to employers, self-

employment start-up grants, and public works have shown to have substantial displacement and substitution effects.<sup>5</sup> The OECD (1993) survey concludes that subsidized employment is only warranted if the policy objective is to redistribute opportunities to target groups.

The only evidence on the effectiveness of ALMPs in the Czech Republic comes from matching function studies, which estimate the elasticity of an increase in per capita expenditures on ALMPs with respect to outflows to jobs. The findings from studies by Boeri (1997), Burda and Lubyova (1995), München, Svejnar and Terrell (1997) and Svejnar, Terrell and München (1995) are that, depending on specification and data coverage, the elasticity ranges from zero to 0.18.<sup>6</sup> Although this does not bode well for ALMPs, the low elasticity would be defensible if the programs are assisting the hard-to-employ, long-term unemployed.

In this paper we evaluate the timing and targeting of a class of ALMPs in the Czech Republic. We focus on programs that help the unemployed find jobs through job search assistance as well as through job subsidies (although this is a small fraction). We compare the probabilities that individuals who are unemployed in a given week find a job either by their own means or with the assistance of the DLO, and we differentiate these probabilities by the demographic characteristics of the unemployed. Although this is not a randomized experiment with a treatment and a control group, a comparison of the two exit rates sheds light on which groups leave unemployment earlier than they would have without this ALMP.<sup>7</sup>

This paper follows a classic organizational structure. We begin in section 2 with a discussion of the characteristics of the ALMPs and the UCS. We proceed in section 3 to lay out our methodology. Section 4 contains the description of the data set that we collected specifically for this study. The findings from the analysis of the UCS and the ALMP are found in sections 5 and 6, respectively. We conclude the paper in section 7.

## **2. CHARACTERISTICS OF THE UNEMPLOYMENT PROGRAMS**

By January 1991, active and passive unemployment programs had been legislated and 78 DLOs throughout the Czech Republic were implementing them. In 1992 there was a large increase



in the overall budget and the DLOs allocated more than half (55 percent) of it to ALMPs, when in the previous year and in the two ensuing years they allocated approximately one-third of the budget to ALMPs (see Table 2). Given the small amount of the budget normally expended on ALMPS, the relatively high 1992 expenditures for ALMPs provides us with a unique variation that can be exploited in analyzing their impact on unemployment duration.

**Insert Table 2 about here**

DLOs assist the unemployed in finding jobs in a variety of ways. First and foremost, they act as job brokers. Since employers are required to register vacancies with these offices, the DLOs are able to arrange interviews for the unemployed with employers and engage in job matching. There is no mandate to target job-brokering assistance. The DLOs also 'create' jobs with subsidies for "welfare work" (short-term jobs of six to twelve month durations), "socially purposeful jobs" (SPJs, with one to two year contracts), or for starting a small business. There are specific programs for job placement geared toward handicapped individuals and recent school graduates. Finally, the DLOs also provide the unemployed with opportunities for free vocational training ("retraining") that range from several weeks to several months in duration. As seen in Table 2, during the period of our study, subsidies for long term jobs -- SPJs and jobs for recent secondary school graduates -- were the most extensively used programs, both in terms of expenditures and number of participants, although their importance has fallen over time. The second most important program in this period was "welfare work."

The first panel in Table 2 shows the percentages of the stocks of unemployed (in an average month) that were placed in an ALMP. As the numbers indicate, the proportion of the stock was quite small, although it doubled from 1991 to 1992. A comparison of the allocation of the budget across ALMPs and UCS on the one hand, and the relative share of unemployed participating in each program on the other hand, reveals how much higher the per person costs of the ALMPs were compared to the UCS.

The passive labor market program (UCS) was put into place one year before the ALMPs. During the period of our analysis, no major changes were made to the UCS. Anyone who

worked for at least twelve months in the preceding three years was immediately eligible for unemployment benefits.<sup>8</sup> Persons who were fired for cause or who quit repeatedly had a six-month waiting period. Students at the time of graduation from high school or university were also eligible. All eligible unemployed were entitled to six months of benefits that were set at 60 percent of the person's previous net wage (or minimum wage, for graduating students) for the first three months of unemployment and 50 percent during the second three months of their unemployment spell.<sup>9</sup> A maximum level equal to 150 percent of the minimum wage was imposed for all.<sup>10</sup>

Although there was no minimum unemployment benefit during the period of our analysis, a family could receive social assistance (welfare) if the sum of the unemployment benefits and the income of other household members was less than the household minimum living standard (MLS).<sup>11</sup> Moreover, once benefits expired, unemployed individuals were eligible for social assistance if their household income was below the MLS.

Not all those registered as unemployed receive unemployment benefits: some may not meet the eligibility requirements and others may have exhausted their benefit entitlement. They may be receiving social assistance since registration at a DLO is a prerequisite for receiving welfare. Others might be registered and receiving severance pay.<sup>12</sup> As seen in Table 2, when eligibility was fairly broad in 1991, 63 percent of the unemployed were receiving benefits; during 1992-94 the proportion fell to about 50 percent as eligibility was curtailed. It should be noted that all registered unemployed were eligible to participate in ALMPs and as a result, we analyze the unemployment durations of both recipients and non-recipients of unemployment benefits when we examine the impact of ALMPs on exits from unemployment.

### 3. METHODOLOGY

The theoretical framework for our empirical methodology assumes that unemployed workers actively seek work and periodically receive job offers.<sup>13</sup> The worker will reject unappealing opportunities and search further if he/she believes the present value of income will

be maximized by continued search. Institutions in the labor market – such as the DLOs – can shorten or prolong the search period with incentives and disincentives. We use the hazard function approach (which takes the probability of leaving unemployment for a job to be a function of various characteristics) to estimate the impact of the UCS and the ALMPs on exits from unemployment.

In estimating the impact of the Czech UCS and other factors on the probability that the unemployed leave for employment, we extend the methodology used by HST (1998, 1999) on an earlier data set. We use a more recent data set, include additional explanatory variables and explicitly compare men's and women's experience with the UCS. To estimate the impact of the DLO assistance on exits from unemployment, we use a competing risk (or multi-exit) hazard model that examines the probability that an individual exits unemployment to either i) a job found with the assistance of the DLO, or ii) a job found without DLO assistance.

### 3.1 The UCS Model

In analyzing the duration of unemployment spells and the impact of the UCS, we examine the probability of leaving unemployment to employment in week  $r$  of an unemployment spell as a function of various characteristics. Formally the hazard is:

$$\lambda(r) = (1 + \exp(-y(r)))^{-1} \quad (1)$$

where

$$y(r) = \alpha_0 \mathbf{B}(r) + \alpha_1 \mathbf{W} + g(\mathbf{E}(r)) + h(r) + \mathbf{Z}(r)\boldsymbol{\gamma} \quad (2)$$

In equation (2),  $B(r)$  denotes unemployment benefits in week  $r$ ,  $W$  is the individual's previous weekly wage, and  $g(\bullet)$  is a function of remaining entitlement  $E(r)$  in week  $r$ . We parameterize  $g(\bullet)$  as a linear function of (i) remaining weeks of entitlement, (ii) a dummy for the last week of entitlement before benefits have been exhausted, and (iii) an exhaustion dummy equal to 1 for all weeks after entitlement has been exhausted.<sup>14</sup> The next term  $h$  captures duration dependence.<sup>15</sup> The  $Z(r)$  term contains variables measuring (a) demographic and other individual characteristics that account for heterogeneity among the population and (b) local demand conditions in week  $r$ . The vector  $\boldsymbol{\gamma}$  contains the corresponding set of parameters. (These

variables and their means are described below in section 4.)

The probability that an unemployment spell lasts longer than  $r$  weeks -- the survivor function  $S(r)$  -- is given by

$$S(r) = \prod_{v=1}^r (1 - \lambda(v)). \quad (3)$$

From this we can find the density for a spell that ends in week  $t$ :

$$f(t) = \lambda(t) S(t - 1). \quad (4)$$

We use the expected duration to calculate the effect of marginal changes in the UCS on average unemployment duration of men or women. For example, we can calculate the effect of a one-week increase in entitlement or a one-year increase in age on the duration of an unemployment spell. Since we do not have a long time-series, we calculate a truncated expected duration (ED) at four years

$$ED = \int_{t=1}^K t f(t) + (1 - Pr(t < 4yrs)) * 4yrs, \text{ where } K = 4 \text{ years} - 1 \text{ week}. \quad (5)$$

### ***3.2 Identification of the Unemployment Compensation Parameters***

When estimating the impact of unemployment benefits on unemployment duration, a necessary condition that must be satisfied is that the benefit levels vary independently from other determinants of the duration of recipients' unemployment spells, especially previous wage. We use four sources of independent variation in benefit levels. First, the replacement ratio dropped from 60 percent to 50 percent in the second half of the entitlement period for all individuals. For all those individuals observed in their first unemployment spell, we therefore see a change in benefits over time. A second source of variation arises from the fact that some individuals had been previously unemployed and received part of their entitlement to benefits in the year prior to registering for this spell. We found 2.3 percent of the sample began the current unemployment spell with benefits at the lower replacement ratio. Third, unemployment benefits were not indexed to inflation and we discount them by the monthly consumer price index in order to capture the erosion of the real value of benefits over time. Finally, we break the linear relationship between

benefits and the previous wage with the fact that some individuals (4.2 percent of the men and 1.0 percent of the women) have their benefits capped at the maximum.

Similarly, when estimating the impact of the length of an individual's remaining entitlement to unemployment benefits on unemployment duration, it is necessary that the weeks of remaining unemployment compensation be independent of other determinants of the hazard function, particularly current duration. We have two sources of variation in remaining entitlement. The first one is the significant number of individuals who do not register for unemployment benefits within a week of their job loss. For such individuals, remaining entitlement is not a linear function of current duration and initial weeks of entitlement.<sup>16</sup> The second source is individuals that experienced a prior spell of unemployment and received part of their entitlement at that time. If a person becomes unemployed for a second time within the year, he/she is entitled to use the remaining portion of the unemployment benefit entitlement. We found 12.7 percent of the men and 11.5 percent of the women began their current spell with less than the standard 26 weeks of entitlement.

### *3.3 Decomposition of Male-Female Differences*

Formally, we calculate the expected duration ED of unemployment for men ( $m$ ) and women ( $w$ ) as:

$$ED_j = ED(X'_j\beta_j), j = m, w \quad (6)$$

where  $\beta_j$  is the vector of parameter estimates for gender ( $j = m$  or  $w$ ) and  $X_j$  is the vector of the mean values of the explanatory variables for a man or a woman. (The explanatory variables may also be a set of selected characteristics so as to find the duration for a stereotype, rather than the mean man or woman.) The difference in the expected durations between men and women is given by

$$ED_w - ED_m = ED(X'_w\beta_w) - ED(X'_m\beta_m) . \quad (7)$$

Using a non-linear form of the Oaxaca method we can decompose this difference into two parts: a contribution due to the difference in the coefficients (first two terms in equation (8) below) and a contribution due to a difference in the explanatory variables (the second two terms in (8)):

$$ED_w - ED_m = (ED(X'_w\beta_w) - ED(X'_w\beta_m)) + (ED(X'_w\beta_m) - ED(X'_m\beta_m)).^{17} \quad (8)$$

### 3.4 The ALMP model

When we analyze the impact of ALMPs, we examine separately the behavior of those who receive unemployment benefits (recipients) as well as non-recipients. The reasons are: a) the duration of unemployment and the probability of exit differ between these two groups because one group receives compensation while the other does not; and b) the characteristics (some of which are unobservable) of non-recipients, who are by definition ineligible for UCS, differ from the recipients. For example, we find a similar fraction of recipients (18.4 percent) as well as non-recipients (15.6 percent) leave unemployment with the help of the DLOs yet there is a substantial difference in the ability of the recipients and non-recipients to leave unemployment without DLO assistance. While one-third of the recipients find a job “through their own means,” a little more than one quarter of the non-recipients do so. (The remainder stay unemployed throughout the period.)

In order to understand what differentiates those who are assisted by the DLOs from those who find jobs on their own, we analyze recipients and non-recipients within a multiple exit model. Formally, denote the hazard for leaving unemployment by finding a job on one’s own as  $\lambda_o$ ,

$$\lambda_o(r) = (1 + \exp(-y_o(r)))^{-1} \quad (9)$$

where

$$y_o(r) = \alpha_o W + h_o(r) + Z(r)\gamma_o + \delta_o D \quad (10)$$

and  $W$  is the previous wage,  $h$  captures duration dependence,  $Z$  contains variables measuring demographic characteristics and local demand condition, and  $D$  is a dummy variable = 1 if the individual was unemployed in 1992. The hazard for leaving for a job with the assistance of the DLO can be defined in the same way, using a  $d$  instead of an  $o$  subscript. Because we will compare the extent to which changes in the  $Z$  matrix affect the probability of exit to own job ( $o$ ) vs. DLO assisted job ( $d$ ), we do not include the UCS variables in this specification. We approximate the overall hazard function (i.e., the overall probability of leaving unemployment) by:<sup>18</sup>

$$\lambda(r) = \lambda_d(r) + \lambda_o(r) . \quad (11)$$

The conditional probability of leaving for a DLO job, given that one has left unemployment, is

$$\frac{\lambda_d(r)}{\lambda_o(r) + \lambda_d(r)} . \quad (12)$$

We make use of this conditional probability in estimating the impact of the DLO. The survivor function of the overall hazard in equation (11) is given by equation (3). The conditional contribution to the likelihood is specified in equation (4) and differs by the type of exit.

#### 4. DATA DESCRIPTION

We have collected data on a stratified random sample of 3,000 persons who registered at DLOs as unemployed. We first randomly selected 20 out of the total of 78 districts and then we randomly selected from each of the 20 DLOs 150 individuals who became unemployed in the October 1992-March 1993 period. We followed these individuals from the time of their registration to the end of their unemployment spell or the end of September 1994, whichever came first. Individuals who were in retraining or suffered a prolonged illness were eliminated from the sample.<sup>19</sup> Observations with missing values were also eliminated.

For the analysis of the duration effect of the UCS, we use only data on recipients. We have stratified the recipient data by gender since men and women may respond differently to a given unemployment benefit scheme.<sup>20</sup> In estimating the ALMP multi-exit model, we analyze the data for both recipients and non-recipients since they are both eligible for active labor market assistance. To simplify the analysis, we have pooled men and women in the ALMP model but allowed the coefficients that vary by gender to be estimated separately.<sup>21</sup> The means of the variables (mostly) related to the first week of unemployment are presented in Table 3.

##### *4.1 Means of the Variables for the UCS Model*

The data used for the UCS model (for 721 men and 968 women) are presented in columns 1 and 2 of Table 3. We find that male and female recipients do not differ greatly in terms of their previous unemployment history: approximately one-fifth were unemployed before for an average

of 23 to 25 days. To capture demographic effects, we use a measure of age, three dummy variables for the highest attained level of education (the control group consists of those with only a junior high school education), a marital status dummy (married, including common law marriages = 1), a dummy variable for ethnicity (Romany = 1) and a dummy variable capturing disability (handicapped = 1).<sup>22</sup> The age and education levels are quite similar for men and women, although relatively more women attained only a junior high school education and proportionately fewer women attained a post-secondary education. A higher proportion of women are married whereas a higher proportion of the male recipients are Romany or handicapped.

**Insert Table 3 about here**

Two variables are used to account for differences in demand conditions across the local (district) labor markets. The first one -- quarterly data on district vacancy rates for the individual's education group -- takes on values that change quarterly over the duration of a spell and across individuals.<sup>23</sup> We also use the real value of per capita industrial production in the district in a given year.<sup>24</sup> This variable takes on different values across years and districts.

In addition, we account for the structure of demand in each district by using variables reflecting the employment structure at the end of each calendar year in the growing service sectors. We use the proportions employed in an agglomeration of the transportation, trade, hotels, restaurants, and finance sectors, which we call the 'private service sector' because a higher proportion enterprises in this sector was privately owned (rather than state owned). The second variable is the proportion employed in the health and education services, which were almost entirely in the public sector at the time, so we call this the 'public service sector.'<sup>25</sup> The base is all other sectors.

Regarding variables reflecting the UCS, we note that weekly unemployment benefits deflated to October 1992 prices were higher for men than for women, reflecting their underlying wage differentials. Note that men move out of unemployment faster as seen by the average weekly exit rates and the proportion that exhausted their benefits.<sup>26</sup>



#### ***4.2 Means of Variables for the ALMP Model***

For the ALMP model, we use data on 1,689 recipients and 1,218 non-recipients, whose means are presented in columns 3 and 4 of Table 3. (We include the means for non-recipient men and women to understand gender differences underlying the aggregates.) At the bottom the table it is indicated that 15.7 percent of the non-recipients and 18.4 of the recipients received assistance from the DLO in obtaining a job, and that only a small fraction (1.1 percent of both) are receiving subsidized jobs (SPJs). Hence we are analyzing primarily "job brokering" assistance.

Comparing the recipients to non-recipients, as one would expect from the eligibility rules, we find that non-recipients were more likely to have been previously unemployed compared to recipients: 26.4 percent vs. 20.2 percent. The means of the demographic variables indicate that non-recipients are on average one year older and less educated than recipients. A lower proportion are married (one-third vs. one-half for recipients). A non-recipient is twice as likely to be a Romany as a recipient. A recipient is more likely to be handicapped (7.1 percent) than a non-recipient (5.8 percent). The means of the district level demand variables and structure of employment do not differ for recipients and non-recipients.

### **5. THE IMPACT OF THE UCS AND OTHER FACTORS ON UNEMPLOYMENT DURATION**

We begin in section 5.1 by discussing the results from estimating the hazard function for male and female recipients of unemployment benefits. Since the focus is on the effects of the UCS, we call this hazard function the "UCS model." The differences between recipient men's and women's unemployment durations are analyzed in section 5.2.

#### ***5.1 Findings from the UCS Model***

The coefficient estimates from the UCS hazard of equation (1) are presented in Table 4, while the corresponding marginal effects of changes in the independent variables on the base duration of unemployment are presented in Table 5. The base unemployment spell in Table 5 is

calculated for a stereotype person, characterized as a man or woman who is 30 years old, with a vocational high school education, married, non-Romany, not handicapped, with no history of unemployment, and living in an average district in terms of demand conditions and structure of unemployment.

**Insert Table 4 about here**

**Insert Table 5 about here**

**Demographic effects:** Our estimation yields a number of interesting results for the demographic variables, many of which are qualitatively similar for both men and women. First, age is not a determinant of the length of unemployment spells of men or women. Education is important, indicating that the less educated have longer spells. As may be seen from Table 5, the duration of unemployment of our stereotypical person is raised by 29 weeks for a man and 13 weeks for a woman by having just a junior high school rather than a vocational high school education. Given that the average unemployment spell of the stereotype man with a vocational education is 17 weeks and that of a woman is 33 weeks, our estimates imply that vocational education has a relatively greater impact on the spells of men than women. Men with academic high school education have slightly lower unemployment spells and both men and women with post high school education have significantly shorter unemployment spells than their counterparts with vocational education. The post high school effect is especially strong for women.

Single men have unemployment spells with similar duration as married men but single women have shorter unemployment spells than married women, a finding that is common in market economies. The coefficients for Romany are large, but they are not significantly different from zero. Similarly, the sign on the coefficients for handicapped indicates that they have a more difficult time leaving unemployment, but the coefficients are not statistically significant.

Our findings on all the demographic variables vary somewhat from those of HST (1998, 1999) who use data from the preceding year (1991-92). In the earlier period, older men had a more difficult time leaving unemployment and the differences in men's unemployment durations

across the four levels of education was not significant. For women, the finding for age is insignificant in both periods, as is the finding that the more educated have shorter spells (although the coefficient on post-high school was not significant in the earlier period). The results for Romany and handicapped men are strikingly different in the two studies. In the earlier data set, these two groups had much longer spells than the non-Romany and non-handicapped. Our estimate has a negative sign and similar standard errors but a smaller point estimate than the previous study.

One of the three new variables that we have in this study (and that is not available in the parallel HST (1998, 1999) studies) is unemployment history. We find that whether someone was unemployed before is significant in explaining the current unemployment duration of men but not of women. Men who were unemployed before have spells that are 5.6 weeks longer than those who have never been unemployed.

**Demand Effects:** The duration of unemployment of an individual is affected by the district vacancy rate of her education group. As the duration experiment in Table 5 indicates, recipients living in districts with vacancy rates that are 1 percent higher than the mean have spells that are 0.034 of a week shorter for men and 0.058 of a week shorter for women. Since women have a higher base duration of unemployment than men, the elasticities of unemployment duration with respect to the vacancy rate are similar for men (0.21) and women (0.18).

Men living in districts with higher per capita industrial production have shorter unemployment spells (by 0.5 of a week for a 1 percent increase in the level of per capita industrial production), but women do not. The structure of employment is also important. The higher the proportion of public service sector employment in the district, the longer the unemployment spells for men (by 0.4 of a week) but the shorter the spells for women (albeit by only 0.02 of a week). On the other hand, the higher the proportion of employment in private services in a district, the higher the probability that men exit for a job, and the shorter the duration of their spells (by 0.1 of a week). The effect on women's spells is insignificant. These findings are consistent with the fact that public administration and the health and education

sectors (public services) tend to hire women, while transportation and finance (private services) hire relatively more men.<sup>27</sup> However, it is interesting that men are crowded out by women in districts where employment in the public service sector is relatively high, whereas growth of private service sector helps men without crowding out women.

**The unemployment compensation system:** The coefficients in Table 4 suggest that neither men nor women are sensitive to benefits, as the coefficients are not significantly different from zero.<sup>28</sup> On the other hand, the estimated coefficients for the remaining weeks of entitlement for men and women are both significantly negative, as expected. The coefficient for the last week of entitlement is significantly positive for men and positive but not significant for women. Finally, the coefficient on the dummy for 'benefits exhausted' indicates that the hazard falls for both men and women once they are no longer entitled to benefits. The entitlement coefficients imply that an additional week of entitlement results in an increase in expected duration of 0.26 of a week for a stereotypical man and 0.38 of a week for women with the same characteristics, which implies a moderate elasticity of unemployment duration with respect to entitlement of 0.38 for men and 0.28 for women. The findings on the elasticities with respect to entitlement are lower than those estimated with the earlier data set in HST (1998, 1999), which were 0.44 for men and approximately 0.40 for women.<sup>29</sup> Although these elasticities are not strictly comparable, it does not appear that the effect of the UCS is lower in periods of negative rather than positive growth. The benefit elasticity for women in the earlier data set (HST, 1999) is also not significant but the benefit elasticity for men was 0.34 (HST, 1998). The elasticities are all low when compared to those in the literature for the U.S. (Devine and Kiefer, 1991).

The weekly hazard for the UCS model is plotted for the stereotype person in Graph 1. Exit rates rise during the first six weeks (from about 0.02 to 0.05 for both men and women) and then increase at a slower rate, becoming relatively flat for women, until the last week of entitlement. In the 26<sup>th</sup> week, as benefits are about to be exhausted, there is a spike that is large for men (rising to 0.21) and less pronounced for women (rising to 0.07). After the benefits have been exhausted, the hazard falls off to a steady rate of about 0.025 per week for women and

0.035 for men.

**Insert Graph 1 about here**

### **5.2. Explaining the Difference between Men and Women's Unemployment Duration**

To explain the difference between men's and women's spells, it is preferable to compare the average woman to the average man, rather than comparing the "stereotypes" that were used in Table 5. In Table 6 we find that the base duration calculated at the means of the  $X$ 's is 24 weeks for men and 33 weeks for women. We carry out a nonlinear Oaxaca-type decomposition to assess the extent to which the difference in men's and women's durations is due to differences in their characteristics ( $X$ 's) vs. differences in their coefficients ( $\beta$ 's). We show in Table 6 that if recipient women were to be "treated and behave like men" in the labor market (i.e., if they were to have men's  $\beta$ 's), their unemployment spells would on average be 9 weeks (27 percent) shorter. Moreover, if recipient women had men's characteristics ( $X$ 's), their average spells would decrease by 4.6 weeks or 13 percent. Hence, the average differences in the  $X$ 's contribute one third and the differences in  $\beta$ 's contribute two-thirds of the difference in the men's and women's durations. The difference in unemployed men's and women's education levels is the primary factor contributing to the difference in the  $X$ 's. Differences in the  $\beta$ 's are a function of the behavior of the unemployed individuals, employers and institutions. It may reflect discrimination on the part of employers, lack of search on the part of women, or other factors that we cannot rule out at this time. To place our findings in perspective, note that in the HST (1999) study the entire difference between men's and women's spells was explained by differences in men's and women's estimated parameters.

**Insert Table 6 about here**

## **6. IMPACT OF ALMPs ON UNEMPLOYMENT**

The coefficient estimates of the multi-exit hazard (ALMP) model are presented in Table 7. In order to understand the implications of these coefficients, we present in Table 8 the average hazard of leaving unemployment (averaged over 26 weeks of unemployment) for the stereotype

unemployed individual described in Section 5.1. We then examine the effect on this base hazard of a change in demographic characteristics or local demand conditions. We thus provide information on the extent to which certain types of people are more or less likely to leave unemployment to a job with the assistance of the DLOs. The same calculation is made for those who leave for a job on their own. In order to identify what types of individuals the DLOs target with their assistance, we calculate the conditional probability of leaving unemployment with DLO assistance, given that one leaves for a job (equation 12). These probabilities are presented for recipients and non-recipients in Table 9. We assume that market preferences (in the presence of DLO interventions) are reflected in the exits of individuals to a job on their own. If the conditional probability of leaving unemployment with DLO assistance is high for individuals with certain characteristics, we interpret it as indicating that the DLO is assisting people with these characteristics. Finally, Graph 2 of the conditional hazards indicates the timing of the DLO assistance over the duration of an unemployment spell.

As seen in Table 7, for each exit state the vast majority of the coefficients for both recipient and non-recipient men and women are significant at the one-percent confidence level.<sup>30</sup> The average hazards presented in Table 8 are calculated for the same stereotype person as described for the UCS model in Section 5.1. Each column indicates the hazard that a person with these characteristics exits unemployment with the help of the DLO or finds a job on his/her own.

**Insert Table 7 about here**

**Insert Table 8 about here**

Comparisons of the hazards within a column in Table 8, combined with an examination of the coefficients in Table 7, indicate that age does not have a systematic effect on exits from unemployment for either state, for recipients and non-recipients. Education generally raises the probability of exiting unemployment to either state, those with junior high school education have the lowest hazards and, among recipients, the post high school educated have exit rates that are double those of the vocational high school graduates. The exception is the group of recipients with a vocational education who are less likely to leave with the assistance of the DLO than those

with a junior high school education.

Marital status has a definite relationship with exits to each state. For both recipients and non-recipients (a) married men are less likely to exit with the help of the DLO and more likely to exit to jobs on their own than single men; (b) married women are more likely to exit to DLO jobs and less likely to get a job on their own than single men; and (c) the exit behavior of single women is not significantly different from that of single men except among recipients where they have a higher probability of exiting to own job.

For Romanians we only had sufficient data for recipients, and we find that they are less likely than non-Romanians to leave unemployment to either state.<sup>31</sup> However, whereas the base probability falls by 55 percent to 0.031 for the DLO exit, it drops by 85 percent to 0.010 for the own job exit. The handicapped are generally less likely to leave for either state, except for those recipients who were assisted by the DLO, who are more likely to leave.<sup>32</sup>

Having experienced an unemployment spell prior to the current one seems to "scar" men in that it lowers their probability of exit to either state. However the exception is that non-recipient men who were unemployed before seem to exit to 'own job' at a slightly higher rate than those who were not unemployed before. There does not seem to be any systematic relationship between women's hazard rates and previous unemployment history. Those who had higher wages in their previous job (i.e., a higher opportunity cost of their time) tend to leave unemployment for a job on their own more rapidly, however the effect is mixed for DLO exits.

Given that the ALMP budget was extraordinarily high in 1992 relative to 1993, we decided to test if this budgetary consideration had an effect on exits with DLO help. The data support our hypothesis that those who were unemployed in 1992 were able to get more assistance from the DLO than those who were unemployed in 1993 since the coefficient on this dummy variable has a positive sign for DLO exits and it is not significantly different from zero for own-job exits. Hence ALMPs contributed to the higher outflows in 1992 compared to 1993.

Finally, the demand variables, measured by the vacancy rate and industrial production per capita, generally have the expected positive effect on exits to either state. The coefficients on the

structural variables reveal an interesting finding. In those districts where the public service sector is relatively large, people are less likely to get a job with the help of the DLO except perhaps recipient women. Individuals (both recipients and non-recipients) living in districts that have relatively large private service sectors tend to exit for 'own job' faster than those living in districts where this sector is small, but the effect on exits with DLO assistance is nil to negative.

Comparison of the hazards for DLO vs. own job in a given row of Table 8 indicates to which state a person with a given set of characteristics and recipient status will more likely leave over the 26 week period. For example, among recipients, men with the base (stereotype) characteristics are more likely than women to exit unemployment to either own job or a DLO job. To learn whether the DLO targets one group over another, we compare their conditional probabilities.<sup>33</sup>

An examination of the conditional probabilities in Table 9 indicates that women are more likely than men and recipients more likely than non-recipients to exit to a DLO job than to a job they find on their own. Hence, DLOs appear to be targeting recipients and women. With regard to other demographic characteristics, we noted earlier that age does not seem to have a systematic relationship on the individual hazards and hence this is true also for the conditional probability. Among education groups, the conditional probabilities of the junior high school graduates (the lowest education level) is the highest for both men and women and recipients and non-recipients. Hence, the DLOs are assisting the least educated. The conditional probability for single individuals is higher than for married in all four columns of Table 9, implying that the DLOs are targeting single people. We infer that this group includes the recent school graduates. Among recipients the conditional probabilities for handicapped and Romany are higher than the base (non-handicapped and non-Romany), and even higher for men than for women. However, the estimated hazards indicate that the DLOs do not seem to target handicapped individuals who are ineligible for unemployment benefits. The DLOs target recipients who were previously unemployed, however this is not so for non-recipients. Those who were unemployed in 1992 had a slightly greater chance than those who were unemployed in 1993 of being assisted by the DLO



if they were recipients (2-4 percent) and a much greater chance if they were non-recipients (the conditional probability of the base is raised by 30-40 percent). Hence the DLOs spent the remaining budget at the end of the fiscal year at a higher rate on the non-recipients rather than the recipients.

**Insert Table 9 about here**

Finally, people in districts with higher vacancy rates have a greater chance of receiving help from the DLO. This might appear counterintuitive if one views the vacancy variable as only reflecting demand conditions in a district. However, as explained in Section 2, the DLO can affect the level of vacancies through its efforts. Hence, the fact that exits with the help of DLOs rise when vacancies rise may indicate that the DLOs are creating vacancies.

The plot in Graph 2 for the “stereotype” individuals makes it clear that among recipients, the conditional probability that one receives help from the DLO is low at the beginning of the spell and rises steeply over time such that by the 30th week almost all exits to jobs are with the help of the DLOs. On the other hand, the conditional probability for the non-recipients is nearly constant over the length of the unemployment spell. The DLO seems to assist non-recipients at a higher rate in the early part of an unemployment spell and then the rate of assisting the recipients takes over. Finally, among recipients and among non-recipients, women are more likely to receive DLO help at any point in time compared to men with the same characteristics.

**Insert Graph 2 about here**

## **7. CONCLUDING REMARKS**

In this paper we analyze the impact of the active labor market policies (ALMPs) and the unemployment compensation system (UCS) on unemployment durations of different groups in the Czech population. Ours is the first study that evaluates ALMPs in terms of how effective they are in targeting and reducing the length of unemployment spells. We find that ALMPs have lowered the unemployment durations of groups that tended to have longer unemployment spells: women, Romanies, handicapped, less educated, and those who have been unemployed before.

Moreover, the ALMPs assisted individuals who were receiving unemployment benefits more than those who were not receiving unemployment benefits. This finding is intriguing in that it is consistent with the hypothesis that the District Labor Offices were motivated to reduce costs of the programs.

Our analysis of the UCS is parallel to the HST (1998, 1999) studies and advances the literature by using new data, examining the impact of new variables and analyzing the effect of the UCS in a new economic environment when the economy was growing and the labor market institutions were more developed. We find no significant negative effect of benefits on unemployment duration. The elasticity of duration with respect to entitlement is relatively small compared to the US literature and to the parallel HST studies. Hence we conclude the UCS does not have a greater impact on duration in periods of economic growth and that the UCS system has allowed the unemployed to search for jobs but has not unduly prolonged unemployment spells. We find important demographic and demand effects on the duration of unemployment. We note here that one of the new variables we use, shows that previous unemployment history scars men but no women. The estimated coefficients for the new variables we use on structure of employment indicates that men have a more difficult time leaving unemployment in districts where there is a higher proportion of people employed in the public service sector however, women leave unemployment more quickly in these districts. On the other hand men's exit rates from unemployment to a job are higher in districts where there is a higher proportion of private sector employment and this factor does not affect women's exit rates.

Our analysis leads us to conclude that these programs were effective in improving the functioning of the labor market during the transition period.<sup>34</sup> Overall, from the political economy standpoint, our results suggest that by providing support to the unemployed job seekers and assisting them in finding employment, the UCS and the ALMPs increased the social acceptability of the painful economic transition.

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## ENDNOTES

<sup>1</sup> The authors greatly benefited from comments by Tito Boeri, John Ham, Stepan Jurajda, Hartmut Lehmann, Jan Svejnar, and members of the "Workshop on Labor Market Policies and Unemployment" held in Dublin, June 26-27, 1998. They would also like to thank the National Science Foundation (Grant SBR-951-2001), Phare and the VW foundation for supporting this project.

<sup>2</sup> See e.g., Svejnar (1999) for a recent survey of labor market studies that are relevant to these issues.

<sup>3</sup> ALMP's are policies aimed at helping people leave unemployment more quickly. The budget for ALMPs in 1992 was double what it was in 1991.

<sup>4</sup> Arulampalam and Stewart (1995) find this to be the case in the UK.

<sup>5</sup> Displacement is produced when firms taking the subsidies expand while those not having access to the subsidy contract. Substitution arises when firms hire workers that are eligible for a subsidy at the expense of laying-off or not hiring workers who are not subsidized. In addition, firms may receive the subsidy for workers they would have hired anyway, producing a deadweight loss.

<sup>6</sup> See Terrell and Münich (1996) for a review of these studies. Briefly, the matching function studies indicate that the estimates are sensitive to model specification in terms of the inclusion of regressors, treatment of dynamics, estimation methods, and changes of parameters during the different stages of the transition (the Lucas critique). There is an intense debate in the literature as to whether ALMPs can generally increase flows to jobs or create jobs (see e.g., Calmfors and Skedinger, 1995). Some argue that their impact is more likely to be positive in countries which are undergoing tremendous structural adjustment, such as in the CEE (see e.g., Lehmann, 1998), or in periods when economic conditions are relatively strong.

<sup>7</sup> Unfortunately, the data set does not allow us to follow individuals after the job match. Hence we cannot learn if the expected employment duration of those who have been assisted by the DLO in finding a job is significantly different from those who find a job without the assistance of the DLO.

<sup>8</sup> For a more detailed description of the UCS, see Ham, Svejnar and Terrell (1998) or OECD (1995).

<sup>9</sup> Throughout 1992-1994, anyone undertaking training received a benefit of 70 percent of his/her previous wage during the training period.

<sup>10</sup> However, the benefits of those in retraining were capped at 180 percent of the minimum wage.

<sup>11</sup> See Terrell and Münich (1995) for a detailed description of the MLS. We do not have information in this data set as to whether the person is receiving social assistance since this was accorded in another office. Moreover, we are not able to ascertain whether or not the individual receives social assistance since eligibility is based on household income and we do not have information on the individual's household income in these data.

<sup>12</sup> The law does not permit an unemployed person to receive unemployment benefits and severance pay simultaneously.

<sup>13</sup> See Devine and Kiefer (1991) for a survey of the empirical literature based on search theory using hazard functions.

<sup>14</sup> Since we do not have sufficient information to impute welfare benefits we set the value of benefits to zero once an individual exhausts his unemployment compensation. Thus the exhaust dummy implicitly picks up the level of welfare benefits after exhaustion.

<sup>15</sup> It is important to control for duration dependence (the probability that the exit rate changes with the length of time the individual is in the spell) since it can bias the coefficients, especially those on the time-varying variables (such as benefits and entitlement). It is also argued, for similar reasons, that one should control for unobserved heterogeneity among the unemployed. We have estimated a hazard using a Weibull specification for duration dependence with and without unobserved heterogeneity and we found that it did not change the signs and magnitudes of the coefficients on the UCS variables. Therefore we do not allow for unobserved heterogeneity in the results that follow.

<sup>16</sup> One reason that individuals register late for benefits is that individuals must exhaust severance pay before collecting benefits. The average waiting time was one month.

<sup>17</sup> See HST (1998) for further elaboration of this method.

<sup>18</sup> The overall hazard is  $\lambda(r) = \lambda_d(r) + \lambda_o(r) - (\lambda_d(r) \cdot \lambda_o(r))$ . We ignore the interaction terms in order to simplify the analysis.

<sup>19</sup> Those in retraining were receiving higher unemployment benefits and the ill received sickness pay instead of unemployment benefits.

<sup>20</sup> See e.g. Killingsworth and Heckman (1986) for a classic review of the female labor supply literature.

<sup>21</sup> The hazard for the ALMP model was estimated by interacting all variables with a dummy for gender and those coefficients that were significantly different from zero were maintained in the final specification.

<sup>22</sup> We also tried a variable denoting whether or not the person resided in Prague and found that it had no significant effect once demand conditions were controlled for and as a result, we dropped this variable from the equation.

<sup>23</sup> The denominator for the vacancy rate is the labor force in the given district.

<sup>24</sup> The industrial production variable is available only at an annual frequency. It is a price-weighted composite of total per-capita industrial production in the district in 1992 prices.

<sup>25</sup> In 1992, approximately 92 percent of the workers in the health and education sectors were classified by the Czech Statistical Office as employed in the "state" sector. In the same year, 76 percent of the people employed in the agglomerated sector we call 'private service sector' were employed by enterprises with private ownership. The percentage rises to 82 if mixed ownership is taken into account.

<sup>26</sup> The percentage of recipients that did not exit for a job refers to the sample period, which could be as long as 1.75 years. The probability of leaving unemployment refers to a given week and is calculated as an average over the sample period.

<sup>27</sup> This pattern is observed throughout the world (see Terrell, 1992 for examples from other countries). In the Czech Republic, the proportion of women employed in the "public service sector" in 1992 was relatively high: 60 percent in public administration, 74 percent in education and 80 percent in health. In the other sectors within our "private service sector" the proportion of women is much lower, except in hotels and restaurants where it is 60 percent. The proportion in

the financial sector is 15 percent, in real estate it is 40 percent and in transportation it is 32 percent.

<sup>28</sup> In order to check the validity and robustness of these results, we ran a specification to distinguish the effect of benefits on married vs. single men and married vs. single women and found similar results. We next examined the possibility that there was not enough variation in the data to distinguish the effect of benefits from that of previous wage (which was also insignificant). However, when we dropped one or the other variable, the coefficient on the remaining variable was still insignificant. We report the specification with previous wage and benefits since it is considered to be the correct one in terms of theory.

<sup>29</sup> The elasticities are not strictly comparable since those in HST (1998, 1999) were calculated for the average man and average woman, whereas we have calculated them for stereotype men and women.

<sup>30</sup> Note that we were unable to estimate a coefficient for Romany non-recipients because there were only five of them in this sample (with two going to DLO help and three exiting on their own job).

<sup>31</sup> We note that this effect differs from the UCS model. Once UCS variables are excluded from the specification and exits are allowed to be estimated separately for these two states, the Romany effect is significantly negative.

<sup>32</sup> The opposite signs on the handicapped coefficient for the two exit rates may explain the lack of significance on the handicapped coefficient in the UCS model.

<sup>33</sup> Since the conditional probability is changing each week, we average the weekly conditional probabilities over 26 weeks. (We do not take the ratio of the average hazards which are presented in Table 8.)

<sup>34</sup> This statement holds with the caveat that we have not examined the substitution and displacement effects or the deadweight loss from the ALMPs.



**Table 1:**  
**Selected Macroeconomic Statistics for the Czech Republic**

	Inflation Rate (CPI)	GDP Growth	Unemployment Rate	Inflow Rate <sup>a</sup>	Outflow Rate <sup>b</sup>
1990	10	-1.2	0.8	--	--
1991	52	-11.5	2.4	0.9	17.1
1992	13	-3.3	3.0	0.9	26.6
1993	18	0.6	3.0	0.7	22.0
1994	10	2.7	3.3	0.6	21.3

SOURCE: Columns 1 and 2: EBRD Transition Report 1997 (London: EBRD);  
Column 3: Czech District Labor Office data on registered unemployed; Columns  
4-5: OECD-CCET Labour Market Data Base.

<sup>a</sup>Average annual rates of the number flowing into unemployment in an average  
month divided by the number employed and multiplied by 100.

<sup>b</sup>Average annual rates of the number flowing out of unemployment divided by  
the number unemployed. multiplied by 100.

**Table 2:**  
**Selected Statistics on the Active and Passive Labor Market Programs**

	1991	1992	1993	1994
<b>Coverage</b>				
Avg. no. of unemployed/mo.	147832	159630	157315	171283
Share (%) Receiving Unemployment Benefits	63	50	47	47
Share (%) placed in an ALMP	3	7	2	2
<b>Budget</b>				
Total Expenditures (mill. of KCS)	2450	3141	2166	2562
Index of Total Expend. (1991=100)	100	128	88	105
UCS (% share of total budget)	69	45	65	72
ALMP (% share of total budget)	31	55	35	28
<b>ALMP Placements (% share of total)</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Subsized Jobs (SPJ's)	58	47	27	22
Subsidized jobs for recent graduates	25	17	17	15
Welfare Works	11	21	26	28
Retraining	6	14	28	33
Handicapped	-	1	2	2

Source: Czech Statistical Office and Ministry of Labor and Social Affairs.

**Table 3:**  
**Means of the Variables**  
**(at first week of registered unemployment)**

	Recipients			Non-Recipients		
	Men	Women	Total	Total	Men	Women
Number of Observations	721	968	1689	1218	649	569
<b><u>Previous Unemployment History</u></b>						
No. of days previous registered unemp.	22.409	24.465	23.588	52.374	43.998	61.928
Previously unemployed	0.206	0.199	0.202	0.264	0.247	0.283
<b><u>Demographic Variables</u></b>						
Age (in years)	31.184	31.475	31.351	32.294	31.808	32.848
Junior high school	0.226	0.265	0.249	0.356	0.308	0.411
Vocational high school	0.626	0.616	0.620	0.537	0.579	0.489
Academic high school	0.086	0.082	0.083	0.063	0.063	0.063
Post high school and some university	0.062	0.037	0.048	0.043	0.049	0.037
Married (incl. common law)	0.420	0.595	0.521	0.307	0.425	0.608
Romany	0.013	0.009	0.011	0.029	0.028	0.030
Handicapped	0.073	0.069	0.071	0.058	0.063	0.053
<b><u>District Level Demand Variables</u></b>						
Quarterly vacancy rate by education	0.0065	0.0060	0.0062	0.0061	0.0063	0.0058
Annual per cap. industrial production in 1992 prices (Thousands of Kcs)	71.484	71.634	71.570	72.062	70.978	73.298
Percent employed in private services (end of yr.)	10.12	10.59	10.39	10.94	10.78	11.08
Percent employed in public services (end of yr.)	19.16	19.16	19.16	19.50	19.47	19.49
<b><u>Benefits</u></b>						
Weekly unemployment benefits *.01 (Kcs) in 1992 prices	4.523	3.450	3.908	--	--	--
Proportion that obtained maximum benefit	0.042	0.010	0.024	--	--	--
Previous week wage *.10 <sup>-1</sup> (Kcs)	7.205	5.825	6.414	6.699	7.437	5.856
Proportion that exhaust benefits (during sample period)	0.115	0.191	0.159	--	--	--
<b><u>Exits from Unemployment</u></b>						
Average weekly exit rate to jobs	0.022	0.011	0.016	0.012	0.017	0.006
Do not exit to jobs (during sample period)	0.472	0.500	0.488	0.489	0.572	0.394
Kicked off the register	0.083	0.048	0.063	0.158	0.183	0.130
Obtained a job through the DLO	0.169	0.195	0.184	0.157	0.160	0.153
Obtained an SPJ	0.008	0.014	0.011	0.011	0.009	0.014
Obtained a job through own means	0.358	0.303	0.327	0.274	0.268	0.241

**Table 4:**  
**Coefficients from the UCS Hazard Model**  
**(Standard errors in parentheses)**

	Men	Women
Constant	-6.594 <sup>a</sup> (1.149)	-4.628 <sup>a</sup> (0.822)
<b>Individual Specific Variables:</b>		
Age	-0.011 (0.006)	-0.002 (0.005)
Vocational high school	0.932 <sup>a</sup> (0.175)	0.294 <sup>b</sup> (0.128)
Academic high school	1.139 <sup>a</sup> (0.228)	0.348 (0.194)
Post high school	1.213 <sup>a</sup> (0.263)	0.818 <sup>a</sup> (0.253)
Married	0.140 (0.123)	-0.186 <sup>b</sup> (0.099)
Romany	-0.720 (0.525)	-1.284 (0.719)
Handicapped	-0.370 (0.208)	-0.250 (0.193)
Unemployed before	-0.288 <sup>b</sup> (0.143)	0.047 (0.120)
<b>Demand Variables</b>		
Vacancy rate	34.137 <sup>a</sup> (9.568)	26.110 <sup>a</sup> (9.962)
Industrial production	0.443 <sup>a</sup> (0.011)	0.029 (0.084)
% Emp. in public services	-12.993 <sup>a</sup> (3.593)	0.285 <sup>b</sup> (0.134)
% Emp. in private services	7.284 <sup>a</sup> (2.046)	0.414 (1.188)
<b>UCS Variables:</b>		
Previous wage	-0.049 (0.027)	-0.027 (0.033)
Benefits	0.001 (0.001)	0.001 (0.001)
Entitlement	-0.032 <sup>a</sup> (0.010)	-0.027 <sup>a</sup> (0.009)
LastWeek	1.023 <sup>a</sup> (0.304)	0.401 (0.301)
Exhausted benefits	-0.776 <sup>a</sup> (0.234)	-0.411 <sup>b</sup> (0.184)
<b>Duration Effect</b>		
Ln duration	2.380 <sup>a</sup> (0.590)	1.654 <sup>a</sup> (0.477)
Ln duration <sup>2</sup>	-0.758 <sup>a</sup> (0.170)	-0.617 <sup>a</sup> (0.146)
Ln duration <sup>3</sup>	0.069 <sup>a</sup> (0.015)	0.060 <sup>a</sup> (0.014)

<sup>a</sup>significant at the 1% confidence level

<sup>b</sup>significant at the 5% confidence level

**Table 5:**  
**Duration Experiments for UCS Model**

	Men	Women
<b>Base Duration (in weeks):<sup>a</sup></b>	16.65	33.02
<b>Individual Specific Characteristics:</b>		
Age raised by one year	0.17	0.06
Junior high school vs. Vocational high school	<b>28.76</b>	<b>12.83</b>
Academic high school vs. Vocational high school	<b>-2.78</b>	-1.95
Post high school vs. Vocational high school	<b>-3.60</b>	<b>-14.67</b>
Single	2.44	<b>-6.33</b>
Romany	19.29	71.72
Handicapped	7.66	10.65
Unemployed before	<b>5.60</b>	-1.72
<b>Demand Variables:</b>		
Vacancy rate by education raised 1%	<b>-0.03</b>	<b>-0.06</b>
Industrial production raised 1%	<b>-0.48</b>	-0.08
% Emp. in Pub. Serv. raised 1 percen. point	<b>0.40</b>	<b>-0.02</b>
% Emp. in Priv. Serv. raised 1 percen. point	<b>-0.11</b>	-0.02
<b>UCS Variables:</b>		
Previous wage raised 1%	0.06	0.42
Benefits raised by 1%	-0.04	-0.12
Entitlement raised by 1 week	<b>0.26</b>	<b>0.38</b>

<sup>a</sup> Base individual is 30 years old, with a vocational high school education, married, non-Romany, not handicapped, never unemployed, and living in an average district in terms of both demand conditions and structure of employment.

Note: Values in bold are statistically significant at the 5% confidence interval.

**Table 6:**  
**Oaxaca Decomposition for Men Vs. Women**  
**(Recipients)**

	Weeks
<u>Expected Duration:</u>	
1) Women's $\beta$ 's and $X$ 's	33.06
2) Men's $\beta$ 's and $X$ 's	24.10
3) Men's $\beta$ 's and Women's $X$ 's	25.28
4) Women's $\beta$ 's and Men's $X$ 's	28.43
5) ED(women) - ED(men)	8.96
<u>Decomposition of Difference:</u>	
6) Avg. difference due to $\beta$ s (proportion of total difference)	6.06 (0.68)
7) Avg. difference due to $X$ 's (proportion of total difference)	2.90 (0.32)

Note: The values for the  $X$ 's represent the means for the sample of recipient men or women; the  $\beta$ 's are taken from Table 4.

**Table 7:**  
**Coefficients from the ALMP Hazard Model**  
**(Standard errors in parentheses)**

	Recipients		Non-Recipients	
	DLO Help	Own Job	DLO Help	Own Job
Constant	0.198 (0.489)	-0.131 (0.376)	0.243 (0.659)	-4.440 (0.583)
<b>Individual Specific Variables:</b>				
Age	0.017 <sup>a</sup> (0.002)	-0.004 <sup>b</sup> (0.002)	-0.017 <sup>a</sup> (0.003)	0.006 (0.002)
Vocational high school	-0.439 <sup>a</sup> (0.045)	1.246 <sup>a</sup> (0.042)	0.829 <sup>a</sup> (0.078)	1.017 (0.066)
Academic high school	0.299 <sup>a</sup> (0.069)	1.210 <sup>a</sup> (0.057)	0.880 <sup>a</sup> (0.134)	0.970 (0.103)
Post high school	0.464 <sup>a</sup> (0.102)	1.691 <sup>a</sup> (0.079)	0.383 (0.237)	1.403 (0.136)
Married men	-0.878 <sup>a</sup> (0.068)	0.820 <sup>a</sup> (0.049)	-0.464 <sup>a</sup> (0.089)	0.493 (0.077)
Married women	0.553 <sup>a</sup> (0.080)	-0.660 <sup>a</sup> (0.061)	0.042 (0.132)	-0.700 (0.107)
Single women	-0.863 (0.528)	2.000 <sup>a</sup> (0.435)	-0.131 (0.971)	1.030 (0.785)
Romany	-0.823 <sup>a</sup> (0.154)	-2.222 <sup>a</sup> (0.230)	-- --	-- --
Handicapped	0.196 <sup>a</sup> (0.055)	-0.294 <sup>a</sup> (0.054)	-1.101 <sup>a</sup> (0.142)	-0.964 (0.106)
Unemployed before * men	-0.451 <sup>a</sup> (0.074)	-0.579 <sup>a</sup> (0.061)	-0.327 <sup>a</sup> (0.093)	0.193 (0.085)
Unemployed before * women	0.210 <sup>a</sup> (0.051)	-0.262 <sup>a</sup> (0.049)	-0.962 <sup>a</sup> (0.116)	0.351 (0.076)
Previous wage	-0.109 <sup>a</sup> (0.008)	0.009 <sup>c</sup> (0.005)	0.039 <sup>a</sup> (0.008)	0.061 (0.007)
Became unemployed in 1992	0.129 <sup>a</sup> (0.036)	-0.010 (0.030)	0.584 <sup>a</sup> (0.065)	0.005 (0.054)
<b>Demand Variables</b>				
Vacancy rate	89.444 <sup>a</sup> (3.446)	-19.366 <sup>a</sup> (3.677)	61.127 <sup>a</sup> (6.485)	28.529 (5.620)
Industrial production * men	0.018 <sup>a</sup> (0.006)	0.011 <sup>a</sup> (0.004)	0.009 (0.007)	0.019 (0.007)
Industrial Production * women	-0.004 (0.004)	-0.013 <sup>a</sup> (0.003)	0.008 (0.009)	0.023 (0.007)
% Emp. in public services * men	-11.961 <sup>a</sup> (1.511)	-14.033 <sup>a</sup> (1.300)	-14.848 <sup>a</sup> (2.249)	3.827 (1.831)
% Emp. in public services * women	0.159 <sup>b</sup> (0.079)	-17.069 <sup>a</sup> (1.146)	-14.873 <sup>a</sup> (2.604)	-1.440 (1.944)
% Emp. in private services	-1.823 <sup>a</sup> (0.498)	2.016 <sup>a</sup> (0.594)	0.782 (1.097)	2.470 (0.860)
<b>Duration Effect</b>				
Ln duration	-0.383 <sup>a</sup> (0.133)	1.169 <sup>a</sup> (0.120)	0.061 (0.159)	-0.023 (0.131)
Ln duration <sup>2</sup>	0.016 (0.042)	-0.559 <sup>a</sup> (0.037)	-0.112 <sup>b</sup> (0.049)	-0.098 (0.041)
Ln duration <sup>3</sup>	0.006 (0.004)	0.060 <sup>a</sup> (0.004)	0.013 <sup>a</sup> (0.004)	0.010 (0.004)
No. of observations	29,664	29,664	14,062	14,062
Log likelihood ratio	-11386	-14851	-3886	-5225

<sup>a</sup>significant at the 1% confidence level

<sup>b</sup>significant at the 5% confidence level

<sup>c</sup>significant at the 10% confidence level

**Table 8:  
Hazards Estimated from the ALMP Model  
(averaged over 26 weeks)**

	Recipient				Non-Recipient			
	Men		Women		Men		Women	
	DLO	OWN	DLO	OWN	DLO	OWN	DLO	OWN
Base <sup>a</sup>	0.044	0.097	0.074	0.052	0.049	0.101	0.042	0.051
Age 45	0.056	0.093	0.093	0.050	0.038	0.109	0.033	0.056
Age 20	0.038	0.099	0.063	0.054	0.057	0.096	0.050	0.049
Junior high school	0.067	0.037	0.110	0.018	0.022	0.039	0.019	0.019
Academic high school	0.088	0.094	0.142	0.051	0.051	0.097	0.045	0.049
Post high school	0.102	0.129	0.163	0.074	0.032	0.141	0.028	0.074
Single	0.100	0.052	0.099	0.046	0.075	0.064	0.063	0.062
Handicapped	0.053	0.078	0.088	0.041	0.017	0.041	0.015	0.020
Romany	0.020	0.015	0.034	0.007	-	-	-	-
Unemployed before	0.029	0.063	0.090	0.042	0.036	0.119	0.017	0.071
Unemployed in 1992	0.050	0.096	0.083	0.052	0.083	0.101	0.073	0.052
Vacancy rate raised by 10%	0.047	0.096	0.078	0.052	0.050	0.102	0.044	0.052

<sup>a</sup> Base individual is 30 years old, with a vocational high school education, married, non-Romany, not handicapped, never unemployed, and living in an average district in terms of both demand conditions and structure of employment.



**Table 9:**  
**Conditional Probability:  $\lambda_d/(\lambda_d + \lambda_o)^a$**

	Recipient			Non-Recipient		
	Men	Women	Men:Women	Men	Women	Men:Women
Base <sup>b</sup>	0.565	0.760	0.743	0.318	0.444	0.715
Age 45	0.613	0.795	0.771	0.252	0.365	0.691
Age 20	0.531	0.735	0.723	0.366	0.498	0.734
Junior high school	0.798	0.915	0.872	0.351	0.488	0.718
Academic high school	0.684	0.841	0.813	0.338	0.467	0.723
Post high school	0.641	0.809	0.792	0.178	0.266	0.669
Single	0.799	0.815	0.980	0.530	0.495	1.071
Handicapped	0.641	0.816	0.786	0.283	0.410	0.689
Romany	0.764	0.900	0.849	-	-	-
Unemployed before	0.582	0.814	0.715	0.223	0.185	1.208
Unemployed in 1992	0.587	0.777	0.756	0.444	0.579	0.767
Vacancy rate by 10%	0.576	0.768	0.750	0.322	0.449	0.718

<sup>a</sup>The weekly conditional probabilities are averaged over 26 weeks.

<sup>b</sup>Base individual is 30 years old, with a vocational high school education, married, non-Romany, not handicapped, never unemployed, and living in an average district in terms of both demand conditions and structure of employment.

• **Graph 1: Base Hazard for the UCS Model**

**Graph 2: Conditional Probability of Obtaining a DLO Job using Base Hazards for the ALMP Model**

