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Unemployment, Skills, and Incentives

An Overview of the Safety Net System in the Slovak Republic

Carolina Sánchez-Páramo

Do unemployment insurance and social assistance payments have disincentive effects on job seeking behavior and the duration of unemployment in the Slovak Republic? The evidence suggests they do.

Summary findings

Sánchez-Páramo studies the potential disincentive effects of unemployment insurance and social assistance payments on the duration of unemployment in the Slovak Republic. For this purpose, she uses new, very detailed data on receipt of benefits from the Unemployment Registry (1990–2000) and the Labor Force Survey (1996, 1999, and 2000). She employs a flexible methodology that makes it possible to identify behavioral changes that may occur as the quantity and duration of the benefits change over time, as well as behavioral differences between recipients and nonrecipients. This approach, she argues, constitutes a more accurate test for the presence of incentive and disincentive effects than those presented before in the literature. She expands the scope of her analysis to study the effect of receiving benefits on several outcomes in addition to exit from unemployment (for example, job seeking behavior and duration of unemployment).

She finds important behavioral differences between those who receive benefits and those who do not. Recipients tend to spend more time unemployed, but they also look for employment more actively than their counterparts, have more demanding preferences with respect to their future jobs, and find jobs in the private sector more often. In addition, these jobs turn out to be better matches than those obtained by nonrecipients (with the quality of the match measured by its duration).

Moreover, the behavior of recipients varies tremendously depending on whether they are actually receiving benefits or not. Once their benefits are exhausted, they exit the Unemployment Registry at a higher rate, search more actively, and move into private sector jobs more often. So when these workers are used as their own control group, there is strong evidence that both unemployment insurance and social assistance or support have important disincentive effects, not only on the duration of unemployment, but also on job seeking behavior and on exit to employment.

Analyzing the effect of unemployment insurance and social assistance on poverty, Sánchez-Páramo concludes that these programs bear most of the burden in the fight against poverty. But this protection does not come free, since significant disincentive effects are associated with receiving benefits. Thus any reform plan should take into account both of these aspects of the programs, along with the government's goals for the programs.

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A. INTRODUCTION

1.   Since the late 1980s, Central and Eastern European countries have experienced rapid and substantial economic transformations as part of the transition process from a centralized planning system to a new competitive market economy. Along with such changes, these countries have had to adjust their institutional structure to the new circumstances. In the context of the labor market, this implied that a social security system had to be set up to cope with the new phenomenon of unemployment, since workers laid off by contracting firms were not immediately rehired by expanding or newly created businesses. Moreover, having to deal with a new system of unemployment benefits and social assistance schemes in a rapidly evolving environment caused numerous countries to change the system several times during the 1990s.

2.   The case of the Slovak Republic responds closely to the model described above. After independence from the Czech Republic in 1993, the Slovak government inherited the social security system in place in the former Czechoslovakia. Then, during the 1990s, they modified most programs in response to changing economic, political, and social conditions.

3.   Like other social security systems, the role of the Slovak system is twofold. It provides income for those who are not employed and whose income falls below the poverty level,[1] and gives them social protection. On the other hand, it aims to stimulated these individuals to find a job and obtain their own means of subsistence. As argued by Steele (World Bank, 2001c), the safety net has been tremendously effective in achieving the first goal. Poverty in Slovakia would increase from 10 to 19 percent were social assistance-support and unemployment insurance to disappear.[2]

4.   However, so far not a lot of research has been done on the potential incentives/disincentives effects of the Slovak safety net. Lubyova and van Ours (1997) examine the effects of unemployment insurance reforms on the exit rate from unemployment and argue that the tightening and loosening of the system did not affect re-employment probabilities very much. In a different paper, they also find that there are no disincentives effects associated with unemployment insurance and social assistance recipiency (Lubyova and van Ours, 1998).

5.   In contrast, Erbenova et alia (1998) show that, in the case of the Czech Republic, "social assistance benefits are fairly generous for low income families with many children", and that "individuals with these characteristics tend to stay unemployed longer than those with fewer dependents", hence concluding that there are disincentives effects associated with social assistance for some groups of the population.

6.   In this paper we revisit this issue in the context of the Slovak Republic, using new, very detailed data on benefits recipiency from the Unemployment Registry (1990-2000) and the Labor Force Survey (1996, 1999 and 2000). In order to do so, we propose a flexible methodology that allows us to identify behavioral changes that may occur as the quantity and

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[1] Although there is no official poverty line in the Slovak Republic, the Minimum Living Standard (MLS) is used as such for the purpose of benefit eligibility, etc.

[2] It is important to notice that the total income figures used for this calculation *include* pensions.

duration of the benefits change over time, in addition to behavioral differences between benefit recipients and non-recipients - we will argue that this approach constitutes a more accurate test for the presence of incentive/disincentive effects. We also expand the scope of our analysis to study the effect of recipiency on several outcomes besides exit from unemployment (e.g. unemployment duration, job search).

7.   We find that there are important behavioral differences between those who receive benefits and those who do not. The former tend to spend more time unemployed, but they also look for employment more actively than their counterparts, have more demanding preferences regarding their future jobs, and find jobs in the private sector more often. In addition, these jobs turn out to be better matches than the ones obtained by non-recipients (where match quality is measured as duration of the match).

8.   Moreover, the behavior of recipients varies tremendously depending on whether they are actually receiving benefits or not. In particular, they exit the registry at a higher rate, search more actively, and move into private-sector jobs more often, once benefits are exhausted. So when we use these workers as their own control group, we do find strong evidence that both unemployment insurance and social assistance/support have important disincentive effects, not only on unemployment duration, but also on search behavior and on exit-to-employment.

9.   The remaining of the paper is structured as follows. Section B briefly describes the evolution of unemployment as well as the characteristics of the unemployed, comparing them to the rest of the population. Section C provides an overview of the main features of the unemployment insurance, social assistance and social support programs, and section D discusses some examples that illustrate the potential disincentive effects associated with them. The data is presented in section E, and the empirical strategy in section F, together with some methodological issues. Section G contains the results, and finally section H concludes with a discussion of such results and their policy implications.

B.   UNEMPLOYMENT AND THE UNEMPLOYED[3]

10.   Unemployment in the Slovak Republic increased sharply after the transition, reaching 13 percent in 1993, and remained fairly stable until 1997. Since then it has been growing quite substantially, up to a record high of 18.7 percent in the first semester of 2000. Moreover, all throughout this period, registered unemployment has been higher than unemployment measured by the Labor Force Survey, with the exception of 2000. This discrepancy is believed to reflect the potential disincentive effects associated with the unemployment insurance and social assistance systems, especially since most of the difference between both rates is due to the group of short-term and medium term unemployed (Lubyova, 2000).

11.   In combination with the growing incidence of unemployment, more than 50 percent of all unemployed individuals have been so for more than a year. The share of long-term unemployment has been quite stable over time, and hence not very responsive to neither the business cycle nor reforms of the safety net. The fraction of long-term unemployed is higher

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[3] All tables corresponding to Section B are shown in Annex I.

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among men than women, probably because the latter have a higher probability of leaving the labor force after a long unemployment spell.

12.   Labor market dynamics are weak. The flows in and out of the pool of registered unemployment are very low, around 7-9 percent of all unemployed workers, and as a result, unemployment turnover is also very low. Moreover, a large fraction of those leaving the unemployment pool (outflow), leave this state by withdrawing from the labor force rather than by joining the files of the employed. This situation is quite common in Central and Eastern Europe: according to Boeri (2000), about one third of the workers that leave the state of unemployment do not find a new job, but simply stop looking for one.

13.   While unemployment rates do not exhibit particular gender disparities (rates are only slightly higher for women), they vary widely with age and education. As expected, unemployment rates are negatively correlated with education. Workers with higher education or college degrees perform much better than those with primary or even secondary studies (3-5 percent unemployment compared to 15-20 percent)

14.   From 1994 to 1998, almost one quarter of those under 25 was unemployed, and this number has increased to 35 percent in 2000. Not surprisingly the largest increases in unemployment over time have occurred among young workers, both men and women. The situation is somewhat better among prime-age workers, although unemployment has been increasing among them steadily (11percent in 1994 compared to 16 percent in 2000). This has raised concerns since this group is generally viewed to be the most productive, besides bearing family responsibilities.

·15.   In this respect, it is important to notice that unemployment rates vary substantially by the position that individuals hold within the household. Those who are considered heads of the household (i.e. primary earners in most cases) exhibit the lowest unemployment rates (14 percent in 2000), although unemployment has increased by almost 100 percent among this group since 1996. Spouses have also experienced an increase in unemployment, although a relative smaller one so that their situation in 2000 closely resembles that of the heads of the household. On the other hand, high unemployment among other household members is largely a reflection of the higher unemployment incidence among younger workers, since this group consists mainly of children of working age who still reside with their parents.

16.   Finally, the Slovak labor market is highly segmented at the regional level, and such a segmentation has only grown over time. This is evident when we look at the evolution of unemployment rates for different regions. In 1996, the difference between the region with the highest unemployment level and that with the lowest was less than 6 percentage points, while that number is close to 20 percentage points in 2000.

C.   OVERVIEW OF THE UNEMPLOYMENT INSURANCE, SOCIAL ASSISTANCE AND SOCIAL SUPPORT SYSTEMS

17.   The Slovak Republic provides cash benefits and support services to many jobless individuals and families through a web of programs. The scope of these programs as well as their coverage are broad and generous, even for European standards, with total cash payments exceeding SK95 billion, or 14 per cent of GDP, in 1999.

18.   The system as it stands today is the product or numerous reforms, implemented throughout the last decade. Such changes have not only had budgetary repercussions, but have also altered the rules of the game for the unemployed. Hence, in order to analyze the effect that these programs may have on individual actions, it is important to become familiar both with the evolution of the system and with the way in which benefits are calculated. In this section, we provide an overview of the main elements that conform the social safety net (i.e. the Unemployment Insurance (UI), the Social Assistance (SA), and the Social Support (SS) systems,[4]) and of the most important changes that have occurred since 1991.

Unemployment Insurance system

19.   After its creation in 1993, the country inherited the unemployment insurance system in place in the former Czechoslovakia. A system which had already undergone a major reform in 1992, due to soaring payments associated with growing unemployment. At that time the original 12-month entitlement period was halved and eligibility conditions were tightened. Replacement ratios also decreased slightly (Table I). These changes were applied retroactively onto old entitlements as well as onto new ones, and they implied for many unemployed an earlier switch from non means-tested unemployment insurance to means-tested social assistance/support benefits.

20.   Contrary to what other transition economies were doing at the time, the Slovak government relaxed the unemployment insurance system in 1994-97, a period of high growth, partially reversing the steps taken in 1992. In particular, entitlement conditions went back to pre-1992 levels, and the duration of the benefits was lengthened according to the age of the unemployed. Replacement ratios were kept constant except for those with no previous work experience, who saw their benefits decrease from 60 to 45 percent of the minimum wage, and those involved in -public- retraining programs, who lost their privileged status.

21.   These measures caused a partial shift from social assistance to unemployment insurance, reversing the previous trend, and coincided in time with changes in the safety net financing mechanism. While initially all benefits were financed through the government budget, in 1994 unemployment insurance became the responsibility of the so called Employment Fund, supported by the insurance contributions of employers and employees. This meant that the relaxation of the unemployment insurance system had no adverse budgetary effects (in fact, public expenditure actually decreased after the changes), and this no doubt contributed to the oversight of potential disincentive effects associated with the proposed reforms.

22.   In 1998, with the economy slowing down and unemployment growing again, a second round of restrictive reforms came around. Benefit duration was made a function of the contributive history of the individual, rather than her age; a measure most likely to affect those with interrupted labor market careers (i.e. women). In addition, the entitlement period was cut by three months for those who had quitted their job voluntarily and without serious reason.

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[4] We ignore the social insurance system, comprising sickness and disability insurance and the pension system.

23.   Similar changes were implemented in 1999, shaping the system as it stands today. Entitlement duration was reduced to 6 months for those having contributed for a maximum of 15 years, and 9 months for those with more than 15 years of contributions. Replacement ratios were cut, while the maximum benefit payment became a function of the Minimum Living Standard (i.e. poverty line), rather than the minimum wage. Finally, conditions for entitlement were relaxed slightly by requiring 6 months of contribution history during the 3 years prior to the benefit claim, instead of 12.

24.   The share of unemployed receiving benefits has fallen sharply as a consequence of the reforms, from 82 percent in 1991, to 33 percent in 1992, and 27 percent in 1999 (Table II).[5] However, such a decrease has been vastly compensated by an increase in the number of social assistance/support recipients among the unemployed, so that overall almost the same percentage of the unemployed received help from the state in 1999 than in 1993.

25.   Furthermore, total annual expenditure in unemployment benefits has increased substantially, from SK1.7 billion in 1992 to SK7.2 billion in 1999 (Table III). This is a reflection of both the growth in the absolute number of unemployed workers receiving unemployment insurance, from 87,322 in 1992 to 144,690 in 1999, as well as an 84 percent increase in the average monthly benefit during the same period (from SK1,583/month to SK2,916/month).

26.   After revising these facts, it seems that, more often than not, changes in the unemployment insurance system have responded to the evolution of the macroeconomy or to budgetary concerns, rather than to the need for a rationally designed and efficient system. Unfortunately, this policy has done little to minimize the potential disincentive effects associated with unemployment insurance benefits. We will return to this point in the next section.

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[5] It is important to notice that these numbers represent the fraction of unemployed workers who *are receiving* UI in any given year, and not the fraction of unemployed workers who *are entitled* to UI at the beginning of the spell. This figure is actually much higher (see Section E)

Social Assistance and Social Support

27.   Unemployed workers who are not eligible for Unemployment Insurance are covered by the Social Assistance and Social Support systems, designed to guarantee basic living conditions for everyone.[6],[7]   Under this principle, social assistance/support and SS benefits are calculated with reference to the subsistence level (i.e. Minimum Living Standard, MLS). The concept of a MLS was introduced by legislation in 1991. Its level is a function of the individual's age and position within the household, and it is adjusted according to the cost-of-living index for low income households. In particular, an adjustment is made when this index increases 10 percent or more. Because this process is not automatic, during certain periods the MLS has been very close to the minimum wage, which may have had a negative effect on the incentives of the unemployed to actively look for a job.

28.   The total number of individuals receiving social assistance/support benefits increased from 199,127 to 297,688 between 1994 and 1999 (Table IV).[8]   Most of this growth has occurred in the last 2-3 years and among couples with dependent children. Simultaneously, during 1994-99, expenditure went from SK5.1 to SK11.6 billion and the average monthly payment grew from SK2,130 to SK3,426 - a 60 percent increase.

29.   As a complement to the social assistance/support benefits, the SS system grants child and parental allowances, both of which are among the programs most often blamed for providing disincentives to job search, and further employment. These benefits are usually means-tested, which implies that there exists a threshold for household income,[9] above which marginal increases in labor income will cause an absolute decrease in total income due to the loss of the allowance. Moreover, both child and parental allowances require the qualifying person to provide care for the dependent child. That is, a parent who finds a job and starts working loses the allowance.

30.   Child allowances are granted independently for each child in the family, and the quantity of the benefit varies according to the household income and the age of the child. As a result, disincentives increase with the number and age of children. The number of recipients has over time, from 682,045 in 1995 to 568,951 in 1999, as so has expenditure

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[6] Basic conditions are described as "one hot meal per day, necessary clothing and shelter" (*Social Policy, 2000*).

[7] Under the SA system, the needy are classified with respect to the reason for their depravation, and the amount of the benefits depends on the type of need. Individuals can be in *objective* need if they are "trying to help themselves" (e.g. registered at the unemployment office and actively searching for a job), or in *subjective* need if they are not doing so. The former represent 64 percent of all recipients and receive the full MLS, while the latter (29 percent) are paid only 50 percent of the MLS. Finally, in the case of employment, income is topped up by social benefits to a 1.2-multiple of the MLS (This premium for employed individuals is about to disappear, since the reform currently under discussion in Congress does not contemplate such a measure anymore. The authorities believe that incentives to work should arise from the wage structure rather than from payments received from the State).

[8] SA payments are formally administered for two broad reasons: assistance to families with dependent children and assistance to socially deprived persons. Couples with dependent children constitute the largest group of recipients, growing from 90,718 individuals in 1994 to 202,805 in 1999. Couples/individuals without dependent children are the second largest group of beneficiaries, with their number increasing at a lower rate over this period from 89,214 to 93,799 (Table IV).

[9] In fact there are two such thresholds for each household: 1.36 and 1.99 of the corresponding MLS.

(from SK10 to SK9 billion over the same period). These trends have translated into a moderate 8 percent increase in the average monthly allowance, which, given inflation, corresponds to a fall in real terms (Table V).

31. Parental allowances are only applicable to children under the age of three, a restrictive condition for a population with a very low fertility rate. As a consequence, the number of recipients has also been falling over time, from 154,012 in 1995 to 137,931 in 1999. Expenditure, however, has exhibited a positive trend during the same period, growing from SK2.5 to SK4.4 billion. Altogether this translates into a 100 percent increase in the average monthly benefit.

D. BRIEF ANALYSIS OF THE DISINCENTIVES PROVIDED BY UNEMPLOYMENT INSURANCE, SOCIAL ASSISTANCE, AND SOCIAL SUPPORT

32. The ample coverage provided by the unemployment insurance and social assistance/support/SS systems, sometimes for unlimited periods of time, is likely to have disincentive effects on job search and re-employment. In addition, the co-existence of all these different programs makes the Slovak safety net a complex system, both for its administrators and its beneficiaries, and such complexity could create undesirable opportunities for unintended misuse or even fraud.

33. Our goal in this section is to evaluate the potential magnitude of the disincentive effects associated with the different safety net programs, and to identify, through a series of quantitative examples, those program features most likely to cause such effects, as well as those groups of workers most susceptible to them. We consider only individuals who are unemployed and receive social benefits. According to the type of benefits each person is entitled to, we contemplate three different regimes: (i) receiving high-replacement unemployment insurance, (ii) receiving low-replacement unemployment insurance, or (iii) receiving social assistance/support/SS. In each case, we calculate the worker's (adult 1, henceforth) income while receiving benefits and compare it to the income level she would enjoy were she working. We then grant child allowances whenever individuals or their families are eligible, and repeat the exercise using household income.[10] Such comparisons can be thought of as 'replacement ratios' and provide a crude way of describing potential disincentive effects both at the individual and the household levels.

34. In order to calculate unemployment insurance benefits and income after re-employment, we need to make some assumptions about the worker's past and future wages. We assume both wages are the same and consider two different levels: (i) the minimum wage (SK3,600 in 2000), and (ii) the average wage (SK10,950 in 2000). Besides income imputations, these wages also play a role as rough proxies for the worker's level of skills and education; the idea being that individuals with low education and/or skill levels will be much more likely to find a job that pays a low salary than those with more skills or higher education. This distinction is important because the difference between the MLS and the

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[10] Household income is calculated as income generated or benefits received by adult 1 + income generated or benefits received by adult 2 + other household-level benefits. For the sake of simplicity, we ignore important elements such, as taxes or parental allowances, in the calculation. For more precise measures of income under different programs the reader can consult Ludyova and van Ours (1998).

minimum wage is small, and therefore there are reasons to believe that disincentives effects may be stronger for workers with little qualification than for those with higher levels of education.

35.   In addition, we consider three different situations for a potential second adult living in the household - e.g. the individual's spouse (adult 2, henceforth): (i) unemployed, (ii) employed at the minimum wage, or (iii) employed at the average wage. The purpose of this division is twofold. On the one hand, it allows us to think of adult 1 as the primary or secondary earner of the household, depending on his/her relative income-generating position with respect to that of adult 2. On the other hand, it makes it easy to bring in strategic considerations: in general, the opportunity cost of employment is higher in those cases when the second adult in the household is already working, because the family would lose any child allowance they may have been receiving.

36.   We perform the exercise described above for six different types of households:

    (a)   A single individual;
    (b)   A couple without children;
    (c)   A couple with two small children (below age 6);
    (d)   A couple with two young children (ages between 15 and 25);
    (e)   A couple with five children (as a proxy for a Roma household); and
    (f)   A couple with two young children living with a pensioner.

37.   Although the conclusions outlined at the end of this section are applicable to the totality of the cases, we concentrate here on those ones we consider most illuminating, hence keeping the text free of too much numerical detail.[11] First, we discuss the case of a single individual as a mode of benchmark. We then look at a couple with two small children who may be eligible for child allowance and, therefore, more exposed to potential disincentive effects. Finally, we study the case of a couple with five young children in an attempt to capture the specificities of a Roma household.

38.   Results in all three cases are presented in a similar manner. Separate tables are produced for different adult 2's labor market statuses. In each table, columns correspond to different adult 1's benefit regimes and rows correspond to different adult 1's re-employment situations (AW: average wage, MW: minimum wage). In addition, every cell contains two numbers. The top one is the estimated individual (adult 1) or household income, and the bottom one (in parentheses) is the ratio of that figure to income after adult 1's re-employment.

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[11] The remaining cases are presented in Annex II.

A single individual.

39.   An individual who used to earn the average wage receives SK5,400 during her first three months of unemployment, and SK4,297 for the rest of the entitlement period.[12] This amounts to 49 and 45 percent of her potential wage in case of re-employment. Once unemployment insurance ends, she receives the minimum subsistence level for a single adult, or 29 percent of her potential labor income.

Benefit regime Income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA/SS (Objective)
Adult 1's income (AW)	5,400 (0.49)	4,927 (0.45)	3,230 (0.29)
Adult 1's income MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)

40.   The situation of a worker who was previously making the minimum wage is rather different. Since the unemployment insurance benefit she is entitled to fall below the minimum subsistence level, social assistance/support complements these payments for as long as the worker remains unemployed (and in objective need). In particular, she receives SK3,230 as unemployment insurance and/or social assistance/support, which represents 90 percent of her income after re-employment at the minimum wage.

A couple with two small children

41.   We assume that both children are under the age of 6. In this case, the household is entitled to SK1,260/month13 in the form of child allowances if their total income is below a 1.36-multiple of the MLS, or SK840/month if it is between a 1.36- and a 1.99-multiple of the MLS, as long as one of the parents stays at home taking care of the children.. The MLS for a family of four of these characteristics is SK8,410.

Adult 2 unemployed or out of the labor force.

42.   We first assume that adult 2 makes no monetary contribution to family income (i.e. he does not work nor receive unemployment insurance). Then adult 1's income and replacement ratios are the same as above. Household income falls below the minimum subsistence level, and this implies that the family qualifies for social assistance/support benefits, as well as for the highest possible child allowance. In receiving all payments, family income becomes SK9,670, which represents 79 percent of its potential level were adult 1 to work for the average wage, and a 100 percent were she to work at the minimum wage.

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[12] Notice that UI benefits are capped at a 1.5-multiple of the minimum wage (or, most recently, the subsistence level).

[13] For both children.

43.   When interpreting these results, it is important to notice that, since one adult 2 remains unemployed, the household is still entitled to child allowances and the proposed 'replacement ratios' are really the lower bound of all possible values.

Benefit regime Income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA/SS (Objective)
Adult 1's income (AW)	5,400 (0.49)	4,927 (0.45)	3,230 (0.29)
HH income (AW)	9,670 (0.79)	9,670 (0.79)	9,670 (0.79)
Adult 1's income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	9,670 (1.00)	9,670 (1.00)	9,670 (1.00)

Adult 2 employed at average wage.

44.   When the adult 2 is paid the average wage, adult 1 can be thought of as the secondary earner in the household. He still receives the same amounts in the form of unemployment insurance, but he no longer qualifies for social assistance/support since household income is above the minimum subsistence level.

45.   As long as one of the adults remains unemployed, the family qualifies for child support, so this payment is included in the calculation of household income during adult 1's unemployment, but excluded after re-employment.   Then, assuming he could obtain employment at the average wage level, the household replacement ratio is 78-76 percent with unemployment insurance, and 56 percent without it.   These numbers increase up to 94 and 84 percent, respectively, when he expects to work at the minimum wage.

Benefit regime Income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA/SS (Objective)
Adult 1's income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	17,190 (0.78)	16,717 (0.76)	12,210 (0.56)
Adult 1's income (MW)	1,800 (0.50)	1,620 (0.45)	0
HH income (MW)	13,590 (0.94)	13,410 (0.93)	12,210 (0.84)

Adult 2 employed at minimum wage.

46.   The perverse effects associated with safety net payments are stronger when adult 2 is employed at the minimum wage, rather than the average wage, since the household qualifies for both social assistance/support and child allowances. At the individual level the situation is identical to the one where adult 2 is also unemployed. If adult 1 can earn the average

wage, the replacement ratio varies from 49-45 percent while on unemployment insurance to 29 percent with social assistance/support, and these numbers become 90 percent if he can only get a minimum-wage job.

47.   Similarly, in the first case, the household replacement ratio is around 70 percent when receiving unemployment insurance and 67 percent otherwise, while in the second these numbers go up to 112 percent. This implies that total household income would actually decrease as a result of the adult 1's re-employment due to the loss of child allowances. Notice that this is also the reason why the replacement ratio here is actually higher than that calculated for case A.

Benefit regime Income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA/SS (Objective)
Adult 1's income (AW)	5,400 (0.49)	4,927 (0.45)	3,230 (0.29)
HH income (AW)	10,260 (0.71)	9,787 (0.67)	9,670 (0.67)
Adult 1's income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	9,670 (1.12)	9,670 (1.12)	9,670 (1.12)

A couple with five children.

48.   This third example intends to reproduce the setup of a generic Roma household. For this purpose, given that the average number of children among Roma families is 4.2, compared to 1.2 for non-Roma households, we consider a large family with five young children. We assume that all five lack any means of subsistence, and that their age distribution is as follows: one of them is under 3, one more is between 3 and 6, two are between 6 and 15, and the eldest if above 15. These differences allow for variation in the amount of the child allowance corresponding to each child, and help us bring into the analysis the disincentives associated not only with the number of children, but with their age. A look at the structure of child allowance payments will make this point clear:

- Up to 6 years of age: SK640/month
- 6-15 years: SK790/month
- Above 15 years: SK840/month

49.   Moreover, because education levels are very low among this group and traditionally Roma women do not work outside the house, we only consider the case where adult 1 was previously employed at the minimum wage and adult 2 is unemployed or out of the labor force.

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50. Under the above assumptions and rules, the minimum subsistence level for this family is SK12,790, and child allowances can amount to SK3,700/month. This implies that if both adults are unemployed the full household monthly income is SK16,490. Most important, should one of them find employment at the minimum wage level, that amount would continue to be the same because social assistance/support would complement their income to bring it up to the minimum subsistence level, and the family would still receive child allowances. In these circumstances, there is very little reason for either adult to look for a job, and even less so for both of them to do so, since that would deprive the famil of child allowances, making them worse off overall.

Benefit regime Income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA/SS (Objective)
Adult 1's income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	16,490 (1.00)	16,490 (1.00)	16,490 (1.00)

51. Even though each example has its own specificities, a few general conclusions can be drawn from the analysis:

(a) Individuals who expect to be re-employed at the minimum wage level have few incentives to look for a job (except maybe those whose spouse works for the average wage). Moreover, if we are willing to accept that workers on minimum-wage jobs are most likely workers with low levels of education, this means that the disincentive effects of unemployment insurance and social assistance/support should be strongest for this group;

(b) Disincentives are stronger when receiving unemployment insurance than when receiving social assistance/support because the payments are larger under the former (i.e. replacement ratios are higher). However, the unlimited duration of social assistance/support, together with its conditionality, can also have pervasive effects, especially at the household level;

(c) The smaller the worker's potential contribution to total household income, the more important the opportunity cost of working and the weaker the incentives for job search and further employment. This mechanism is specially relevant in the case of secondary earners;

(d) Disincentive effects are aggravated by the presence of children and the payment of child (or parental) allowances, since these bring the replacement ratio of actual income to potential income closer to one, or even above one in the case of families with low levels of education/low income; and

(e) Finally, all this implies that it is possible for certain households to be worse off when both adults are employed than when only one of them is because the potential net contribution to total household income of the secondary earner is very small, or even negative.

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52.   As we pointed out above, we will consider these mechanisms as a guide for the empirical analysis. The next couple of sections explain how the transition from these hypothetical examples to the real data will work, and what are the different strategies that we have in mind in order to test the 'predictions' generated by such examples.

E.   DATA

53.   The empirical analysis combines two different data sources, the Unemployment Registry (National Labor Office) and the Labor Force Survey (Slovak Statistical Office). The first data source contains very detailed information on unemployment duration and unemployment insurance payments and will therefore be used to assess the effect that such payments may have on the behavior of unemployed workers. However, there are certain drawbacks associated with the use of these data. First, a registered worker is not necessarily an unemployed worker according to ILO standards (i.e. did not perform paid work for more than an hour during the week prior to the interview, is looking for a job, and is able to start working within the next two weeks), and it is impossible to determine who is actually 'unemployed' using such criteria because no information is collected neither on search behavior nor on availability. Second, the Unemployment Registry contains no information on social assistance/support payments or on household-level variables, although both are potentially very relevant for out analysis. Fortunately, the Labor Force Survey provides fairly rich information on both issues, so we will this data both to expand the scope of the analysis, and to check on the robustness of the results obtained when using the Unemployment Registry.

Unemployment Registry data

54.   We use administrative data from the Unemployment Registry covering all districts in the Slovak Republic for 1990-2000. These data contain information on the beginning and the ending dates of the unemployment spell, as well as on the quantity and duration of unemployment insurance benefits when received. Since information is organized by individual rather than by spell, the records only contain complete demographic information on the last unemployment spell of each unemployed individual. However, we are able to construct individual histories using archival data on past unemployment spells, and adjusting the necessary demographic variables accordingly.

55.   The sample contains 30,714 spells corresponding to 18,141 individuals. The number of spells per individual ranges from 1 to 5, although more than 50 percent of all individuals in the sample experience only one unemployment spell (Table VI). The duration of such spells also varies substantially, with 36 percent lasting less than 3 months and 25 percent lasting for more than a year (Table VII).

56.   Individuals in the sample are fairly young, with 60 percent (35 percent) of them under 35 (25) at the beginning of the corresponding spell[14] (Table VIII). As a consequence, almost a third of the sample has no previous work experience. Almost half of the workers possess

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[14]   All summary statistics are reported at the beginning of the corresponding unemployment spell. Gender, marital status and education do not vary across spells for the same individual, while age, region and work experience (or the lack of) do.

an apprenticeship degree, while an extra 30 percent has secondary studies. Finally, the incidence of unemployment is lowest in Bratislava and highest in Kosice, as can be seen from their share of all spells, 5 percent and 20 percent respectively.

57.   The average spell duration is 10.42 months, and almost 60 percent of all spells end with a transition into private-sector employment. Also, 44 percent of all observations correspond to spells during which the individual received unemployment insurance benefits. It is important to distinguish this number from the percentage of unemployed individuals that, at a certain point in time, are receiving unemployment insurance. As was mentioned in Section C, this number is much smaller, about 25-30 percent since 1995.

58.   There are some demographic differences between unemployment insurance recipients and non-recipients. In particular, there is a higher fraction of married, prime-aged, and mid-level education workers among the former. This group also exhibits a higher rate of previous employment experience, and, as we pointed out above, longer unemployment spells. However, they also have higher exit-to-employment rates: 65 percent, compared to 55 percent for non-recipients.

Labor Force Survey

59.   We also use data from the Labor Force Survey, administered by the Slovak Statistical Office on a quarterly basis since 1994. In particular, we use data for the years 1996 and 1999, together with the first two quarters of 2000. In each quarter, the Labor Force Survey sample contains approximately 10,000 households (about 0.1 percent of all Slovak households), or 30,000 individuals. The survey follows a 20 percent rotation scheme across every two consecutive quarters, which implies that we can trace individuals for a maximum of five quarters.

60.   The fact that individuals are only observed for a limited period of time, together with the absence of retrospective questions in the survey, implies that, in order to obtain accurate information on benefit entitlement and recipiency, we need to impose additional conditions when constructing the sub-sample we will work with. In particular, we select only those individuals who (i) become unemployed during the survey period or who (ii) have been unemployed for less than three months at the time of the first interview. This way we follow individuals from the beginning of their unemployment spells and can correctly identify their recipiency status. This selection rule has the added advantage of allowing us to avoid stock sampling bias (i.e. over-representation of long spells).

61.   The sample then contains 2,465 unemployed individuals, where the definition of unemployment accords with ILO standards. We observe a single spell per individual, which can be completed or censored, given that individuals remain in the sample for at most five quarters. Almost 50 percent of all (observed) spells last for less than three months, while about 4 percent last for more than a year (Table IX). This distribution differs substantially from the one presented on Table VII, in that the share of short (long) spells is much larger (smaller) in the Labor Force Survey than in the Unemployment Registry sample. This is primarily due to the sampling methodology used for the Labor Force Survey: since we only select those individuals that just became unemployed or that have been unemployed for a few months, and since we only observe these individuals for a limited period of time, their

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observed spells will be shorter than the average spell, and long spells will be under-represented in the sample.

62.   Summary statistics are presented in Table XIII. The sample appears to be younger than the one drawn from the Unemployment Registry, with almost 70 percent of all individuals under the age of 35 at the beginning of the corresponding spell. However, the higher fraction of young workers is partly a consequence of the exclusion from the sample of all individuals above 55 due to their small number. The share of workers with no previous labor market experience is again around 30 percent, and the regional distribution of the unemployed is also close to that described for the Unemployment Registry. The large majority of the workers possesses either an apprenticeship degree (40 percent) or secondary studies (40 percent). These numbers imply that both samples are fairly similar in terms of the demographic characteristics of the unemployed and their spatial distribution, despite the differences in the sampling methodology.

63.   Household heads represent 20 percent of the sample, compared to 17 percent for spouses and 61 percent for other household members (mainly children living with parents). The average household size is 4.4 individuals, and the dependency ratio (i.e. fraction of household members below 15 or above 65 years of age) is about 20 percent.

64.   Approximately 53 percent of all individuals are paid unemployment insurance during the unemployment spell, while 31 percent receive social assistance/support. There is some overlapping between both programs, with 18 percent of those receiving unemployment insurance, also getting social assistance/support. Moreover, 10 percent (18 percent) of the unemployed live in households where some other member receives unemployment insurance (social assistance/support). Finally, about 90 percent of the sample is registered at the Employment Office, almost half of it declares to be searching actively for a job (i.e. using search channels other than registration at the Employment Office), and 15 percent finds employment during the survey period. Notice, however, that this figure is an underestimate of the percentage of workers who eventually find a job, since we do not observe workers for the totality of their spell.[15]

65.   Benefit recipients are again slightly different, in demographic terms, from non-recipients. As in the Unemployment Registry sample, the fraction of married, prime-aged, mid-level education workers is higher among recipients. Also, unemployment spells are longer for recipients and, contrary to the Unemployment Registry data, they exhibit lower exit-to-employment rates than their counterparts. With respect to household level variables, household heads tend to be over-represented in this group, while spouses of heads are under-represented. Unemployment rates are higher for those household where there are recipients, which is not surprising since social assistance/support/SS are means-tested programs and we would expect income to be lower in households where unemployment rates are high.

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[15] In fact, this will be very important when we interpret the results on the effect of benefits on exit-to-employment.

F. EMPIRICAL STRATEGY AND SOME METHODOLOGICAL ISSUES

66.   The purpose of this section is twofold. First, we intent to provide a rough road map for the empirical strategy implemented in the paper, leaving the presentation of the details for the next section. Second, and most important, we discuss some methodological issues that we consider key in interpreting the results, and highlight what we believe are the main contributions of this work.

A guide to the empirical strategy

67.   For the sake of clarity and internal logic of the presentation, we have structured the analytical work around three building blocks, namely, the effects of benefits on (i) unemployment duration, (ii) on exit-to-(private sector) employment, and (iii) on job search and match quality. The evidence presented in first block relies on survival analysis,[16] while the second and third blocks uses probability models.[17] We also provide summary statistics and tabulations to motivate and complement the regression results in all three blocks.

68.   Survival models are commonly used to determine which variables have an effect on the duration of a certain event. In our case, this event is unemployment. Thus, (observed) unemployment duration, expressed in some measure of time (e.g. months), is the left-hand variable in the model, the variable we are trying to explain. Then, on the right hand side, we would like to include all those factors that we believe may have an effect on unemployment duration, such as the demographic characteristics of the individual or information on his/her recipiency status.

69.   Similarly, probability models are used to study the determinants of the likelihood of a certain event or behavior. For instance, here we will use this type of models to determine what factors affect the probability that an individual finds a job in the private sector, or the probability that a worker looks actively for a job while unemployed. A peculiar feature of these models is that, while we directly observe from the data whether something actually happens or not (e.g. the worker find a job), the model will only produce a predicted probability that such event occurs. That is, the model will tell us how likely it is that a certain individual will find a job, given his characteristics, rather than whether the individual actually finds a job or not. In terms of the data, this implies that the left-hand side variable is an indicator that takes a value of one if we observe the event or behavior we are trying to explain, and a value of zero otherwise, while the outcome produced by the model will be a number between zero and one (and, most likely, different from zero and one), a predicted probability. The right-hand side of the model will again include all those factors that we believe to have an effect on the event we are trying to explain.

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[16] We estimate a Weibull model, in proportional hazard form.

[17] We estimate a probit model for (i) the probability of exit-to-employment, and (ii) the probability of job (active) search.

70.   Finally, since the contents of the Unemployment Registry and the Labor Force Survey are somehow different, we use either source depending on its comparative advantage in addressing the question at hand. The table below summarizes the empirical strategy, together with the information on each dataset discussed in the previous section:

	Unemployment Registry	Labor Force Survey
Comments	ADVANTAGES - Completed unemp spells - Very detailed information on unemployment insurance benefits. DISADVANTAGES - No information on social assistance/support - Information available only at the individual level MAIN USE - Analysis of unemployment insurance	ADVANTAGES - Information on social assistance/support - Information available at the individual and household levels DISADVANTAGES - Limited information on unemployment insurance/social assistance/support - Individuals observed for a limited period of time (censored unemp spells) MAIN USE - Analysis of social assistance/support - Analysis of household factors
Unemployment duration	Survival model (unemp spell)	Survival model (unemp spell)
Exit-to-employment	Probability model (exit)	Probability model (exit)
Job search and match quality		Probability model (search)

Some methodological comments

71.   Given the relative complexity of the safety net system, we expect tremendous variation to exist both between and within individual experiences. For this reason, it is necessary to take into account not only for benefit recipiency, but also differences in the type/quantity of the benefits received. For instance, once an individual becomes unemployed, she may or may not qualify for unemployment insurance benefits. If indeed she is entitled, the duration of such benefits would be a function, among other factors, of the her contributive history. Although, in a regression context, the use of an indicator variable for recipiency would get at the issue of entitlement, it would not be very useful at identifying behavioral differences between recipients with dissimilar contributive histories.

72.   Similarly, the experience of any given recipient also varies over time due to the two-tier nature of the unemployment insurance system, and to the limited duration of the benefits. For example, a worker who is entitled to five moths of unemployment insurance benefits and who remains unemployed for ten months, will receive high-level benefits (high replacement ratio) for three months, low-level benefits (low replacement ratio) for an additional two-

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month period, and finally no payments at all for the rest of the spell. There is no reason to believe that the behavior of this worker will remain unchanged during the ten months that she is unemployed, so we distinguish between these three different scenarios in the empirical analysis. In order to do this, we transform the original Unemployment Registry data by dividing each unemployment spell in what we called (shorter) pseudo-spells that account for changes in the worker's unemployment insurance status.

73.   This methodology is best understood through an example. The first part of the table below contains benefit information for three different individuals, as it appears in the Unemployment Registry. All three individuals become unemployed at the same time (t=1), but their spells differ in length. Moreover, the first individual does not receive unemployment insurance, while the other two do. Finally, individuals 1 and 2 find a job in the private sector, but individual 3 does not.

Original data.

ID	Entry	Exit	Received UI	Duration UI	Duration high RR[A]	Duration low RR[A]	Exit-to-emp
1	1	12	No	-	-	-	Yes
2	1	14	Yes	6	3	3	Yes
3	1	5	Yes	2	2	0	No

Auxiliary data.

ID	Entry	Exit	Receiving UI	Receiving high RR[A]	Receiving low RR[A]	Exhausted UI	Exit-to-emp
1	1	12	No	-	-	No	Yes
2	1	3	Yes	Yes	No	No	No
2	3	6	Yes	No	Yes	No	No
2	6	14	No	-	-	Yes	Yes
3	1	2	Yes	Yes	No	No	No
3	2	5	No	-	-	Yes	No

[A] Replacement ratio.

74.   The lower part of the table shows this data in a new format. Individual 1's record is identical to the previous one since she does not experience any changes in unemployment insurance status during her time unemployed (i.e. she never receives unemployment insurance). In contrast, individual 2's history is now captured through three pseudo-spells. The first one corresponds to the period when the worker receives high-level unemployment insurance, between months 1 and 3. Similarly, the second and third ones correspond to low-level unemployment insurance and no unemployment insurance respectively. Because the individual finds a job only after 14 months, 'No' is recorded in the exit-to-employment column in the first and second pseudo-spells. Finally, changes for the third individual are made following the same criteria.

75.   Although, in principle, the social assistance/support system is as complex as the unemployment insurance one, some of its features facilitate the analysis substantially. In particular, the fact the amount of the payments is either fixed (i.e. maternity allowance or child allowance) or designed to bring household income to the MSL level, eliminates much

of the variation in benefit quantities. Similarly, benefit duration is no longer an issue, since in most cases there is no time limit on social assistance/support recipiency. Hence, in dealing with social assistance/support benefits we consider the use of an indicator variable to be sufficient, although we also include benefit duration in some of the regressions.[18]

G. RESULTS

Unemployment insurance, social assistance and unemployment duration

76.   We start the analysis by studying the relationship between different features of the unemployment insurance system and unemployment duration. In particular, we pay special attention to the duration of the benefits and to changes in the benefit quantity associated with the two-tier nature of the unemployment insurance system – i.e. high and low replacement ratios.

77.   As a first pass, Table X presents separate unemployment spell distributions for those individuals who receive unemployment insurance and those who do not, using the Unemployment Registry. It can be seen that those with no unemployment insurance exit the Registry sooner than those with it: almost 50 percent of all spells with no unemployment insurance last less than three months, while this number is 21 percent for spells with unemployment insurance.   Interestingly, this difference tends to disappear as we move towards longer spells.   Given that benefit duration is limited, such pattern would be consistent with the existence of disincentive effects associated with recipiency. To explore this issue further, we explicitly account for the duration of benefits (Table XI), and find that those who receive unemployment insurance actually leave the Registry when or soon after their benefits come to an end.

78.   However, we need to be cautious in interpreting this evidence in a causal manner. We observe the duration of the benefits actually received by the individual, rather than the duration of the benefits he was potentially entitled to. This implies that when the observed duration of the benefits is equal to the duration of the spell, we cannot distinguish a priori between the following two scenarios: (i) the worker exits the Registry because unemployment insurance benefits are exhausted, or (ii) observed benefits end because the unemployment spell finishes, even though the individual was still entitled to unemployment insurance.[19] Yet, given that the average duration of benefits in the sample is 4.5 months, it seems reasonable to assume that the first story is more likely to apply in the case of long spells, whereas the second one best describes the experience of those with shorter spells.

79.   In addition, part of the differences between recipients and non-recipients, in terms of unemployment duration, could be a product of the different demographic composition of both groups of workers. For instance, women may be less attached to the labor market than men, and therefore have a higher probability of exiting the Registry at any point in time,

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[18] Some workers do seem to move in and out of the SA/SS system over time. This could be due to a change in individual or family circumstances that affects the household eligibility for benefits.

[19] This problem arises more frequently in the case of short spells. For instance, 84 percent of those with two-month long unemployment spells receive UI for the full two months. This number decreases to 48 and 8 percent for six and nine-month long spells respectively.

independent of their recipiency status. Since the fraction of female workers is higher among non-recipients, this could lead to a larger share of shorter spells among non-recipients that is unrelated to benefit entitlement.

80.　These issues motivate the use of regression analysis, so as to separate the effect that unemployment insurance recipiency may have on unemployment duration from the effects associated with other variables such as gender. As we discussed in Section F, we use a proportional hazard model for this purpose.[20] The estimation results are presented on Table XII as hazard ratios. This means that a number smaller than 1 for variable X must be interpreted as X having a 'positive' effect on unemployment duration (i.e. unemployment duration increases as X takes higher values), and a number larger than 1 must be interpreted as X having a 'negative' effect on unemployment duration (i.e. unemployment duration decreases as X takes higher values).[21] Also it is important to remember that all coefficients must be understood with respect to the comparison (or omitted) group. For instance, if we are considering five different education levels (no studies, primary, apprenticeship, secondary, and college or more), and the comparison group is 'workers with no studies', then a coefficient of, say, 1.12 associated with 'secondary education' must be interpreted as 'workers with a secondary education experience shorter unemployment spells than workers with no studies'.

81.　We first present a baseline model containing all the demographic variables and none of the benefit-related information. The purpose of this model is to provide a benchmark that allows us to evaluate the relative importance of demographic differences in explaining unemployment duration, once we control for unemployment insurance recipiency. Then, as can be seen under 'Baseline', women experience longer spells than men, and so do single workers. Those between 26 and 45 years of age spend less time unemployed than younger workers (under 25), while those above 46 spend more. Duration also decreases with education, and those with no previous employment experience are actually faster to exit the Registry. These effects are fairly robust to different specifications, in the sense that the coefficients do not vary much when other variables are included, hence we will concentrate mainly on the benefit-related variables when commenting on the rest of the models.

82.　The next two columns contain the results for models that include either an indicator for whether the individual ever received unemployment insurance during that particular spell, or a measure of the duration of such benefits. From the first model, it seems that benefit recipiency increases unemployment duration. In particular, those who receive unemployment insurance experience spells that are, on average, 30 percent longer than the ones of individuals without unemployment insurance. If we instead control for the duration of unemployment insurance, each extra month of benefits increases duration by 15 percent.

83.　However, the quantity of the benefits varies over time, as the worker moves from the high-replacement-ratio regime to the low-replacement-ratio one. Since there is no reason to expect that the effect on unemployment duration of an extra month of high benefits is the same as that of an extra month of low benefits, the coefficient on benefit duration above is an

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[20]　We estimate a Weibull model. For a more detailed discussion on hazard models, the reader can consult Lee (1992) or Greene (???).

[21]　In the case of indicator variables, X can only take two values, 0 or 1, but the same reasoning applies.

average rather than the true effect of either high or low benefits. Then, in order to capture any potential differences across regimes, we include two different variables the duration of high and low replacement periods (column III). Surprisingly, the coefficients of both variables are very similar in size; that is, one extra month of high replacement unemployment insurance has the same effect on unemployment duration as one more month of low replacement unemployment insurance (namely, a 15 percent increase in duration).

84.   Yet these results are subject to an important criticism: they do not capture behavioral differences associated with actually receiving or not receiving unemployment insurance, but rather differences associated with ever receiving or never receiving unemployment insurance. This second comparison is not fully satisfactory since, once unemployment insurance is over, those who were entitled to benefits find themselves in the same situation as those who never received them. To address this issue, we follow the procedure described above and create a series of pseudo spells so that the indicators for unemployment insurance recipiency, and for high/low replacement ratios are allowed to vary over time – i.e. to be turned on and off, so to speak, as individuals move across the different regimes.

85.   These new results not only strengthen our previous conclusions, but also provide new evidence on how the behavior of those who receive unemployment insurance varies over time (columns IV and V).   The effect of unemployment insurance recipiency on unemployment duration is even more evident than before, with those who are actually receiving the benefits spending almost 50 percent more time unemployed than those who never received any payments.   More interestingly, because this methodology allows us to capture changes in the behavior of unemployment insurance recipients, we can now see that, once unemployment insurance is over, those entitled to unemployment insurance leave the Registry at much faster rate than those who never received any benefits.   This result confirms the basic intuition arising from Table XI and discussed above.

86.   In addition, there is now a clear difference between those who receive high replacement unemployment insurance and those who receive low replacement unemployment insurance, with the former exhibiting lower exit probabilities (and, hence, longer unemployment duration).   In particular, while unemployment duration is almost 50 percent longer for those receiving high level benefits than for those with no benefits, this percentage falls to 25 percent when the quantity of the benefits decreases.   Furthermore, once unemployment insurance payments end, those entitled tend to exit the Registry at a higher rate than those who have not.

87.   We already mentioned in Section E that not all individuals in the Unemployment Registry can be considered unemployed according to ILO standards.   In fact, it is very likely that some of them are only registered for the purpose of receiving unemployment insurance and/or social assistance/support, and never had the intention of actually looking for a job or becoming employed.   These individuals would be ready to abandon the Registry once their benefits are over, and if they represent a large share of the sample, their behavior may be driving some of our results.   In order to check for this, we re-estimate the models described above using the Labor Force Survey, and including in the sample only those workers who are truly unemployed (i.e. searching for a job and available to start work).

88.   The results for unemployment insurance recipiency are almost identical, both qualitatively and quantitatively, to the ones obtained with the Unemployment Registry data, the only exception being that the coefficient for past recipiency is now smaller than one and insignificant (Table XIII). This probably responds to the fact that spells are much shorter in this sample, and therefore there are fewer individuals with a long enough history to reflect such changes (i.e. the standard errors associated with this coefficient are large).

89.   In contrast, the demographic results differ somewhat from the ones obtained with the Unemployment Registry. Gender and marital status are not significant determinants of unemployment duration in this sample, while education still appears to be negatively correlated with it. The effect of previous experience is also reversed, which is most likely due to the fact that 'lack of experience' was an imputed variable in the Unemployment Registry but a recorded, and thus more accurate variable here.[22] Checking for robustness, however, is not the only advantage associated with using the Labor Force Survey. This data also provides information on social assistance/support payments and on household-level variables, such as the number of young children in the family, which may have important effects on unemployment duration and are not included in the Unemployment Registry.

90.   Interestingly, social assistance/support seems to have the same effects as unemployment insurance, only more pronounced: social assistance/support recipients spend almost 50 percent more time unemployed than non-recipients. This appears to be entirely due entirely to the fact that social assistance/support duration is unlimited, since the marginal effect associated with an extra month of benefits is almost equal for both programs. With respect to household-level variables, only the individual's position in the family seems to have explanatory power, with household heads and their spouses spending more time unemployed than other members of the household (although this result is only significant for the latter).

91.   In sum, in this section we have learnt that (i) both unemployment insurance and social assistance/support recipiency increase unemployment duration, and that (ii) the behavior of those individuals who are entitled to benefits varies over time, depending on whether they are actually receiving the payments or they did so in the past. In particular, exit rates for this group increase substantially after their benefits are over. This is an issue that deserves further attention, but before we look into it in more detail we would like to illustrate, through graphical analysis, the magnitude of the effects we have been discussing. For this purpose, we have simulated distributions of predicted unemployment spells under different hypothetical scenarios, using the models described above and the Unemployment Registry. Such distributions are then compared in ways that help us understand the role played by the different features of the unemployment insurance system (i.e. eligibility and coverage, duration of benefits, replacement ratio).

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[22] When using the UR, the variable 'No previous employment experience' is constructed based only on employment data for 1990-2000, while the LFS questionnaire directly asks people whether they have worked before.

92.   We start by comparing the actual distribution of spells, with those that would have arose had everybody[23]/nobody received unemployment insurance. Not surprisingly, increases in the coverage rate (i.e. share of workers entitled to unemployment insurance benefits) cause average unemployment duration to increase.[24] Graphically, this translates into a rightward shift of the spell distribution. For instance, while 18 percent of all spells last less than three months given the actual allocation of benefits, this number increases to about 24 percent when no benefits are distributed (i.e. more workers leave the Registry early on), and decreases to almost 0 when everybody is entitled to twelve months of unemployment insurance (i.e. almost no workers leave the Registry during the first three months of unemployment). The same patterns arise for longer spells.

Graph I
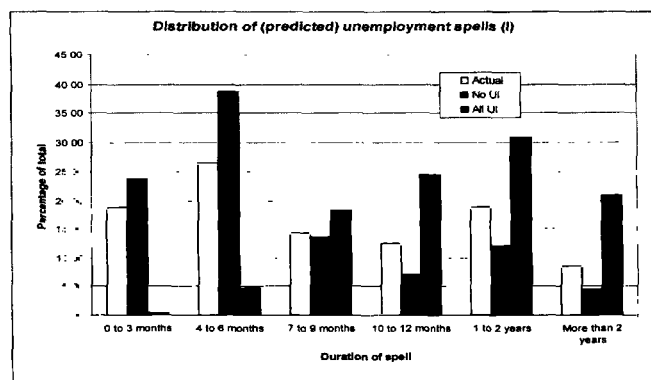
Source: Unemployment Registry

93.   Similarly, we explore the role of (maximum) benefit duration by comparing the distribution of predicted spells corresponding to systems with a maximum unemployment insurance duration of 3, 6, 9 or 12 months. Again more generous unemployment insurance benefits, this time in terms of duration, shift the distribution of spells to the right.

Graph II
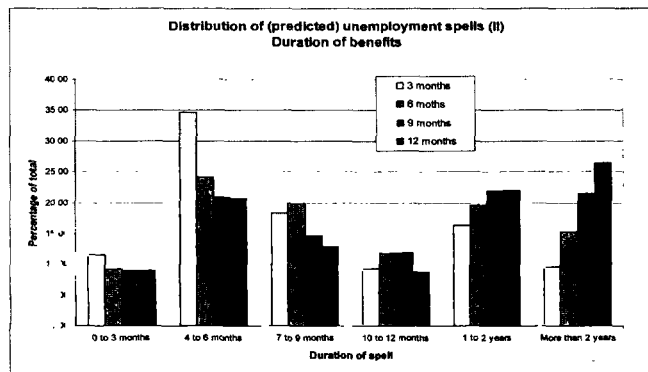
Source: Unemployment Registry

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[23] We apply 1999 rules and provide the maximum UI.

[24] It is important to keep in mind that the role of this exercise is simply illustrative, and it should not be understood as a policy recommendation in itself.

94. Finally, we compare the actual distribution of spells with that generated by substituting high replacement unemployment insurance with low replacement unemployment insurance. That is, actual recipients are still entitled to the same number of unemployment insurance payments (in months), but they only receive low-replacement benefits, and non-recipients remain so. The effects are qualitatively similar to the ones obtained in the previous examples: exit rates increase when we reduce the amount of the benefits (i.e. its generosity) and the distribution of spells shifts leftwards.

Graph III

Distribution of (predicted) unemployment spells (III)
Replacement ratios.
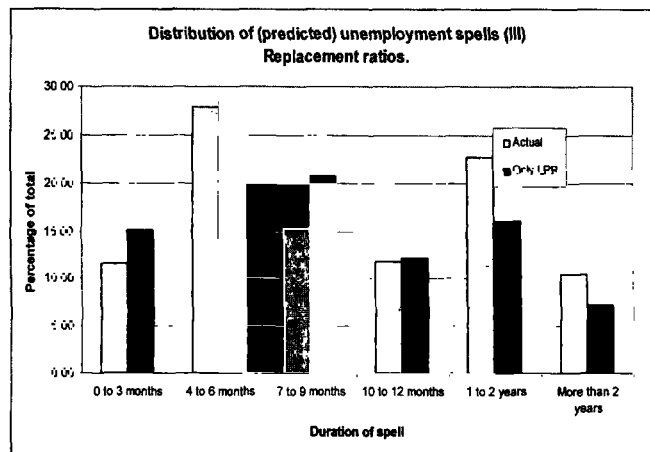
Source: Unemployment Registry

Exit-to-employment.

95. As we mentioned above, there is substantial variation in the behavior of unemployment insurance recipients over time. In particular, although their unemployment spells are longer on average than those of non-recipients, they tend to abandon the Unemployment Registry faster than their counterparts once the benefits are exhausted. The question then arises as to what it means to leave the Registry, since exit does not necessarily imply employment. For instance, it could be the case that, once unemployment insurance is exhausted, workers have no further reason to remain registered. The policy implications associated with each scenario are fairly different, so we explore this issue further.

96. Using the Unemployment Registry, we estimate a probit model for the probability of exit-to-employment,[25] where employment means private sector work. As before, we first provide the baseline results, when no benefit-related variables are included in the regression (Table XIV). Women and married workers have a slightly higher probability of finding a job, and so do prime-aged and/or more educated individuals. These effects are fairly robust to different model specifications.

97. When we consider benefit entitlement, workers who receive unemployment insurance are more likely to find a job in the private sector than those who do not (about a nine

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[25] Only exit to employment in the private sector was considered as a successful exit. Qualitatively and quantitatively equivalent results are obtained when exit to both employment in the private sector and employment in a public employment program are considered instead.

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percentage-point increase in probability). There also seems to be some stigma associated with longer spells, which could potentially hurt recipients since they spend more time unemployed on average, but this effect is very small compared to the unemployment insurance one (a one percentage-point decrease in probability for every tow extra months).

98.   As we did when analyzing unemployment duration, we want to differentiate between 'currently receiving unemployment insurance' and 'having ever received unemployment insurance' to allow for potential behavioral differences related to changes in the recipiency regime. Once we do so, we find that the probability of exit-to-employment for recipients is actually very low while receiving unemployment insurance, and that it increases substantially once the benefits are over. In particular, workers who are currently receiving unemployment insurance are 40 percent less likely than non-recipients to move to a private sector job, while those who have exhausted their benefits are 35 percent more likely to do so. Similarly, when we distinguish between high and low replacement unemployment insurance, it appears that the probability of finding a job in the private-sector is smallest while the worker is receiving the former. In sum, workers who are receiving benefits are the least likely to exit-to-employment, and workers whose benefits have ended are the most likely to do so.

99.   The negative effect of unemployment duration remains in both models, but it is still very small, about a one percentage-point decrease per month of unemployment. Given that, on average, recipients spend 2extra months unemployed, compared to non-recipients, the effect of duration is far from compensating the effect of recipiency (of exhaustion of recipiency, to be more precise).

100.   When we repeat this exercise using the Labor Force Survey, we obtain results that are qualitative similar but insignificant in most cases (Table 4 in Data Appendix). The effects of both unemployment insurance and social assistance/support present the signs discussed above, but they are too small to be significantly different from zero. Only the negative effect of unemployment duration is robust to the data change, together with those effects associated with education and the lack of previous employment experience. It is, however, not surprising that the evidence from the Labor Force Survey is weak. Given the design of the survey and our sampling strategy, individuals are observed for short periods of time at the beginning of their spells, which implies that most unemployment spells are censored. Hence, a substantial fraction of those that appear in the sample as 'not having found a job', should be viewed as 'not having found a job yet' instead, since they will probably do so in the future. For this reason, we find the Unemployment Registry results, based on completed spells, more reliable and therefore continue with the analysis under the assumption that benefit recipients seem to find private employment more often than non-recipients.

Job search and job/match quality

101.   In principle, there is no single explanation for the link between unemployment insurance recipiency and a higher likelihood of exit-to-employment. One can think of the probability of exit-to-employment as a function of the number of job offers that a worker receives, which in time depends on the individual's search effort, and his willingness to accept any given offer. Then, it may be the case that unemployment insurance payments, by lowering the opportunity cost of unemployment, allow these workers to search more (and

more selectively), and to therefore find a match more often. Besides, since the search process is time-consuming, these workers also experience longer unemployment spells.

102. On the other hand, it is possible that receiving benefits increases workers' reservation wages, making them less willing to accept job offers, and hence decreasing their probability of exit (i.e. increasing unemployment duration). We believe it is important to distinguish between these two hypotheses, and we attempt to do so here using the Labor Force Survey. But before we get into the nuts and bolts of the exercise, there are two issues concerning the data that require attention.

103. Both the unemployment insurance and the social assistance/support systems require that workers be registered at the Employment Office (i.e. Unemployment Registry) in order to qualify for benefit payments. This implies that all recipients will be registered, and, if registration is considered a search channel, looking for a job, eliminating all potential variation in the data. Second, by construction all unemployed workers are looking for a job, hence we cannot restrict the analysis to the unemployed only.

104. In dealing with the first issue, we consider an alternative, more restrictive definition of 'search', namely 'active search'. A worker is said to be actively searching for a job, if she is making use of search channels other than the Employment Office (e.g. private job agencies, placing/reading advertisements, etc.). When we correlate this new variable with unemployment insurance recipiency, we find that workers entitled to benefits seem to be more active in their search than those who are not, but also that their behavior varies substantially depending on whether they are actually receiving the benefits or not (Table XV). In particular, 40 percent of those receiving unemployment insurance are searching actively, while only 32 percent of those with no benefits and 60 percent of those who have exhausted the benefits are doing so. The group least likely to search actively is that of non-registered workers.

105. In order to avoid the second problem, we use the sampling methodology discussed in the data section and select a new sample that includes all those individuals who (i) become non-employed during the survey period or who (ii) had been non-employed for less than three months at the time of the first interview. Notice that this sample can be considered an extension of our original sample of unemployed workers,[26] and that the information on unemployment insurance and social assistance/support obtained using this methodology is still accurate. A total of 2,494 workers are then selected, two thirds of them are unemployed and the remaining 30 percent is out of the labor force (Table XVI). Approximately 65 percent of the observations in the sample correspond to workers looking for a job, although less than half of them does so 'actively'. In addition, about 45 percent of the sample receives unemployment insurance, and 13 percent receives social assistance/support.

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[26] Strictly speaking this new sample does not contain all workers included in the original sample because we require that the worker was employed before, whereas in the previous case we only required that she was not unemployed (this would include 'out of the labor force', as well as 'employed'). This explains why the sample size does not increase substantially when we select the new sample.

Box 1. Educational Levels, Unemployment and Re-Employment.

We have already pointed out that unemployment is highest among those with low educational levels, and lowest among college graduates. In addition, the number of unemployed workers per vacancy is much larger for those with low education than for workers with secondary or college studies. Such imbalances are the product of a skill mismatch between labor supply and labor demand.

Table B1.I Number of unemployed workers per vacancy, by education groups.

	1993	1994	1995	1996	1997	1998
Total	50	28	22	23	18	39
None	152	73	77	162	28	80
Basic	146	137	120	95	51	131
Apprent. low	20	10	11	12	11	23
Vocational low	87	73	48	23	35	29
Apprent. com.	75	29	27	19	26	45
Vocational com.	42	24	19	29	17	61
Grammar	56	363	10	27	19	28
University (+)	11	7	5	6	4	10

Source: National Labor Office.

All this implies that workers with low levels of education are hard to re-employ in the present economic context. In other words, their probability of exit to employment is really low, as can be seen in the following graph:

Graph B1.I

Exit-to-employment probability, by education levels
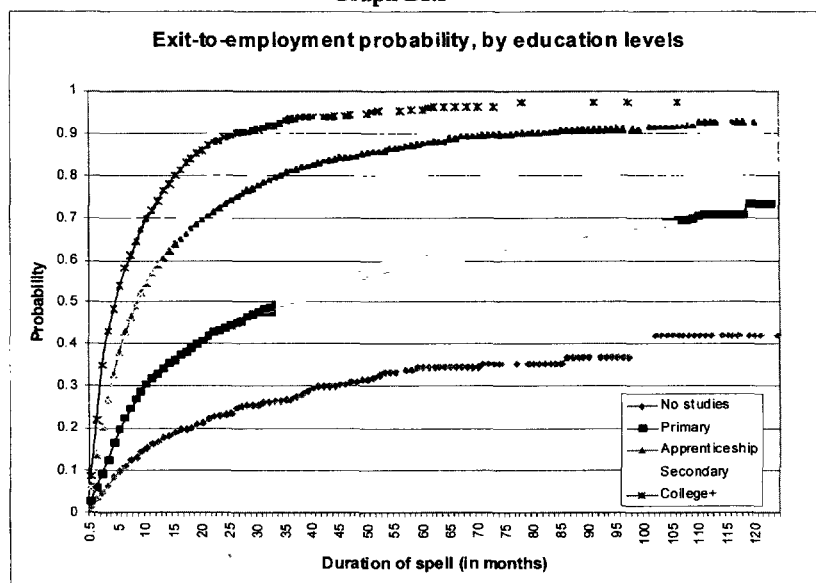
Source: Unemployment Registry

These results, together with the evidence we have presented in this section, constitute a strong case in favor of reforms of the education system (i.e. revision of curriculum, etc.), as well as in favor of retraining programs that take into account employers' needs in terms of skills.

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Box 2. The Importance of Regional Differences.

As we mentioned on Section B, there are important regional differences in terms of labor market outcomes, and, in particular, in terms of unemployment rates. These vary substantially across regions and differences have done nothing but increase over time. When we plot the regional unemployment rate against the ratio of unemployed workers to vacancies, we find that both variables are positively correlated. That is, regions with low unemployment rates, such as Bratislava, have few unemployed workers per vacancy, and regions with high unemployment rates, such as Kosice, have a large number of unemployed workers per vacancy.

Graph B2.I

Unemployment rates and number of unemployed workers per vacancies in 2000, by region.

Source: Unemployment Registry and Labor Force Survey

This implies that job creation is very poor in areas where unemployment is high, and, hence, that individuals living in these regions are less likely to find job than workers in regions with low unemployment. This is confirmed by the following graph:

Graph B2.II

Exit-to-employment probability, by region
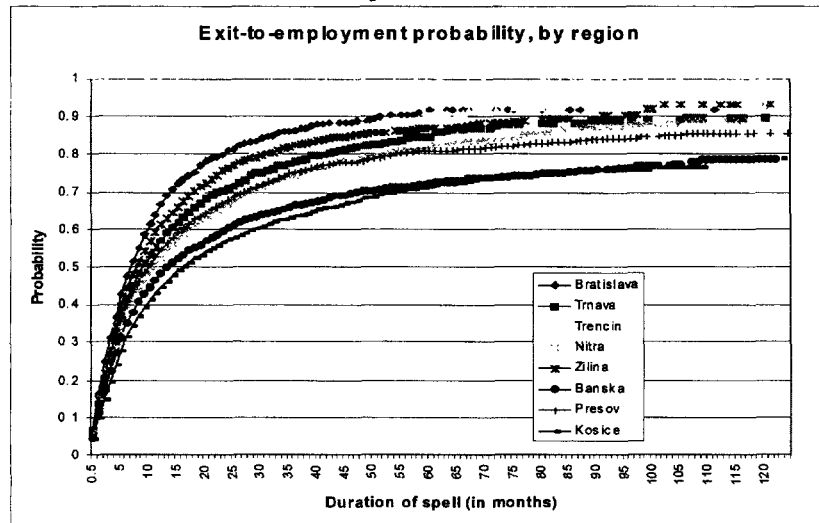
Source: Unemployment Registry and Labor Force Survey

The same regions that appear on the bottom-left area of the first graph (Bratislava, Trencin, Trnava), are the ones that have the highest probabilities of escape from unemployment (hazard rate), while exit probabilities are much lower in regions with high unemployment and low job creation (Kosice, Banska, Presov). Haulikova and Benc (World Bank, 2001) provide a detailed description of regional differences and a discussion of the factors that underlie the relationships described here.

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106.   We first estimate a probit model for the probability of active search, as a more formal test on the relationship between benefit recipiency and active search (Table XVI). According to the estimation results, women and married workers are less likely to search actively. The relationship between search and education is a complex one, in the shape of an inverted-U: for low levels of education both variables are positively related, while the opposite is true for high levels (i.e. college and beyond). Interestingly, social assistance/support does not have a significant effect on active search, and neither do age (except for workers over 45 searching less actively) or registration with the Employment Office.

107.   Regarding unemployment insurance benefits, workers who do not receive them search less than workers than do, on average. However, within this group, we need to differentiate between those who are registered and those who are not, since we just saw in Table XV that the latter group searches the least. When we do this we find that the difference in probability between workers who are currently receiving benefits and those who are not entitled, but are registered, is 8 percentage points, while the difference between those with unemployment insurance and those who are not entitled and not registered is 20 percentage points.   In contrast, those entitled to benefits and having exhausted them are the ones searching the most. These results confirm the prima facie evidence presented in Table XV.

108.   In order to check the extent to which these changes may be driving our results, we re-estimate the previous model for 1996/99 and 2000 separately (see columns II and III). Not surprisingly, being registered at the Employment Office if negatively correlated with active search for 1996/99. As discussed above, this negative correlation is most likely due to the wording of the search question, and thus spurious. In fact, the result is exactly the opposite for 2000: registration with the Employment Office seems to be a good predictor for active search. It is reassuring to find that the behavioral differences between those who receive unemployment insurance (social assistance/support) and those who do not remain after splitting the sample. The same is true about the effect of demographic variables.

109.   Having shown then that unemployment insurance recipients search more than non-recipients, we turn now to the issue of their willingness to accept (any) job offers while under the benefit system. For this purpose, we use the information on preferences for future jobs available in the Labor Force Survey.   We find that individuals currently receiving unemployment insurance exhibit a slightly stronger inclination for salaried jobs than other workers, while those not entitled to benefits or not registered appear to be somewhat more entrepreneurial (Table XVII). Registered workers with no unemployment insurance also seem to be more flexible, given the larger percentage of them who are willing to accept a part-time job, even though full-time employment is preferable. Moreover, it is interesting to notice the differences between those who are currently receiving unemployment insurance and those who did so in the past. The latter are the group with the largest share of 'any job/no preference' responses. All these pieces together (weakly) suggest the existence of a negative relationship between flexibility (interpreted as 'willingness to accept any job') and unemployment insurance recipiency.

110.   An alternative way of getting at the issue of selectivity is to look at the outcome of the search process, meaning the quality of the job workers move into. Although the standard strategy for this kind of problem is to study wage differences between recipients and non-recipients after re-employment, where higher wages are associated with better matches,

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individual-level wage data is not available. Instead, among all other job-related variables, we choose the duration of the job as the second-best indicator for quality.[27]

111. In order to obtain information about match duration after re-employment and compare the experiences of workers with and without unemployment insurance, we use data from the Unemployment Registry. In this dataset information is collected on the last job held by the individual prior to registration, so we select those individuals who have been registered twice or more times, and view any job in-between unemployment spells as both the last job prior to the current spell or the job after the last spell. We then measure the duration of each job and construct two different tenure distributions, for recipients and non-recipients.

112. On average, jobs found by workers with unemployment insurance are 10.71 months long, compared to 8.78 months for those with no benefits, and the difference between both numbers is significant at the 1 percent level. In addition, Graph IV presents both distributions. Not only they are visually different, with the one corresponding to workers with no benefits containing a much larger number of very short spells, but the equality of both distributions can be rejected using a Kolmogorov-Smirnov test.

Graph IV
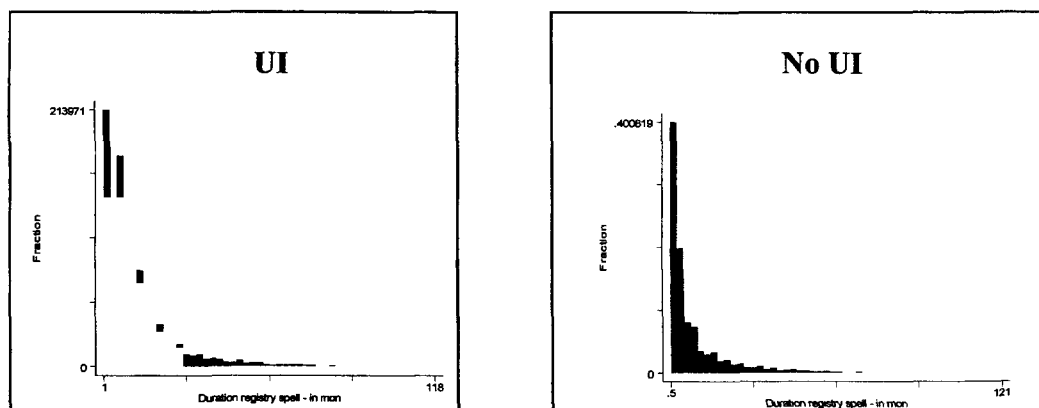
Source: Unemployment Registry

113. In sum, workers who receive unemployment insurance search actively for jobs more frequently than those who do not, and appear to be slightly pickier regarding the kind of employment offers they are willing to accept, to the extent that they exhibit a stronger preference for salaried work and less flexibility regarding their work schedule. They also seem to obtain better matches, or at least matches that last longer. Whereas this is really the product of their more intense search, or whether the same would be true were unemployment insurance payments reduced or eliminated is something that, unfortunately, we cannot determine.

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[27] We have also looked at industry and occupation of re-employment, as well as reason for job termination, and found no significant differences across groups. Unfortunately we have no data on contract type (i.e. temporary, open-ended), or work schedule (full/part-time).

Box 3. The Social Safety Net and Household Behavior

We turn here to the issue of interactions among household members, and the role that UI and, especially, SA play in shaping labor-market related decisions at the household level. We have already discussed the potential disincentive effects associated with both systems, and how these can be particularly pervasive in the case of families with young children. For this reason, we have selected for this part of the analysis only those households where both parents are between the ages of 20 and 40, and where children are present. Under this selection rule, the sample includes a total of 5,701 such families.

Employment rates are high among adults in these households: approximately half the families have both adults working (Table B3.I). However, if we look only at those households that receive SA/SS, most families contain at least one unemployed adult, or an adult who is out of the labor force (typically the spouse). In addition, most SA is given to spouses, and spouses are also the group with the largest share of recipients, followed by household heads (Table B3.II). Also, while 88 percent of all households heads receiving SA are unemployed, only 63 percent of the spouses are (67 percent if we exclude maternity allowances). This implies that, most likely, the majority of household heads receive SA once their UI benefits are exhausted, whereas, in the case of spouses, recipiency seems to respond to a broader set of reasons (e.g. household-level variables).

These figures suggest that SA (and UI), received by both the individual and other household members, may have and effects on labor force participation and job search decisions. To explore this issue more rigurously, we estimate two different probit models for the probability of participation and the probability of (active) search. The sample for the first model contains all non-employed individuals, while the sample for the second model contains all unemployed individuals in 2000 (following our previous discussion on the accuracy of the search questions in 1996 and 1999). We estimate both models separately for household heads and spouses, since we believe that the sensitivity of each group to potential disincentives is very different (Table B3.III).

In the case of male household heads, individual recipiency of either UI or SA is, if anything, positively correlated with labor-market participation and active search. In contrast, SA has a very strong negative effect on the participation and search decisions of female household heads. In connection with this result, it is important to clarify that women on maternity leave are counted as labor force participants, and to notice that the indicator for presence of children below age 6 is not significant. On the other hand, spousal recipiency of any type of benefits does not seem to have a significant effect on either decision. This is not surprising, given that most household heads are also considered to be the main earner in the family, increasing their attachment to the labor force (e.g. most household heads on SA are unemployed, rather than out of the labor force).

However, when we re-estimate these models on the sample of spouses, generally perceived to be less attached to the labor force and, thus, more susceptible to potential disincentive effects, we obtain very similar results: a positive effect of individual recipiency on both participation and search, and no effect of 'partner's' recipiency. In fact, the only difference between both sets of regressions is that, in the case of spouses, the presence of small children does have a strong negative effect on the participation and search decisions.

Given this evidence, we must conclude that there is no apparent disincentive effect associated with SA and UI at the household level, neither in terms of labor force participation nor in terms of active job search. These results, however, need to be taken with a pinch of salt. We have already discussed the existence of numerous confounding factors concerning benefits and behavior in the labor market, some of then arising from the functioning of the system and some other spurring from the way the data is collected. Moreover, the sample size is relatively small for the search models.

H.   DISCUSSION AND POLICY IMPLICATIONS

114.   We have presented numerous sets of results in the previous section and, although we have tried to discussed them in a way that followed the natural flow of ideas, this may be a good time to summarize what we have learnt so far before we move on to talk about policy recommendations.

What it all means, in a nutshell...

115.   We have shown that workers who receive unemployment insurance and/or social assistance/support tend to spend *more time unemployed* than workers who are not untitled to these benefits. In particular, the average spell for recipients is about two months longer than the average spell for non-recipients, and benefit entitlement explains most of this difference. We view this relationship between recipiency and unemployment duration as evidence of the disincentive effects associated with these programs.

116.   However, workers who receive unemployment insurance/social assistance/support also look for employment more actively than their counterparts, and have more demanding preferences regarding their future jobs. This seems to suggest that benefit payments, by reducing the opportunity cost of unemployment, act as a subsidy for these workers' search time and allow them to be 'choosier'. In addition, and maybe as a consequence of the above, benefit recipients find jobs in the private sector more often, and these jobs turn out to be better matches than the ones obtained by non-recipients (where match quality is measured as duration of the match) - the average employment spell for those who received unemployment insurance/social assistance/support is almost 11 months long, compared to 9 months for workers with no benefits.

117.   We need to be cautious when interpreting these results. Given the demographic differences that exist between recipients and non-recipients, it is difficult to draw any causal conclusions from the analysis. In particular, we cannot dismiss completely the idea that benefit recipients constitute a pool of better workers, younger and more educated, who search more actively and find jobs more often anyway, regardless of their entitlement status. To get at this point, it is interesting to complement our comparison of recipients and non-recipients, with a discussion of the behavioral differences that arise within the former group.

118.   As we have emphasized again and again in the previous section, unemployment insurance and social assistance/support recipients cannot be treated as a single, homogenous group, since their behavior varies tremendously depending on whether they are actually receiving benefits or not. In particular, they exit the registry at a higher rate, search more actively, and move into private-sector jobs more often, once benefits are exhausted. So when we use these workers as their own control group, performing a within-group comparison rather than a between-group comparison, we do find strong evidence that both unemployment insurance and social assistance/support have important disincentive effects, not only on unemployment duration, but also on search behavior and on exit-to-employment.

119.   However, before concluding from this last set of results that these programs should be drastically reformed, we need to think about their function in a broader context.

What good are unemployment insurance and social assistance/support buying us?

120. All safety net programs can be thought of as income support programs, regardless of whether they are insurance-based, like unemployment insurance, or means-tested, like social assistance or social support. This particular dimension is likely to be important in situations of economic change and transformation, expected to affect a substantial fraction of the labor force or, in general, the population. The Slovak Republic has experienced such a period during the last decade or so, as part of the process of economic transition, hence it is only logical to expand the scope of our analysis to account for the effect that unemployment insurance and social assistance/support may have had on poverty.

121. Unfortunately, we can only present figures for 1996, a snapshot rather than a story in evolution. We use four different measures of poverty to check for the robustness of the results and, although the poverty numbers vary substantially according to the measure used, the qualitative effects of the programs are very similar across all four. To illustrate such effects, we perform the following exercise: we calculate poverty incidence based on total income (TI), and then we compare this number with incidence figures based on total income minus unemployment insurance, total income minus social assistance/support, and total income minus all social income.[28] The marginal effect of each program(s) can then be understood as the change in the poverty rate.

122. Not surprisingly, when we consider the total population as the group of reference, it can be seen that the effect of social assistance/support on poverty is much stronger than that of unemployment insurance (Table XVIII). After all, the eligibility rules for social assistance/support/SS are based on income, thus targeting the poor, and the number of recipients is much larger.

123. If instead we concentrate on a smaller segment of the population, namely active and unemployed individuals, and distinguish between these two groups, the results differ from the ones discussed above (Table XIX). In particular, unemployment insurance plays a very important role preventing poverty among the unemployed, while social assistance/support are most likely mechanisms of last resort for this group. In contrast, among active workers, social assistance/support/SS represent a more important source of support.

What to do next.

124. In sum, although social assistance/support/SS take most of the burden in the fight against poverty, unemployment insurance plays a crucial role in the case of the unemployed. This protection does not come free. As we have shown in this paper, there are significant disincentive effects associated with benefit recipiency. Any reform plan should then take into account both aspects of these programs, together with the government goals and views on the ideal role of these different instruments.

125. There are, however, a series of recommendations that we can unambiguously make at this point, and that are very much in line with those contemplated in the Social Benefits Reform Administration Project. In particular, we consider that a higher degree of

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[28] Notice that in all cases pensions are included in total income.

harmonization and coordination across different programs is needed in order to improve targeting, reduce administrative costs, and prevent potential fraud. As part of this process, it would be desirable to substantially simplify the rules governing the different programs, specially social assistance/support and SS, and to create better data linkages and faster information flows between different agencies and programs.

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Annex I Unemployment and the Unemployed

Table AI.1 Unemployment Rate

Year	Labor Force Survey	Registered
1990		1.5
1991		11.8
1992		10.4
1993	13.7	14.4
1994	14.1	14.6
1995	12.4	13.1
1996	10.9	12.8
1997	11.8	12.5
1998	12.5	15.6
1999	17.1	19.2
2000	18.7	17.5

Source: Labor Force Survey and Unemployment Registry.

Table AI.2 Distribution of Unemployment Spells by Duration

	1994	1995	1996	1997	1998	1999	2000
< 6 months	32.4	30.3	32.3	32.8	32.1	30.83	24.45
< 12 months	49.9	44.9	46.9	47.4	48.8	50.88	44.95
12 + months	50.1	55.1	53.1	52.6	49.7	49.12	55.05

Source: Labor Force Survey.

Table AI.3 Registered Unemployment Dynamics

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Inflow/Stock	18.3	8.8	10.7	7.4	8.5	9.8	9.9	9.4	7.9	7.1
Outflow/Stock	5.2	10.0	7.9	8.2	9.4	9.9	9.4	7.7	6.1	7.5
Outflow/Inflow	28.4	113.8	73.9	110.0	110.7	100.9	95.5	81.4	76.9	106.6
(Outflow+Inflow)/Stock	23.5	18.9	18.5	15.6	17.9	19.7	19.3	17.1	13.9	14.6

Source: Unemployment Registry.

Table AI.4 Unemployment Rates by Education Levels

	1994	1995	1996	1997	1998	1999	2000
None	44.2	39.5	64.3	66.7	88.5	NA	NA
Basic	27.4	26.9	23.7	27.6	25.8	33.6	39.0
Apprent. low	14.4	13.1	10.8	11.0	12.7	17.4	20.6
Vocational low	13.6	12.7	10.0	11.3	10.8	18.95	19.9
Apprent. com.	15.3	9.5	8.1	10.6	9.6	15.6	19.6
Vocational com.	9.8	7.1	7.4	8.2	8.7	13.10	14.0
Grammar	13.1	14.3	11.8	14.6	13.8	17.12	17.7
University (+)	3.8	2.9	3.4	3.2	4.2	5.5	4.8

Source: Labor Force Survey.

Table AI.5 Unemployment Rates by Education Levels and Gender

	1994		1995		1996		1997		1998		1999		2000	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
None	47.8	40.0	34.8	45.0	50.0	66.7	50.0	75.0	87.5	9.90	NA	NA	NA	NA
Basic	32.1	23.6	29.8	24.7	26.0	22.0	33.4	22.0	30.2	22.3	39.2	29.4	48.1	32.0
Apprent. low	13.7	15.7	12.2	14.7	9.8	12.6	10.2	12.5	11.8	14.7	17.8	16.7	20.6	20.5
Vocational low	12.7	15.0	10.8	15.7	8.6	12.6	8.4	16.8	8.7	14.6	16.5	23.0	18.8	21.5
Apprent. com.	15.1	15.6	7.2	13.7	6.8	10.2	9.5	12.3	9.8	9.3	15.9	15.2	17.8	22.7
Vocational com.	8.6	10.7	6.2	7.8	6.2	8.3	6.7	9.5	7.1	9.8	13.3	12.8	14.2	13.8
Grammar	14.9	12.1	13.1	15.0	7.1	14.4	10.2	17.0	9.9	16.0	16.7	17.3	19.2	16.9
University (+)	3.4	4.4	2.2	3.7	2.8	4.1	2.9	3.7	3.6	5.0	5.5	5.6	5.8	3.4

Source: Labor Force Survey.

Table AI.6 Unemployment Rate by Age Groups

	1994	1995	1996	1997	1998	1999	2000
15-64 (All)	13.8	12.1	10.6	11.7	12.0	16.7	18.6
15-24	26.5	22.4	19.4	23.5	26.6	33.7	35.9
25-49	11.5	10.4	9.2	9.8	9.5	13.8	15.8
50-64	8.2	7.1	5.7	6.6	6.8	10.2	13.4

Source: Labor Force Survey

Table AI.7 Unemployment Rate by Age Groups and Gender

	1994		1995		1996		1997		1998		1999		2000	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
15-64 (All)	13.6	14.0	11.4	12.9	9.5	11.7	11.0	12.5	11.1	12.9	17.2	16.1	19.6	17.6
15-24	28.3	24.4	24.3	20.1	19.1	19.9	24.3	22.5	27.1	25.9	36.3	30.8	39.9	31.7
25-49	11.0	12.2	9.0	11.9	7.9	10.6	8.8	10.8	8.4	10.9	13.5	14.1	16.0	15.7
50-64	7.6	9.1	7.0	7.3	5.5	6.2	5.8	7.9	6.8	7.0	12.0	7.4	15.1	10.7

Source: Labor Force Survey.

Table AI.8 Unemployment Rates by Position in Household

	1996	1999	2000
Head	6.92	11.68	13.90
Spouse	10.61	13.40	14.81
Other	16.84	24.42	26.95

Source: Labor Force Survey.

Table AI.9 Unemployment Rates by Region

	1996	1999	2000
Bratislava	3.71	7.59	6.78
Trana	6.46	12.20	15.15
Trencin	5.85	11.76	13.86
Nitra	8.35	18.55	20.55
Zilina	6.09	15.78	18.03
Banska Bystrica	7.89	20.20	21.88
Presov	8.64	18.91	21.60
Kosice	9.50	24.15	26.00

Source: Labor Force Survey

Annex II Examples of the Income Coverage Provided by the Safety Net

A couple without children

The MSL for a family of these characteristics is SK5,490, and child allowances are calculated as described in section ???.

A. Unemployed/NLF spouse

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	3,230 (0.29)
HH income (AW)	5,490 (0.50)	5,490 (0.50)	5,490 (0.50)
Individual income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	5,490 (1.00)	5,490 (1.00)	5,490 (1.00)

B. Spouse employed at average wage

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	16,350 (0.74)	15,877 (0.72)	10,950 (0.50)
Individual income (MW)	1,800 (0.50)	1,620 (0.45)	0
HH income (MW)	12,750 (0.87)	12,570 (0.86)	10,950 (0.75)

C. Spouse employed at minimum wage

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	9,000 (0.62)	8,527 (0.59)	5,490 (0.38)
Individual income (MW)	1,890 (0.63)	1,890 (0.63)	1,890 (0.63)
HH income (MW)	5,490 (0.76)	5,490 (0.76)	5,490 (0.76)

A couple with two young children

We assume that both children are unemployed (i.e. lack any means of subsistence), and that they are between 15 and 25 years old. Then, the MLS for the household is SK8,410, and child allowances amount to SK1,680 (if HH income under 1.36 * MLS = SK11,437) or SK1,100 (if HH income between 1.36 and 1.99 times MSL = SK11,437 to SK16,735).

A. Unemployed spouse

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	3,230 (0.29)
HH income (AW)	10,090 (0.80)	10,090 (0.80)	10,090 (0.80)
Individual income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	10,090 (1.00)	10,090 (1.00)	10,090 (1.00)

B. Spouse employed at average wage

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	17,450 (0.80)	16,347 (0.75)	12,630 (0.58)
Individual income (MW)	1,800 (0.50)	1,620 (0.45)	0
HH income (MW)	13,850 (0.96)	13,670 (0.95)	12,630 (0.87)

C. Spouse employed at minimum wage

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	10,680 (0.74)	10,207 (0.71)	10,090 (0.70)
Individual income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	10,090 (1.20)	10,090 (1.20)	10,090 (1.20)

Couple with two young children and a pensioner in the house

We now assume that the family described above now lives with a pensioner who receives the average pension of SK4,550. The MSL then becomes SK10,670, while child allowance payments remain the same.

A. Unemployed spouse

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	. 3,230 (0.29)
HH income (AW)	12,350 (0.72)	12,350 (0.72)	12,350 (0.72)
Individual income (MW)	3,230 (0.90)	3,230 (0.90)	3,230 (0.90)
HH income (MW)	12,350 (1.00)	12,350 (1.00)	12,350 (1.00)

B. Spouse employed at average wage

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective) (no UI)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	22,000 (0.83)	21,527 (0.81)	16,600 (0.63)
Individual income (MW)	1,800 (0.50)	1,620 (0.45)	0
HH income (MW)	18,400 (0.96)	18,220 (0.96)	16,600 (0.87)

C. Spouse employed at minimum wage

Individual and HH income	UI First 3 months (RR 50%)	UI After first 3 months (RR 45%)	SA (Objective) (no UI)
Individual income (AW)	5,400 (0.49)	4,927 (0.45)	0
HH income (AW)	15,230 (0.80)	14,757 (0.77)	12,350 (0.65)
Individual income (MW)	2,520 (0.63)	2,520 (0.63)	2,520 (0.63)
HH income (MW)	12,350 (1.16)	12,350 (1.16)	12,350 (1.16)

Annex III Additional Tables and Figures

Table AIII.1 Sample Proportions - Unemployment Registry

Variables	(I) All spells			(II) Unemployed more than 3 months		(III) Unemployed more than 12 months	
	All	UI	No UI	UI	No UI	UI	No UI
Female	46.26	45.17	47.14	45.88	48.59	49.16	49.69
Married	49.04	51.17	47.34	52.65	50.79	53.87	54.68
Age (years)	32.08	32.58	31.69	33.03	32.53	33.77	33.28
16-25	37.45	36.94	37.88	35.67	33.76	33.42	29.36
26-35	27.15	25.29	28.62	24.39	29.81	24.15	31.72
36-45	20.65	21.47	20.00	22.53	21.72	22.71	23.21
46-55	11.61	12.96	10.53	13.83	11.21	15.18	11.67
56-65	3.13	3.34	2.97	3.58	3.50	4.54	4.04
No studies	1.32	0.65	1.89	0.77	2.83	1.34	4.6
Primary	19.94	15.45	23.52	17.05	32.94	22.92	46.33
Apprenticeship	41.46	45.20	38.49	44.48	34.35	40.84	27.20
Secondary	31.26	33.11	29.80	33.14	26.01	31.29	19.80
College (+)	5.99	5.59	6.30	4.56	3.87	3.61	2.07
No work exp.	33.92	29.46	37.47	29.43	38.52	30.01	38.82
Bratislava	4.67	4.66	4.73	4.34	3.68	2.75	2.37
Trnava	8.49	8.66	8.35	8.41	7.39	7.76	7.37
Trencin	8.29	7.99	8.53	7.69	8.16	7.09	6.29
Nitra	16.08	15.87	16.25	16.04	17.24	16.13	16.47
Zilina	12.40	12.72	12.15	12.48	10.86	11.63	7.95
Banska Bystrica	13.87	12.71	14.80	12.93	15.66	13.93	18.46
Presov	17.15	18.55	16.04	18.73	16.26	18.72	17.52
Kosice	19.01	18.84	19.15	19.38	20.75	21.99	23.57
UI during spell	44.32	100.00	0.00	100.00	0.00	100.00	0.00
Length of spell	10.42	12.12	9.07	14.86	16.27	26.03	29.97
Transition to emp							
Number of spells	30714	13614	17100	10701	8833	4314	3606

Source: Unemployment Registry, 1990-2000.

Table AIII.2 Sample Proportions - Labor Force Survey

Variables	*All individuals*	No UI + No SA	UI + *No SA*	No UI + SA	UI + SA
Female	44.29	50.96	40.28	47.26	38.17
Married	42.62	42.30	50.61	27.30	41.90
Age (years)	29.27	27.95	32.03	25.03	29.85
16-25	47.31	49.86	37.48	65.36	44.41
26-35	21.04	24.67	19.43	18.07	25.31
36-45	18.73	16.02	24.50	12.24	14.52
46-55	12.92	9.45	18.59	4.33	15.76
Primary	12.85	14.12	12.7	14.32	7.07
Apprenticeship	41.28	38.14	43.00	38.04	48.96
Secondary	41.04	42.14	40.46	41.24	40.24
College (+)	4.83	5.60	3.84	6.40	3.73
No work exp.	29.74	30.44	19.15	51.78	26.14
Bratislava	5.88	11.25	5.85	1.73	1.28
Trnava	8.12	10.57	10.04	3.57	3.31
Trencin	5.24	3.84	4.88	6.77	7.05
Nitra	8.08	7.69	6.94	11.86	5.80
Zilina	17.47	13.62	19.06	17.51	20.33
Banska Bystrica	13.93	12.98	13.80	15.44	13.69
Presov	23.24	22.59	23.19	24.67	21.99
Kosice	18.04	17.46	16.24	18.45	26.55
UI during spell	53.06	0.00	100.00	0.00	100.00
SA during spell	31.36	0.00	0.00	100.00	100.00
Searching actively	53.55	54.48	50.23	48.96	75.93
Length of spell	5.13	3.55	4.67	6.04	9.21
Transition to emp	15.84	18.42	16.43	14.50	9.54
Head	20.57	16.83	26.49	12.82	21.17
Spouse	17.55	20.19	19.71	11.67	14.10
Other	61.88	62.98	53.80	75.51	64.73
Household size	4.41	4.32	4.40	4.47	4.52
UI in household	10.48	6.08	15.02	7.15	9.12
SA in household	18.61	11.21	16.61	25.80	30.70
# children < 6	0.15	0.20	0.13	0.16	0.13
# dependents	0.97	0.99	0.97	0.96	0.96
Dependency ratio	19.63	20.54	19.57	19.10	18.73
HH unemp. rate	55.95	52.65	57.13	57.81	55.20
Number of ind	2,465	629	1065	531	241

Source: Labor Force Survey 1996:1-1996:4, 1999:1-1999:4, and 2000:1-2000:2.

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Table AIII.3 Unemployment Insurance and Social Assistance in the Labor Force Survey Sample

	UI		SA		UI + SA	
	ILO	Registered	ILO	Registered	ILO	Registered
1996.Q1	9.93	11.48	50.19	55.69	-	-
1996.Q2	9.33	10.80	51.21	56.34	-	-
1996.Q3	10.11	11.44	46.67	52.96	-	-
1996.Q4	11.06	11.79	47.82	53.94	-	-
1999.Q1	30.19	31.94	44.95	50.45	-	-
1999.Q2	31.83	32.57	46.83	52.78	-	-
1999.Q3	29.56	29.86	48.97	54.42	-	-
1999.Q4	27.38	27.37	53.31	58.00	-	-
2000.Q1	28.61	29.64	53.41	55.59	1.30	1.27
2000.Q2	26.02	26.28	53.69	56.76	1.30	1.24

Source: Labor Force Survey, 1996:1-1996:4, 1999:1-1999:4, and 2000:1-2000:2.

Table AIII.4 Probability of Exit to Employment in the Private Sector (Marginal Effects)

Variables	Baseline	I	II
Receives UI		0.005 (0.015)	-0.021 (0.015)
Receives SA		0.007 (0.017)	0.007 (0.017)
Duration of spell		-0.006** (0.002)	-0.006** (0.002)
Past UI			-0.009 (0.027)
Female (=1)	0.005 (0.016)	0.003 (0.016)	0.005 (0.015)
Married (=1)	-0.020 (0.021)	-0.022 (0.021)	-0.020 (0.019)
26-35	-0.018 (0.019)	-0.019 (0.019)	-0.021 (0.017)
36-45	-0.030 (0.023)	-0.034 (0.022)	-0.024 (0.021)
46-55	-0.015 (0.028)	-0.017 (0.028)	-0.010 (0.027)
Apprenticeship	0.052** (0.024)	0.052** (0.024)	0.044** (0.022)
Secondary	0.030 (0.024)	0.028 (0.024)	0.025 (0.022)
College(+)	0.199** (0.064)	0.189** (0.064)	0.184** (0.061)
No previous exp.	-0.073** (0.014)	-0.070** (0.014)	-0.071** (0.013)
Head of HH	0.010 (0.028)	0.016 (0.029)	0.010 (0.026)
Spouse of head	-0.008 (0.029)	-0.001 (0.030)	-0.007 (0.027)
Occupation	YES	YES	YES
Sector	YES	YES	YES
Region	YES	YES	YES
Year	YES	YES	YES
Quarter	YES	YES	YES
Observed prob.	15.84	15.84	
Predicted prob.	10.73	10.59	
Prob > Chi²	0.000	0.000	0.000
Number if individuals	2,465	2,465	2,465
Number of pseudo-spells	2,465	2,465	2,680

Source: Labor Force Survey 1996:1-1996:4, 1999:1-1999:4, and 2000:1-2000:2.

Coefficients represent marginal effects evaluated at sample means.

Robust standard errors in parentheses (errors clustered at the individual level).

** Significant at the 5 percent level. * Significant at the 10 percent level.

Baseline comparison: Single male, 16-25 years old, with primary studies and previous employment experience.

Only exit to employment in the private sector was considered as a successful exit. Qualitatively and quantitatively equivalent results are obtained when exit to both employment in the private sector and employment in a public employment program are considered instead.

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Table I Summary of Evolution of Unemployment Insurance System 1992-2000

Years	Qualification Requirements	Duration of benefits	Replacement ratio	No previous experience	Maximum benefit payment
1992	12 months of contributions in last 3 years	6 months (down from 12 months)	(i) 60% of average net wage for the first 3 months (from 65%) (ii) 50% of average net wage after first 3 months (from 60%) (iii) 70% of average net wage if under retraining	(i) 60% of minimum wage for the first 3 months (ii) 50% of minimum wage after first 3 months (iii) 70% of minimum wage if under retraining	(i) 1.5 * minimum wage (ii) 1.8 * minimum wage if completed retraining
1993	12 months of contributions in last 3 years	6 months	(i) 60% of average net wage for the first 3 months (ii) 50% of average net wage after first 3 months	45% of minimum wage	1.5 * minimum wage
1994	12 months of contributions in last 3 years	(i) 6 months if 15-30 years old (ii) 8 months if 30-45 years old (iii) 9 months if above 45 years	(i) 60% of average net wage for the first 3 months (ii) 50% of average net wage after first 3 months	45% of minimum wage	1.5 * minimum wage
1995	12 months of contributions in last 3 years	(i) 6 months if 15-30 years old (ii) 8 months if 30-45 years old (iii) 9 months if 45-50 years old (iv) 12 months if above 50	(i) 60% of average net wage for the first 3 months (ii) 50% of average net wage after first 3 months	45% of minimum wage	1.5 * minimum wage
1997-98	12 months of contributions in last 3 years	(i) 6 months if contributed for less than 15 years (ii) 9 months if contributed for 15-25 years (iii) 12 months if contributed for more than 25 years	(i) 60% of average net wage for the first 3 months (ii) 50% of average net wage after first 3 months	45% of minimum wage	1.8 * minimum wage
1999	6 months of contributions in last 3 years	(i) 6 months if contributed for less than 15 years (ii) 9 months is contributed for more than 15 years	(i) 50% of average net wage for the first 3 months (ii) 45% of average net wage after first 3 months	45% of minimum wage	1.5 * minimum wage (or subsistence level)

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Table II Registered Unemployed Receiving Unemployment Insurance (UI) and/or Social Assistance (SA)

	Registered unemployed	Receiving UI (Total)	Receiving UI (%)	Receiving SA (Total)	Receiving SA (%)
1991	301,951	247,728	82.00	NA	-
1992	260,274	87,322	33.55	NA	-
1993	368,095	122,853	33.37	101,607	27.60
1994	371,481	85,032	22.89	168,416	45.33
1995	333,291	89,995	27.00	147,101	44.13
1996	329,749	93,517	28.36	135,440	41.07
1997	347,753	92,914	26.72	155,345	44.67
1998	428,209	119,931	28.01	193,706	45.24
1999	535,211	144,690	27.03	272,813	50.97

Source: *Social Policy*. Ministry of Labor, Social Affairs and Family.

Table III Expenditure on Social Assistance and Labor Market Policies (in millions SK)

	Social Assistance		Labor Market Policies		Benefits to registered unemployed (Total)
	Total	To registered unemployed	Passive (UI^A benefits)	Active	
1991	NA	NA	NA	NA	NA
1992	2,218	1,526	1,711	3,812	3,237
1993	3,120	2,200	1,859	1,107	4,059
1994	5,134	3,824	1,710	1,896	5,534
1995	5,517	4,058	2,181	3,899	6,239
1996	5,510	3,850	3,063	4,290	6,913
1997	5,891	4,154	3,989	3,098	8,143
1998	7,978	5,813	5,484	2,289	11,297
1999	11,599	8,790	7,292	474	16,082

Source: *Social Policy*. Ministry of Labor, Social Affairs and Family.
^{A} Unemployment Insurance.

Table IV Persons in Material Destitution Receiving Social Assistance (SA)

	Persons in material destitution	Recipients of SA (Total)	Recipients of SA (%)	Couples with dependent children	Individuals or couples w/o dependent children
1991	NA	NA	-	-	-
1992	NA	NA	-	-	-
1993	NA	NA	-	-	-
1994	442,544	199,127	44.99	89,214	90,718
1995	408,507	176,705	43.25	79,525	83,364
1996	378,637	160,788	42.46	72,679	78,443
1997	392,927	174,971	44.53	71,153	97,255
1998	506,400	222,655	43.96	NA	NA
1999	584,941	297,688	50.89	93,799	202,805

Source: *Social Policy*. Ministry of Labor, Social Affairs and Family.

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Table V Social Support Programs

	Child allowance		Parental allowance	
	Number of recipients	Expenditure (in million SK)	Number of recipients	Expenditure (in million SK)
1995	682,045	10,002	154,012	2,519
1996	653,938	9,982	144,101	2,758
1997	594,219	9,119	142,134	4,116
1998	603,445	9,925	139,876	4,479
1999	568,951	9,190	137,931	4,417

Source: *Social Policy.* Ministry of Labor, Social Affairs and Family.

Table VI Distribution of Spells

Spells per individual	Number of individuals	Percentage of all individuals
1	10,287	56.71
2	4,537	25.01
3	2,186	12.05
4	860	4.74
5	271	1.49
Total	18,141	100.00

Source: Unemployment Registry, 1990-2000.

Table VII Distribution of Unemployment Spells by Duration

Duration of spell (in months)	Number of spells	Percent of all spells
Less than 3	11,180	36.40
4 to 6	5,629	18.33
6 to 12	5,985	19.49
12 to 24	4,622	15.05
More than 24	3,298	10.74
Total	30,714	100.00

Source: Unemployment Registry, 1990-2000.

Table VIII Sample Proportions

Variables	(I) Unemployment Registry			(II) Labor Force Survey		
	All	UI^A	No UI	All	UI and/or SA^B	No UI or SA
Female	46.26	45.17	47.14	44.29	42.02	50.96
Married	49.04	51.17	47.34	42.62	42.73	42.30
Age (years)	32.08	32.58	31.69	29.27	29.72	27.95
16-25	37.45	36.94	37.88	47.31	46.45	49.86
26-35	27.15	25.29	28.62	21.04	19.81	24.67
36-45	20.65	21.47	20.00	18.73	19.65	16.02
46-55	11.61	12.96	10.53	12.92	14.09	9.45
56-65	3.13	3.34	2.97	NIS ^{C}		
No studies	1.32	0.65	1.89			
Primary	19.94	15.45	23.52	12.85	12.42	14.12
Apprenticeship	41.46	45.20	38.49	41.28	42.35	38.14
Secondary	31.26	33.11	29.80	41.04	40.66	42.14
College (+)	5.99	5.59	6.30	4.83	4.57	5.60
No work exp.	33.92	29.46	37.47	29.74	29.50	30.44
Bratislava	4.67	4.66	4.73	5.88	4.06	11.25
Trnava	8.49	8.66	8.35	8.12	7.29	10.57
Trencin	8.29	7.99	8.53	5.24	5.71	3.84
Nitra	16.08	15.87	16.25	8.08	8.21	7.69
Zilina	12.40	12.72	12.15	17.47	18.78	13.62
Banska Bystrica	13.87	12.71	14.80	13.93	14.26	12.98
Presov	17.15	18.55	16.04	23.24	23.46	22.59
Kosice	19.01	18.84	19.15	18.04	18.23	17.46
Registered at EO	100.00	100.00	100.00	91.30	99.13	68.27
UI during spell	44.32	100.00	0.00	53.06	71.09	0.00
Length of spell	10.42	12.12	9.07	5.13	5.66	3.55
Transition to emp	59.80	65.30	55.42	15.84	14.97	18.42
Head of HH				20.57	21.84	16.83
Spouse of head				17.55	16.65	20.19
Other members				61.88	61.51	62.98
HH size		NA ^{D}		4.41	4.43	4.32
# children < 6				0.15	0.14	0.20
Dependency ratio				19.63	19.32	20.54
SA during spell				31.36	42.02	0.00
UI in household				10.48	11.97	6.08
SA in household				18.61	21.12	11.21
HH unemp. rate				55.95	57.08	52.65
Seaching actively				53.55	53.23	54.48
Number of spells	30,714	13,614	17,100	2,465	1,836	629
Number of ind	18,141	10,779	11,578	2,465	1,836	629

Source: Unemployment Registry 1990-2000 and Labor Force Survey 1996:1-1996:4, 1999:1-1999:4, and 2000:1-2000:2.
^{A} Unemployment Insurance.
^{B} Social Assistance/Support.
^{C} Not included in sample.
^{D} Not available in sample.

Table IX Distribution of Unemployment Spells by Duration

Duration of spell (in months)	Number of spells	Percent of all spells
Less than 3	1,196	48.60
4 to 6	681	27.67
6 to 12	458	18.61
12 to 24	96	3.90
More than 24	30	1.22
Total	2,465	100.00

Source: Labor Force Survey 1996:1-1996:4, 1999:1-1999:4, and 2000:1-2000:2.

Table X Unemployment Duration by Unemployment Insurance (UI) Recipiency

Duration of spell (in months)	% of all spells with UI	% of all spells without UI
Less than 3	21.40	48.35
4 to 6	21.02	16.19
6 to 12	25.90	14.38
12 to 24	19.92	11.17
More than 24	11.77	9.92

Source: Unemployment Registry, 1990-2000.

Table XI Distribution of Spells by -Actual- Duration of Benefits (both in months)

Benefits / Spell	0-3	4-6	7-9	10-12
0 to 3	61.05			
4 to 6	15.06	31.10		
6 to 12	13.98	29.24	49.47	23.80
12 to 24	6.25	23.83	33.50	55.40
More than 24	3.66	15.83	17.03	20.80
Number of spells	4,790	6,903	1,417	204

Source: Unemployment Registry, 1990-2000.

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Table XII Hazard Estimates for Duration of Unemployment Spell

Variables	Baseline	I	II	III	IV	V
Receives unemployment insurance (UI)		0.684** (0.011)			0.529** (0.009)	
Duration of UI (months)			0.852** (0.002)			
Duration of UI w/ high replacement ratio				0.838** (0.007)		
Duration of UI w/ low replacement ratio				0.862** (0.004)		
UI w/ high RR (=1)						0.532** (0.010)
UI w/ low RR (=1)						0.770** (0.018)
Received UI in the past					1.735** (0.027)	2.033** (0.034)
Female (=1)	0.932** (0.017)	0.923** (0.017)	0.958** (0.018)	0.958** (0.018)	0.928** (0.017)	0.926** (0.017)
Married (=1)	1.097** (0.022)	1.109** (0.023)	1.114** (0.023)	1.113** (0.023)	1.111** (0.022)	1.104** (0.022)
26-35	1.040* (0.024)	1.007 (0.024)	0.978 (0.023)	0.977 (0.023)	1.067** (0.025)	1.074** (0.025)
36-45	1.017 (0.027)	1.003 (0.027)	1.025 (0.028)	1.019 (0.028)	1.069** (0.028)	1.057** (0.028)
46-55	0.978 (0.030)	0.983 (0.032)	1.078** (0.036)	1.068** (0.036)	1.053* (0.033)	1.022 (0.032)
56-65	0.874** (0.048)	0.875** (0.049)	0.948 (0.055)	0.940 (0.055)	0.942 (0.051)	0.918 (0.051)
Primary	1.816** (0.202)	1.893** (0.213)	1.989** (0.232)	1.989** (0.232)	1.772** (0.196)	1.743** (0.193)
Apprenticeship	3.994** (0.442)	4.491** (0.504)	4.975** (0.579)	4.987** (0.581)	3.700** (0.408)	3.544** (0.391)
Secondary	3.413** (0.479)	4.483** (0.545)	5.397** (0.630)	5.412** (0.632)	3.976** (0.440)	3.828** (0.423)
College(+)	6.762** (0.780)	7.481** (0.876)	7.925** (0.962)	7.947** (0.965)	6.099** (0.700)	5.916** (0.679)
No previous exp.	1.129** (0.042)	1.257** (0.048)	1.350** (0.054)	1.352** (0.054)	1.090** (0.039)	1.046 (0.037)
Occupation	YES	YES	YES	YES	YES	YES
Sector	YES	YES	YES	YES	YES	YES
Region	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Quarter	YES	YES	YES	YES	YES	YES
Number if individuals	18,141	18,141	18,141	18,141	18,141	18,141
Number of spells	30,741	30,741	30,741	30,741	30,741	30,741
Number of pseudo-spells	30,741	30,741	30,741	30,741	39,711	46,577
Prob > Chi^2	0.000	0.000	0.000	0.000	0.000	0.000

Source: Unemployment Registry, 1990-2000.

Coefficients represent hazard ratios (Note: A hazard ration greater (smaller) than 1 indicates that such variable decreases (increases) unemployment duration).

Robust standard errors in parentheses (errors clustered at the individual level).

** Significant at the 5 percent level. * Significant at the 10 percent level.

Baseline comparison: Illiterate single male, 16-25 years old, with previous employment experience, but with no recorded employment prior to current unemployment spell.

Only exit to employment in the private sector was considered as a successful exit. Qualitatively and quantitatively equivalent results are obtained when exit to both employment in the private sector and employment in a public employment program are considered instead.

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Table XIII Hazard Estimates for Duration of Unemployment Spell

Variables	Baseline	I	II	III
Receives unemployment insurance (UI)		0.783** (0.098)		0.643** (0.088)
Receives social assistance/ support (SA)		0.481** (0.064)		0.470** (0.069)
Duration of UI (months)			0.815** (0.029)	
Duration of SA (months)			0.852** (0.043)	
Received UI in the past				0.950 (0.248)
Female (=1)	1.007 (0.129)	0.971 (0.125)	0.948 (0.121)	1.045 (0.134)
Married (=1)	1.070 (0.167)	1.117 (0.169)	1.147 (0.171)	1.111 (0.171)
26-35	0.966 (0.161)	1.034 (0.167)	0.988 (0.160)	0.993 (0.158)
36-45	0.977 (0.205)	1.016 (0.203)	0.959 (0.191)	1.003 (0.203)
46-55	1.075 (0.270)	0.992 (0.240)	1.014 (0.246)	1.059 (0.254)
Apprenticeship	1.457** (0.272)	1.454** (0.273)	1.426* (0.271)	1.318 (0.249)
Secondary	1.299 (0.254)	1.266 (0.248)	1.318 (0.262)	1.203 (0.239)
College(+)	3.522** (0.972)	3.504** (0.967)	3.565** (0.992)	4.104** (1.116)
No previous exp.	0.505** (0.115)	0.580** (0.133)	0.514** (0.118)	0.682* (0.154)
Head of household	0.727 (0.148)	0.764 (0.147)	0.730 (0.140)	0.769 (0.151)
Spouse of head of household	0.657* (0.152)	0.672* (0.148)	0.659* (0.142)	0.599 (0.133)
Number of children under 6 in household	0.962 (0.124)			
Household dependency ratio	1.562 (0.496)			
Other household member receives UI		1.252 (0.202)	1.283 (0.208)	1.115 (0.187)
Other household member receives SA		0.966 (0.146)	0.927 (0.141)	0.891 (0.133)
Occupation	YES	YES	YES	YES
Sector	YES	YES	YES	YES
Region	YES	YES	YES	YES
Year	YES	YES	YES	YES
Quarter	YES	YES	YES	YES
Number if individuals	2,465	2,465	2,465	2,465
Number of spells	2,465	2,465	2,465	2,465
Number of pseudo-spells	2,465	2,465	2,465	2,680
Prob > Chi^2	0.000	0.000	0.000	0.000

Source: Labor Force Survey 1996:1-1996:4, 1999:1-1999:4, and 2000:1-2000:2.
Coefficients represent hazard ratios (Note: A hazard ration greater (smaller) than 1 indicates that such variable decreases (increases) unemployment duration).
Robust standard errors in parentheses (errors clustered at the individual level).
** Significant at the 5 percent level. * Significant at the 10 percent level.
Baseline comparison: Single male, 16-25 years old, with primary studies and previous employment experience - low-skilled occupation in agriculture. Not head of household, nor spouse of head.

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Table XIV Probability of Exit to Employment in the Private Sector (Marginal Effects)

Variables	Baseline	I	II	III
Receives unemployment insurance (UI)		0.087** (0.006)	-0.413** (0.004)	
Duration of spell		-0.006** (0.000)	-0.009** (0.0003)	-0.009** (0.0003)
UI w/ high replacement ratio				-0.417** (0.004)
UI w/ low replacement ratio				-0.387** (0.003)
Ever received UI			0.351** (0.005)	0.477** (0.005)
Female (=1)	0.016** (0.006)	0.022** (0.006)	0.014** (0.006)	0.010* (0.005)
Married (=1)	0.051** (0.007)	0.049** (0.007)	0.040** (0.007)	0.030** (0.006)
26-35	0.043** (0.008)	0.047** (0.008)	0.055** (0.008)	0.052** (0.007)
36-45	0.075** (0.009)	0.077** (0.009)	0.080** (0.009)	0.051** (0.008)
46-55	0.066** (0.011)	0.063** (0.011)	0.064** (0.011)	0.027** (0.010)
56-65	0.018 (0.018)	0.018 (0.018)	0.025 (0.018)	-0.002 (0.016)
Primary	0.135** (0.026)	0.115** (0.027)	0.094** (0.031)	0.092** (0.031)
Apprenticeship	0.321** (0.025)	0.257** (0.027)	0.208** (0.030)	0.185** (0.029)
Secondary	0.310** (0.023)	0.246** (0.025)	0.205** (0.030)	0.188** (0.030)
College(+)	0.339** (0.014)	0.296** (0.017)	0.313** (0.027)	0.316** (0.031)
No previous exp.	0.029** (0.012)	0.003 (0.012)	-0.040** (0.012)	-0.059** (0.011)
Occupation	YES	YES	YES	YES
Sector	YES	YES	YES	YES
Region	YES	YES	YES	YES
Year	YES	YES	YES	YES
Quarter	YES	YES	YES	YES
Number if individuals	18,141	18,141	18,141	18,141
Number of spells	30,741	30,741	30,741	30,741
Number of pseudo-spells	30,741	30,741	39,711	46,577
Prob > Chi^2	0.000	0.000	0.000	0.000

Source: Unemployment Registry, 1990-2000.

Coefficients represent marginal effects evaluated at sample means.

Robust standard errors in parentheses (errors clustered at the individual level).

** Significant at the 5 percent level. * Significant at the 10 percent level.

Baseline comparison: Illiterate single male, 16-25 years old, with previous employment experience, but with no recorded employment prior to current unemployment spell.

Only exit to employment in the private sector was considered as a successful exit. Qualitatively and quantitatively equivalent results are obtained when exit to both employment in the private sector and employment in a public employment program are considered instead.

Table XV Fraction of Workers Actively Searching for a Job, by Unemployment Insurance (UI)
Recipiency

	Active search
Registered and present UI	40.61[**]
Registered and past UI	65.07[**]
Registered and never UI	32.18[**]
Not registered	13.48[**]

Source: Labor Force Survey, 1996.1-1996.4, 1999.1-1999.4, and 2000.1-2000.4.
[**] [*] Significantly different from closest value (from above/below) in the same column at 5 percent (10 percent) level.

Table XVI Determinants of Active Job Search

	Sample proportions	I	II. 1996/99	III 2000
Searching	65.30			
Searching actively	30.93			
Unemployed	64.01[A]			
Out of labor force	35.99[A]			
Registered (=1)	66.38[A]	-0.046 (0.094)	-0.238** (0.086)	0.320** (0.128)
No unemployment insurance (UI)	50.62	-0.208** (0.091)	-0.163** (0.073)	-0.394** (0.125)
Reg * No UI	25.15	0.163 (0.113)	0.166** (0.098)	0.319** (0.108)
Past UI	5.00	0.114** (0.050)	0.013 (0.045)	0.139* (0.082)
Receives social assistance/support	13.27	⋅ 0.048 (0.033)	0.070** (0.034)	0.054 (0.068)
Female (=1)	43.75	-0.066** (0.024)	-0.037* (0.021)	-0.134** (0.049)
Married (=1)	65.64	-0.053** (0.027)	-0.058** (0.026)	-0.009 (0.052)
Head	37.61	0.080** (0.033)	0.107** (0.032)	-0.001 (0.067)
Spouse	26.66	0.042 (0.040)	0.052 (0.039)	0.048 (0.079)
16-25	20.17 [omitted]			
26-35	21.20	0.014 (0.029)	0.008 (0.026)	-0.002 (0.060)
36-45	19.70	-0.010 (0.033)	-0.019 (0.027)	-0.018 (0.074)
46-55	21.37	-0.107** (0.031)	-0.086** (0.024)	-0.143** (0.077)
55-65	17.56	-0.287** (0.021)	-0.185** (0.016)	-0.356** (0.080)
Primary	18.20 [omitted]			
Apprent.	42.69	0.116** (0.030)	0.098** (0.031)	0.117* (0.053)
Secondary	35.24	0.150** (0.031)	0.138** (0.033)	0.176** (0.053)
College(+)	3.87	0.120* (0.074)	0.162** (0.084)	0.109 (0.108)
Region		YES	YES	YES
Year		YES	YES	YES
Quarter		YES	YES	YES
Observed prob.		30.93	18.02	57.69
Predicted prob.		24.28	13.26	55.37
Prob > Chi^2		0.000	0.000	0.000
Number of ind	2,494	2,494	1,331	1,163
Number of obs	5,033	5,033	3,395	1,638

Source: Labor Force Survey 1996.1-1996.4, 1999.1-1999.4, and 2000.1-2000.4.

[A] Correspond to the first observation for each individual.

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Table XVII Preference on Future Job, by Unemployment Insurance (UI) Recipiency

	Total [A]	Salaried	Productive coop.	Entrepr.	Any job	Not decided yet
Registered and present UI	1,919	87.65	0.57	0.47	10.01	1.30
Registered and past UI	232	81.90	0.43	0.00	16.38	1.29
Registered and never UI	795	84.03	0.50	0.75	12.83	1.89
Not registered	253	76.28	0.00	5.53	15.02	3.16

	Full time		Part time	No preference
		Accept PT?		
Registered and present UI	87.04	19.82	2.30	10.66
Registered and past UI	82.76	15.10	1.72	15.52
Registered and never UI	87.67	26.96	2.89	9.43
Not registered	87.80	19.44	4.88	7.32

Source: Labor Force Survey 1996.1-1996.4, 1999.1-1999.4, and 2000.1-2000.4.
[A] This information is available only for those workers who are looking for a job.

Table XVIII Poverty Rates for the Entire Population

Poverty measure Income definition	Minimum Subsistence Level (MSL)	Less than $2PPP/day (per capita)	Less than $4PPP/day (per capita)	Less than 50% of median equivalent income
Total income (TI)	10.1	2.6	8.6	5.8
TI – UI[A]	12.0	4.0	10.4	7.1
TI – SA/SS[B]	17.2	4.9	15.2	9.2
TI – all social income	18.7	6.2	16.6	10.7

Source: Microcensus, 1996.
[A] Unemployment Insurance.
[B] Social Assistance/Support.
Note that pensions are always included in total income

Table XIX Poverty Rates for Active and Unemployed Individuals

Poverty measure Income definition	Minimum Subsistence Level		Less than $2PPP/day (per capita)		Less than $4PPP/day (per capita)		Less than 50% of median equivalent income	
	Active	Une	Active	Une	Active	Une	Active	Une
Total income (TI)	9.0	44.7	2.9	5.6	7.7	38.2	5.1	23.4
TI – UI[A]	10.0	63.2	3.2	26.9	8.6	57.9	5.4	42.9
TI – SA/SS[B]	12.5	42.2	3.3	15.8	10.8	37.5	6.4	25.6
TI – all social income	17.3	79.7	4.6	49.4	15.4	76.8	8.3	65.3

Source: Microcensus, 1996.
[A] Unemployment Insurance.
[B] Social Assistance/Support.
Note that pensions are always included in total income.

Table B3.I Distribution of households according to labor market status of head and spouse

Head \ Spouse	Employed (At work)	Employed (Not at work)	Unemployed	Not in labor force
Employed (At work)	49 [3]	13 [5]	9 [20]	11 [12]
Employed (Not at work)	2 [1]	2 [0]	1 [1]	1 [0]
Unemployed	3 [8]	1 [5]	3 [22]	2 [15]
Not in labor force	1 [1]	0 [0]	1 [3]	1 [3]

Source: Labor Force Survey, 1996.1-1996.4, 1999.1-1999.4, and 2000.1-2000.2.

Table B3.II Distribution of Social Assistance

	% receives SA	% of those receiving SA	% une among those w/SA	% NLF among those w/SA
Head	6.44	40.05	88	9
Spouse	8.74	54.35	63 (67) [A]	30 (26) [A]
Other	0.42	5.60	98.5	1.5

Source: Labor Force Survey, 1996.1-1996.4, 1999.1-1999.4, and 2000.1-2000.2.
[A] Not including maternity allowances.

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Table B3.III Effect of Unemployment Insurance and Social Assistance on labor force participation and active search of household head and spouse

	Heads		Spouses	
	LFP (NEmp)	Act search 2000 (NEmp)	LFP (NEmp)	Act search 2000 (NEmp)
Receives SA	0.376** (0.035)	0.372** (0.075)	0.441** (0.049)	0.045 (0.065)
Receives UI	0.198** (0.020)	0.325** (0.044)	0.477** (0.027)	0.311** (0.086)
Spouse receives SA	0.023 (0.042)	0.151* (0.078)		
Spouse receives UI	0.066 (0.049)	0.060 (0.146)		
Head receives SA			0.004 (0.089)	0.054 (0.125)
Head receives UI			-0.012 (0.067)	-0.109 (0140)
Female	-0.275** (0.104)	-0.180 (0.218)	-0.204** (0.106)	-0.229 (0.187)
Female * SA (=1)	-0.380** (0.165)	-0.621** (0.204)		
Apprenticeship	0.010 (0.039)	0.089 (0.089)	0.020 (0.054)	0.052 (0.093)
Secondary	0.023 (0.045)	-0.077 (0.114)	0.123** (0.054)	0.228** (0.100)
Higher + College	0.062 (0.064)	0.201** (0.038)	0.055 (0.094)	-0.015 (0.166)
Appr * SA			-0.140** (0.074)	
Secondary * SA			-0.195** (0.069)	
Higher * SA			-0.321* (0.140)	
# children	-0.013 (0.013)	-0.036 (0.034)	0.011 (0.014)	0.040 (0.026)
# children < 6	0.011 (0.017)	-0.022 (0.041)	-0.201** (0.018)	-0.267** (0.039)
No previous exp.	-0.382** (0.133)	-0.177 (0.220)	-0.246** (0.044)	-0.237** (0.075)
Head/spouse LMS	YES	YES	YES	YES
Head/spouse educ.	YES	YES	YES	YES
Region	YES	YES	YES	YES
Year	YES	YES	YES	YES
Quarter	YES	YES	YES	YES
Observed prob.	72.27	71.30	48.12	45.67
Predicted prob.	85.07	80.17	47.82	43.30
Prob. > Chi^2	0.000	0.000	0.000	0.000
Number of obs.	1,804	359	4,081	659

Source: LFS 1996.1-1996.4, 1999.1-1999.4, and 2000.-2000.4.

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