The Implications of Exhausting Unemployment Insurance Entitlement in Hungary

JOHN MICKLEWRIGHT and GYULA NAGY

Budapest Working Papers on the Labour Market

BWP 1998/2

February 1998

Budapest Working Papers No.2
Labour Research Department, Institute of Economics, Hungarian Academy of Sciences
Department of Human Resources, Budapest University of Economics

The Implications of Exhausting Unemployment Insurance Entitlement in Hungary

Authors: John MICKLEWRIGHT, Director of the Economic and Social Policy Programme, UNICEF International Child Development Centre
Address: Piazza Santissima Annunziata 12. 50122–Florence, Italy
Phone: 39-55 234-5258; Fax: 39-55 244-817 (e-mail address: ciusco@unicef-icdc.it)
Gyula NAGY, Professor of Economics
Department of Human Resources, Budapest University of Economics
Address: Fõvám tér 8. Budapest, H–1093 Hungary. Phone/fax: 36-1 217-1936 (e-mail address: gynagy@sunshine.bke.hu)

Published by the Institute of Economics, Hungarian Academy of Sciences. Budapest, 1998.
With financial support from the Hungarian Economic Foundation

THE IMPLICATIONS OF EXHAUSTING UNEMPLOYMENT INSURANCE ENTITLEMENT IN HUNGARY*

JOHN MICKLEWRIGHT and GYULA NAGY

The single most likely way to leave the unemployment insurance (UI) register in Hungary is not by getting a job but by running out of entitlement to benefit. This situation raises two questions. First, what are the implications of the cessation of UI for living standards? Second, does UI exhaustion have much effect on the probability of getting a job through increasing incentives to work? We investigate these issues with a survey of persons exhausting entitlement to UI in Summer 1995, paying special attention to the household circumstances of the unemployed and to the probabilities of claiming and being awarded means-tested assistance benefit.

1. INTRODUCTION

Central and Eastern European governments in the early 1990s introduced limited-duration Unemployment Insurance (UI) as the primary form of income support for the unemployed. Low outflow rates, sometimes coupled with reductions in benefit entitlement periods, resulted in sharp reductions in the initially high coverage by UI of the unemployed stock. By December 1995, the proportion of the registered unemployed receiving UI was 50 percent in Poland, below 40 percent in Hungary and about 25 percent in Slovakia, compared to figures in all three countries of around 75-80 percent in December 1991 (*Boeri* and *Edwards*, [1996], chart 3). In Hungary, the focus of this paper, exhaustion of UI entitlement has become

* The follow-up survey of UI exhausters used in the paper was financed by the ILO/Japan Project on Employment Policies in Hungary. We are indebted to *Martin Godfrey*, the co-ordinator of the project, for his support. We thank the National Labour Centre for much assistance with the survey and especially *György Lázár* and *Zsuzsa Ságí*. A number of local government officials gave us very useful information on the social assistance scheme and *Pravin Trivedi* commented constructively on our modelling of it.

so frequent that the most common way for an entrant to the UI register to leave it is by running out of entitlement to benefit, rather than by getting a job. *Figure* 1 shows monthly outflow rates in Hungary from the stock of UI recipients to jobs and to all other destinations, among which exhaustion of entitlement overwhelmingly dominates. On average only about 5 percent of the stock of UI recipients left the register each month to get a job in 1994-1996, while the total outflow rate was 15-20 percent. The diagram also shows the increasing importance of exhaustion – there is a growing gap between the total outflow rate and the re-employment rate.

This situation raises two questions: (i) what are the implications of the cessation of UI for living standards of the unemployed, and (ii) do changes in living standards following exhaustion of UI have much effect on the probability of getting a job through increasing incentives to work? These questions have not been adequately addressed in Central and Eastern Europe and in attempting to answer them for Hungary we consider two related aspects of the debate that have seen little attention in existing work on the region. First, we analyse the situation of unemployed individuals within their households. On the one hand, the household circumstances of the unemployed are of obvious importance to their living standards; and on the other, all but the simplest model of job search accords a role in the determination of behaviour to income other than the unemployed individual's benefits and his or her prospective wages. The high incidence of dual earner households pre-reform and the tradition of generous family benefits in the region may imply that the household circumstances of the unemployed matter in Central and Eastern Europe in a way that differs from elsewhere.

Second, we shed light on the operation of the social assistance scheme that provides support to a substantial proportion of those exhausting UI entitlement. The Hungarian scheme shares some key features with those in other countries in the region. It is a crude scheme with a simple per capita household income test and no tapering of benefit level with rising income; it is administered and part-financed by local government councils, of which there are several thousand in Hungary, that have little capability in this area of work; and despite the fact that social assistance is now received by more registered unemployed persons in Hungary than is UI, almost nothing is known about its receipt. The modelling of social assistance receipt is an important part of the paper.

Our research is based on data from the UI register relating to an inflow cohort of benefit recipients, coupled with data from a simple interview survey of those cohort members who exhausted UI entitlement. *Section 2* introduces these data and provides the overall picture of what happens to

persons who exhaust UI, together with their household circumstances. The operation of social assistance in Hungary is considered in *Section 3* and a simple model is estimated of both claims to and receipt of benefit, which is built on in the rest of the paper. *Section 4* investigates household living standards (proxied by current income) following UI exhaustion in relation to those while on UI and those on the return to work. *Section 5* analyses the probability of leaving unemployment to get a job, focusing on the effects of the social assistance system and using both parametric and non-parametric methods. *Section 6* concludes.

2. UI REGISTER DATA AND THE EXHAUSTER SURVEY

Our research is based on those individuals in the March and April 1994 inflow to the Hungarian UI register who had a continuous or near continuous (43-47 months) employment history in the four years prior to claim, resulting respectively in 12 and 11 months entitlement to UI. This cohort of 28,600 individuals made up two-thirds of the full inflow in the two months concerned (the remaining one third had shorter employment histories resulting in between 3 and 10 months of benefit entitlement). Just under a half of the cohort exhausted UI entitlement. Financial restrictions forced us to restrict our follow-up survey to a random sub-sample of slightly more than a third of these exhausters. Individuals were traced to their home addresses and interviews were conducted with a total of 4,661 individuals, which represented a response rate of nearly 90 percent.[1] While not as rich as the detailed household surveys of the unemployed that have been used in some OECD countries (e.g. Narendranathan et al, 1984) the follow-up survey greatly extends what can be said about living standards and incentives based on UI register data alone.

Interviews were conducted 3 to 4 months after the date of UI exhaustion. Respondents were asked to report their labour market status in each fortnight since the date of exhaustion, and additionally to report the precise date that a job was first found (excluding casual work from this definition). The outcome of any claim to social assistance was recorded. We also collected information on household composition and labour force status of other members of the household together with the current

[1] There were only a handful of refusals to the survey and the main reason for non-response was inability to find sampled individuals even after a second visit; further details are given in *Micklewright* and *Nagy* [1996]. The sampling fractions of claimants in the 11 and 12 month entitlement groups differed and we apply weights to compensate for this in the descriptive analysis.

earnings, if any, of the respondent and spouse. Besides information on UI previously paid and the past earnings used to determine those payments, the UI register provided details of each claimant's age, educational level, and reason for entry to unemployment. (No information on household characteristics is recorded in the UI register.)

Figure 2 shows the survivor functions for both the 11 and 12 month entitlement groups in the inflow cohort. Prior to the point of exhaustion we are looking at survival in the UI register against the "risk" of exit for any reason (e.g. job, training scheme, pension, disqualification). Following exhaustion we treat as remaining in the "base" state (and hence still at risk) individuals who report in the period concerned that they were in any of the categories (i) casual work (with or without job search), (ii) looked for a job but could not find one, (iii) did not look for a job or were not able to work.[2] Spells of individuals exhausting UI entitlement but who were not included in the follow-up survey are treated as censored at the point of exhaustion. The survivor functions for both entitlement groups show a sharp dip following exhaustion and in the case of the 12 month group there is similar dip at the 6 month point, when eligibility for a variety of exits from UI begins, notably early retirement. Leaving aside these dips, the slopes of the survivor functions appear reasonably similar before and after exhaustion, suggesting that on average UI exhaustion is not associated with a major change in behaviour.

Table 1 provides more detail on what happens immediately after UI exhaustion and at the three month point. The dips in the functions in *Figure 2* at the exhaustion points are reflected in the 6 percent of the sample already in a job in the first fortnight and the 7 percent exiting to receipt of pension or other benefit scheme and, in a few cases, labour market programmes. At the three month point, 1 in 6 of the sample were in employment, and of the remainder the great majority reported that they were looking for a job, although the proportion not searching is notably higher for women. This does not suggest substantial withdrawal from the labour market, although the classification of labour market status in the follow-up survey is less accurate than would be obtained with a genuine labour force survey instrument. The use of Employment Office clerks for much of the interviewing may have biased upwards the number of respondents reporting search. For the same reason the amount of casual work - reported by 10 percent of men - may be understated.

The household characteristics of the sample are summarised in *Table 2*.

[2] The definition of the base state is designed to maximise comparability of pre- and post-exhaustion status. For example, UI recipients may or may not search and may or may not undertake casual work.

Much debate about income support for the unemployed in Central and Eastern Europe ignores this issue, which corresponds to an implicit assumption that the unemployed live alone, with neither dependants to provide for nor other household members who can help support living standards. *Table 2* shows that UI exhausters living alone are in a very small minority – about 1 in 10 men and 1 in 25 women. A third of all men and well over a half of women have a working spouse, which represents a half and three-quarters respectively of those that are married. A half of men and two-thirds of women live in a household where at least one person works; the figure for both sexes together, 58 percent, is very similar to that of 55 percent for all long-term ILO/OECD unemployed in Hungary in 1993 given by *Förster* [1996].

Table 3 shows that among the five Central European countries considered by Förster, Hungary had with Slovakia the lowest proportion of long-term unemployed living in households with an earner and – something that may come as a surprise – a situation little different to that in several Northern European countries, notably France and the Netherlands. In the other Central European countries, the presence of an earner is rather more common than in Northern Europe but no more so than in Southern Europe and, in two cases – Greece and Portugal – rather less common.

Income from work is the most important source of support from other household members but if we include any form of income the proportion of respondents in the follow-up survey living with another adult receiving income is shown by *Table 2* as being as much as three-quarters for both sexes. Of course, other adults generate costs for the household as well as potential resources but this does not detract from their importance in smoothing income changes at the point of UI exhaustion. The same is true of dependent children, present in the households of a half of men and two-thirds of women. Children raise household needs but also have an impact on resources – an important feature of the cash transfer system in Hungary is a relatively generous family allowance system which in 1995 paid benefit to parents of all children of the relevant age.[3] (Benefit levels under neither UI nor the social assistance scheme are related to family circumstances.) The monthly family allowance for two children (the modal number) in 1995 was almost exactly the same as the level of social assistance for the unemployed – about 25 percent of the net average wage.

[3] Income-testing for family allowance was introduced in 1996 but about two-thirds of families continue to be eligible and the figure must be even higher for the unemployed given their concentration at the bottom of the income distribution.

3. THE PROBABILITY OF SOCIAL BENEFIT RECEIPT

Discussion of social assistance for the unemployed often assumes that receipt following exhaustion of UI is automatic, implying that a UI scheme with limited duration followed by possible assistance benefit can be described as a system of „indefinite" benefit (*Atkinson* and *Micklewright*, [1991]). This ignores the test of family or household income and assets that is a condition for receipt of assistance benefits. And even when the existence of that test is recognised, the standard assumption is that entitlement is both claimed by the individual and accurately assessed by the benefit agency. This section models the decision to claim and to award social assistance in Hungary.

Social assistance for the unemployed in Hungary, known officially as Social Benefit (SB), pays a flat-rate benefit equal, in 1995, to 6720 forints per month (about $45). This level is set to be equal to 80 percent of the minimum old-age pension, and, as we shall see later, is well below the level of most UI payments. An application for benefit may only be made after UI eligibility is exhausted and the claimant's household must have per capita net income below the SB level in order to qualify. There is no tapering of the benefit level as income approaches this threshold, implying that total household income (including SB) will fall when the threshold is crossed. This crudeness in the scheme is repeated in other features – there are no additions for dependants and the per capita test of income makes no allowance for economies of scale within the household. Unlike UI, SB is not subject to income tax.

SB is administered by local government councils. There are over 3000 of these, three-quarters covering areas with under two thousand inhabitants (*Bird* et al, [1996]). Co-funding by central government is intended to provide required funds but maintain financial discipline: only half of councils' expenditure on social benefit can be re-claimed from central funds.[4] The smaller councils are ill-equipped to administer a major social assistance scheme and their investigation of claims appears minimal. Documentary evidence of household income reported by claimants is required but in the local council areas we checked, home visits are rarely made on the grounds that this would be intrusive. Recipients must stay registered as unemployed at local employment offices (requiring only a

[4] In practice, councils also receive help from the state budget via the annual block grants that form the majority of their resources and which are based on a variety of indicators of demand for social welfare including the local unemployment rate. However, such assistance is not explicitly matched to social assistance demand and in any case is retrospective.

monthly visit in one area we visited and a quarterly visit in another) and the councils are informed if registration lapses, but direct contact between the SB recipient and the local council may be limited to the annual check of income required by law. This picture presents SB as "easy money" (as one council official we spoke to labelled it). Against this, however, there is no official application form and awards must be made formally at a meeting of elected council members. This implies a rather public procedure, which may discourage take-up.

Just under a half of all follow-up survey respondents reported receipt of SB since exhausting UI - this is our estimate of the unconditional probability of receiving SB following a spell of UI. Receipt among those still in the base state at interview is shown in *Table 4*. Nearly 60 percent receive at this point and while receipt is a bit more common for men it is not markedly so. Those not reporting search are notably less likely to be in receipt and casual workers have an even lower incidence of benefit. We suspect that this reflects some reluctance by those receiving benefit to report casual work, although it is notable that the proportion of all SB recipients reporting casual work (less than 5 percent) is very similar to that in data from the Labour Force Survey (where interviewers were not from employment offices). On the other hand, casual work may in part be a reaction to inability to qualify for benefit. A quarter of this sub-sample have never claimed SB, and about 1 in 7 claimed unsuccessfully (or in a few cases were waiting to have a claim decided).

The simplest view of an income-tested benefit scheme has non-receipt due solely to household income exceeding the threshold for benefit, with some households realising this without having to make a claim. In reality the reasons for non-receipt are likely to be more varied, involving take-up costs on the one hand and administration errors on the other (see, for example, *Blundell* et al, [1988], and *Duclos*, [1995]). The latter may be accidental or even deliberate in the case where the agent administering the scheme chooses to ignore the rules. Given the nature of the Hungarian SB scheme described above, these other factors may play a significant role.

The main reasons reported by the individuals in *Table 4* for not applying for SB were varied, with excessive income cited in only a third of cases. Nearly 1 in 10 said that the procedure was too complicated. More than a quarter reported that they had not applied because they had expected to find a job quickly. This seems a curious response given that the individuals concerned had already spent over a year unemployed. If these responses are truthful, then the re-employment probability may be seen as affecting benefit status rather than causality running only in the opposite direction. Viewed another way, these answers may just indicate very high

take up costs for the individuals concerned.

We model the information in *Table 4* with two simple equations for the probability of claim and of award:

p (claim) = F (E(SB), claiming costs) (1)
p (award) = F (claimant income, council factors). (2)

where E(SB) is the SB that the individual expects to receive conditional on his or her circumstances. This in turn is equal to the individual's *subjective* probability of an award, multiplied by the fixed SB level.[5] In an ideal world, this perceived probability would be equal to unity when the claimant's per capita income is above the threshold and zero when below. But reality may depart from this ideal for several reasons. Some households may not know the rules of the scheme and apply despite their income being too high to qualify, their expected SB being based on an incorrect perception of the actual probability of an award. But even households who know the rules and see that their income is above the threshold may have a positive expectation of benefit in excess of their claiming costs and may hence apply, in the hope that local council administration is imperfect or because they intend not to declare some of their income. Finally, as „take-up analysts" (*Duclos*, [1995]) our observation of income is undoubtedly imperfect, so from a practical point of view we cannot base our calculations of entitlement on observed income alone.

The *actual* probability of award, given by equation (2), is assumed to depend on the council's observation of the claimant's income (which may be imperfect) together with other factors that it may take into account in its decision-making process or which have an impact on this. We include three variables.

(i) the local employment office area unemployment rate, which we hypothesise to have a positive impact due to increased council generosity towards their electors in areas where job prospects are poor;[6]

---

[5] The theoretical model underlying equation (1) assumes that risk-neutral individuals base claim behaviour on a comparison of an uncertain income in the event of a claim (incomes net of claiming costs in the award and no-award outcomes weighted by their respective perceived probabilities) and a certain income if no claim is made. Entitlement to SB, where it exists, is to a fixed flat-rate sum; since it displays no individual variation it can play no part in the empirical modelling, in contrast to the take-up models of *Blundell* et al [1988] and *Duclos* [1995].

[6] An alternative view, suggested to us by a local council office, is that in areas of high unemployment there is a high demand for various other forms of social assistance, which, in contrast to SB, are funded wholly from councils' own resources with no direct cost-sharing

(ii) total income assessable for Personal Income Tax (PIT) per head of population in the claimant's council area in 1994, which we use as a proxy for ability to fund SB and hence of willingness to make awards;[7]

(iii) the local council area population. Our hypothesis is that smaller councils are less able or willing to investigate claims and thus in these areas benefit is more likely to be awarded.

If the SB system functions according to the rules for entitlement laid down in the relevant legislation then we should find that none of these three variables has a significant impact, conditional on observed claimant income. If they are significant then this suggests an element of discretion in the scheme that should not be present.

Although the subjective and actual probabilities of award may differ, potential claimants may have some awareness of their local council's policy on awards or their efficiency in determining claims that helps form their own perceptions of the award probability. Some variables in the award equation should thus be included in the claim equation. Some of these variables may also affect claiming costs. Increased income may raise the stigma attached to receipt of means-tested benefit as well as lowering the perceived probability of award. Higher unemployment may lower the disutility of claiming since expected duration on benefit will be longer.[8] We enter other variables assumed to have a direct impact on claiming costs and no impact on E(SB), notably education and the level of the individual's previous UI benefit which we expect to have a similar impact on stigma to other household income.

Equations (1) and (2) are estimated together as a bivariate probit model.[9] Results are given in *Table 5* for men and women separately and

---

with central government. In this situation there is an incentive for councils to use the SB scheme for the unemployed. On this view SB may represent "easy money" for councils as well as claimants.

[7] A proportion (35 percent in 1995) of PIT revenue is returned to the council area of derivation and although these funds represent only about 10 percent of total local council revenue nationally (*Bird* et al, [1996]) the council area taxable personal income should proxy a number of other sources, including property taxes. (Direct transfers from central government are equalising but do not remove differences.)

[8] In other words, the average monthly claiming cost falls as unemployment rises.

[9] Let the propensity to claim and to be awarded benefit be given by Y_1 and Y_2 respectively with corresponding binary variables D_1 and D_2 indicating an observed claim and award, where:

$$Y_1 = \mathbf{b_1 X_1} + \varepsilon_1$$
$$Y_2 = \mathbf{b_2 X_2} + \varepsilon_2$$

the estimated impacts of unemployment and income for the former are graphed in *Figure 3*. The estimated correlation between the errors in the two equations is insignificant for both sexes, but it should be noted that the apparent self-selection effect is rather sensitive to the specification of the equations.

We start with the impact of household income.[10] Although strongly significant in both equations, household income appears to affect awards more than claims, which may imply that administration errors or laxity in adjudicating claims are less important than ignorance of the rules or other influences that weaken the influence of income on claim behaviour. Figure 3 shows that moving from the bottom to the top of the per capita income distribution reduces the award probability for a man by about 0.6 and the claim probability by about 0.35. The estimated effects for women are somewhat larger, especially for claims.

The hypothesis of no local effects in the determination of awards is rejected, although the results are mixed. In particular, the unemployment rate has a significant, although not particularly well-determined, positive impact for both sexes (well beyond its possible effect on local wage rates and hence any unobserved household income). Figure 3 shows that the range of observed unemployment rates in the 170 employment office areas in the data is associated with a *ceteris paribus* difference in the probability of receiving an award of about 0.25. On the other hand, the council area taxable income is completely insignificant for both sexes and this is an important - and encouraging - result to have established: there is no evidence that poorer councils are less disposed to make SB awards, given observed claimant income. Council area population, however, has a positive impact for men. A 10 percent rise in population is estimated to

---

We observe: $D_1 = 1$ if $Y_1 > 0$ ($D_1 = 0$ otherwise)
$D_2 = 1$ if $Y_2 > 0$ and $Y_1 > 0$
$D_2 = 0$ if $Y_2 \leq 0$ and $Y_1 > 0$ (D_2 is not observed if $Y_1 \leq 0$).

We assume that ε_1 and ε_2 follow a bivariate normal distribution with means zero, variances unity, and correlation coefficient ρ. The log-likelihood of the observed data is maximised with respect to $\mathbf{b}_1$, $\mathbf{b}_2$, and ρ.

[10] Income is only partially observed within the survey and we undertook some imputation to arrive at a total for the household. We observe the net earnings of spouses but not of other household members, for whom we know only the employment status. We imputed earnings for the latter from regressions run on the former. Family allowances were imputed following the rules in force at the time of the survey. Pensions and other social security benefit income were imputed from regressions run on the TÁRKI Hungarian household panel (we observe their presence in the follow-up survey but not the amount received).

increase the award probability by about 1 percent – there is no evidence that smaller councils are more lax and thus more generous. The result could obviously be interpreted in the opposite way – that smaller councils are tougher – but this is not the only possible interpretation. Moreover, the result is not found for women, which complicates the interpretation for men, and in the larger cities there is a mixture of estimated impacts.

The impact of local unemployment on claims is larger and notably better determined than its impact on awards - a lower disutility of claims re-enforcing any effect coming through the perceived probability of awards. A number of other variables have big effects on claims, conditional on household income. For example, women with less than primary education have a probability of claiming that is up to 40 percent points higher than women with primary education; claims are somewhat more likely from single than from married women. In both cases our interpretation is that claiming costs are lower for the individuals concerned. The previous level of UI benefit (which of course is not taken into account in the SB income test) has no discernible impact on the claim probability for men but an important and well determined negative impact for women, not much less that that for household income. Our interpretation is that stigma from claiming rises with UI level although it is difficult to think why this should be the case only for women.

These results provide some insight into the operation of social assistance in Hungary, showing that the probability of receipt is influenced by several important factors other than income level, and thus providing a richer view of the operation of such schemes. They also enable us to predict receipt for all the follow-up survey sample and we build on this in the rest of the paper.

4. LIVING STANDARDS FOLLOWING EXHAUSTION

The living standards of the unemployed can be measured in a number of ways. An obvious possibility is to assess income or expenditure in relation to an absolute poverty line, as in the recent assessment of poverty in Hungary by the *World Bank* [1996]. The authors adopt as a poverty threshold the minimum pension level, which, it is argued, is sufficiently low to identify „the very poorest individuals" (p.16). This is well *above* the SB level and the setting of the latter below the minimum pension reflects a concern with costs and incentives as opposed to a purely social objective in which the greater subsistence needs of an active person would require that

SB were the higher of the two.[11]

Measuring living standards by equivalised annual expenditure, 5 percent of all households in the 1993 Hungarian Budget Survey were found to be beneath the minimum pension level (*World Bank*, [1996], *Table 1.7*). However, the incidence of poverty, on this yardstick, in households with an unemployed head was about 15 percent if some form of unemployment benefit was received and as high as 40 percent if there were no benefits. On the other hand, in households containing an unemployed person but where the head was employed, poverty rates were only 5 and 15 percent respectively. These results show the generally disadvantaged position of many unemployed, particularly those without benefits, but also demonstrate that living standards will vary notably with the labour force status of other household members.

Our concern in this paper is less with the absolute level of living standards of the unemployed than with how these *change* at exhaustion of UI or on return to work. There may be smoothing of consumption across these events but we cannot observe this with the available data and instead proxy changes in living standards by changes in monthly income. We therefore consider various ratios of incomes in the different states:

i) Social Benefit / last net UI payment;
ii) net household income following exhaustion / net household income when individual last received UI;
iii) Social Benefit / net wage on return to work;
iv) net household income following exhaustion / total net income on return to work.

Ratios (i) and (ii) are backward looking replacement rates, measuring change in income following UI exhaustion; (iii) and (iv) show how income changes on the return to work; (i) and (iii) focus only on the individual's benefits and wages while (ii) and (iv) include other sources of household income.

T*ables 6* and *7* give descriptive statistics on these ratios. *Table 6* is restricted to those in the "base state" at interview (still unemployed) and shows that, when received, SB replaces on average two-thirds of UI for men and three-quarters for women, implying a substantial drop in benefit income. In 10 percent of cases there is a fall of less than 20 percent while in another 10 percent of cases benefit income falls by a half. The bottom part of the table shows how the picture is modified when we take into

[11] The same balance of considerations may also be seen in the design of social assistance for the unemployed in the UK (*Atkinson* and *Micklewright*, [1992], chapter 8).

account other household income. Where SB is not received, household income is on average around 60 percent of that when UI was paid (somewhat lower for men and higher for women). Other sources of income are thus playing an important role in supporting living standards after UI exhaustion. The same is true where SB *is* in receipt: the mean ratio of household incomes before and after exhaustion is over 80 percent for men and nearly 90 percent for women. The figures vary substantially with household circumstances. For example, when no SB is received a woman whose husband does not work faces an average income drop of 50 percent compared to 25 percent for women with employed husbands. Replacement rates are some 5 to 10 percentage points higher where there are dependent children, emphasising the role of family allowances in cushioning income changes resulting from the unemployment benefit system (although the data may also reflect other differences between households with and without children).

Table 7 shows actual income gains on return to work for those back in a job at interview. On average the net wage in the new job for men is just over double the income from SB where previously received (or predicted from the award equation in *Table 5* where the return to work happened quickly). Even at the bottom decile of new job wages, the return to work leads to a 50 percent rise in income. Not surprisingly the changes for women are smaller with a mean benefit/wage ratio of 58 percent compared to 46 percent for men.[12]

The lower half of the table again shows how the picture is modified by taking into account income of other household members. On average, the net household income of men returning to work who previously received SB rises by only 50 percent compared to the average change of 100 percent when one focuses on benefits and wages alone. For women, the average rise in household income is only one third. It is also striking that the changes in household income are on average not so very different for those with or without previous SB (or predicted SB). The mean values of the income ratio for men in the two groups only differ by 6 percent points, which may be compared with the 25 point difference in mean values of the household income ratio in *Table 6.* The implication is that those without SB are on average returning to lower wage jobs than those who receive (or would have received) the benefit. This is consistent with the absence of SB leading to lower reservation wages but there may of course

[12] The wages that the individuals return to are low. The means for both sexes are only 60 percent of those for employed persons in the March 1995 sweep of TARKI household panel and in almost 90 percent of cases the re-employment wages in the follow-up survey are in the bottom half of the distribution in the TARKI data.

be other differences between the two groups that explain the patterns in the data. The presence of a working spouse is again associated with higher income ratios. On average, a woman returning to work raises household income by 50 percent where no SB was paid (or predicted) but by only 30 percent if she previously received SB.

Household circumstances clearly do affect the changes in income (and, by proxy, living standards) that occur on exhaustion of UI and on the return to work. Neither transition leads to such large changes in living standards as one might expect from a focus on benefits and wages alone. The household cushions the impact of ending UI entitlement and also reduces the impact of the return to work. The former is beneficial from the point of view of income support for the unemployed. The latter may decrease the incentive to find new work. In the next section we try to deduce the impact on individual behaviour of these changes in household income.

The importance of the household in reducing relative income changes should not be confused with its impact on the *absolute* level of living standards of the unemployed. While other household members could reduce the probability of being below a poverty threshold, for example where they are employed, they could also increase it. For example, children may "bring" family allowance to the household but overall their presence may typically reduce total equivalised income. Although family allowance dampens down income changes following benefit and labour market transitions, a household may still be worse-off in absolute terms as the result of its children.

5. INCENTIVES TO RETURN TO WORK

We start by seeing how the behaviour of the job exit hazard changes around the UI exhaustion point, distinguishing between those with low and high probabilities of getting SB. This is shown in Figure 4, where hazards in terms of days until exhaustion are estimated non-parametrically using one-week intervals. Estimation uses the full inflow cohort from which the exhauster survey was drawn, conditional on survival in the UI register to within four months of the point of exhaustion. All spells ending in exits to states other than a job are treated as censored at the point of exit.

Figure 4 is restricted to those in the top and bottom thirds of the distribution of predicted probabilities of SB entitlement. These predicted probabilities are based on a simple probit that is estimated for those in the follow-up survey who at interview were either (i) receiving SB, or (ii) reported claiming but being refused benefit due to the level of household

income or not claiming at all on grounds of income level. In this way we try to restrict the estimation sample to those cases where entitlement definitely existed or where it appears not to have done so. In order to inspect the hazards before as well as after the exhaustion point, the model is estimated only with variables available from the UI register or which refer to the local area – variables that are available for the whole inflow cohort rather than just for the follow-up survey sample.[13] It is tempting to compare directly the levels of the hazards for those with high and low predicted SB probabilities but this would not be a comparison that held other things equal. It is the comparison of the *changes* in the hazards that is more appropriate. Does the low SB probability group experience a larger change in the hazard around the exhaustion point than the high probability group?

In the case of the men, the hazard for the group with low SB probability almost doubles in the last week of UI entitlement, having only risen slightly in the previous four months. This is nothing compared to the jump in the hazard in the next week, the first following exhaustion of UI, when there is a six-fold increase over the average value in the 6 weeks prior to exhaustion (leaving out the last week from this calculation).[14] But the high SB probability group has an even bigger surge in the hazard following exhaustion of UI, experiencing an eight-fold increase between the same two periods. The huge rises in the hazard last for just one week – the hazard in the subsequent three weeks for the low probability group is similar to that in the last week of UI, namely higher than earlier, and thereafter oscillates around a level similar to that in the months preceding exhaustion.[15] The hazard also falls back sharply for the high SB probability group, which appears from then on to have a somewhat higher hazard compared to the pre-exhaustion period, although there is not much in it. The pattern of results for women is similar to that for men. The spike in the hazard for both the low and high SB probability groups in the first week following exhaustion is five times larger than that in the six weeks

[13] Although this model of "entitlement" reflects determinants of claim as well as award it tries to restrict the former to cases where E(SB) is perceived to be low on account of the level of household income. A model that included all non-recipients would produce predictions that reflected in addition the impact of claiming costs, which we certainly would not want for the purpose in hand.

[14] The rise in the hazard is statistically significant. The 95 percent confidence interval for the hazard in the last week of UI is from 0.0033 to 0.0058; that in the following week is from 0.0104 to 0.0174.

[15] The greater variability of the hazard following exhaustion is due to the smaller sample from this point, the follow-up survey not covering all exhausters in the cohort.

preceding exhaustion (excluding the last week). Compared to a base level in earlier months, the rise for the low probability group is however somewhat larger.

The evidence in Figure 4 does not suggest that job search behaviour around the time of UI exhaustion is strongly related to the probability of entitlement to SB. There certainly does appear to be a group of persons who time their return to work to coincide with the point of UI exhaustion, but this behaviour does not appear to be very different for those with high and low probabilities of SB. Further investigation failed to reveal any distinguishing feature of this group in terms of observable characteristics, including level of UI payment or new job wages. It is also important to keep the size of the group in perspective. If we take all job exits right from the start of UI receipt up until the follow-up survey date (weighting the post-exhaustion exits to take account of the sampling from that point), the "first week post-UI" exits account for only 8 percent of the total.

We now investigate the impact of SB more closely with the aid of a parametric model of duration in the "base state" following UI exhaustion. The job exit hazard is specified as a logit function of (i) observable characteristics and (ii) time in the state, with all exits to states other than employment treated as censored. Parameters are estimated from a discrete-time model of weeks in the base state, following the procedure outlined in *Jenkins* [1995]. In estimating this model we condition on survival *beyond* the first week following exhaustion of UI. This means that we do not attempt to model the determinants of the big spikes in *Figure 4*. Our conclusion is that unobserved heterogeneity is generating this phenomenon and the easiest way to deal with it is to condition on survival past the risk of exit at this point.

The financial incentives to leave unemployment for work are captured by variables representing E(SB), the mean of the wage offer distribution, and other household income. In the six weeks following exhaustion, E(SB) is taken as the probability of an award predicted from the award equation results in *Table 5* multiplied by the SB level (6720 forints); following the six week point the variable is set to the SB level if the data collected at interview show that an award was actually made and to zero otherwise. Local councils awarding SB meet monthly and we assume that it takes six weeks for the process of claim and award to work through.[16] (We noted earlier that the individual's subjective probability of an award might well differ from the actual probability but we are unable to identify the former.)

[16] Among those still unemployed after six weeks, 62 percent of those who do not get a job by the date of interview receive SB at some time and 33 percent of those who do find work.

The mean of the wage offer distribution is approximated by the fitted values of a regression run on new job wages for those exiting to employment, in which explanatory variables include the previous earnings on which UI was based and a number of personal characteristics. The other household income variable contains the same items as entered the calculations of income ratios in *Tables 6* and *7*. Controls are included for age, education, marital status, circumstances of entering unemployment, and the strength of the local labour market. The base-line hazard is modelled by a series of dummy variables for each week until week 20.

Results are given separately for men and women in *Table 8* (the coefficients of the base-line dummies are not reported). The first two columns give the results of a specification including the controls only. These differ notably between the sexes. Age has a strong and well determined negative effect for men, a 10 percent increase in age leading to a fall in the hazard of about 8 percent.[17] But there is no discernible impact for women. Nor is marital status associated with any increased probability of finding a job for women while a married man is estimated to have a hazard 1.5 times that of a single man. Increased education has an important positive effect for both sexes. The hazards are lower where there is a higher rate of the local unemployment rate, although the effect is neither very well determined nor large.

The second column for each sex includes the three income variables described above. The coefficients on the SB variable and the predicted wage have the signs one would expect and are significant, that on the former being particularly well determined for both sexes. Other household income, on the other hand, is completely insignificant. This result is surprising and the apparent implication is that individuals base behaviour on benefit and wages only, as in the simplest search model. Of course, other household income affects the probability of receiving SB, hence influencing the hazard indirectly, and the correlation between any SB variable and other household income hinders the identification of their separate impacts. We experi-mented with various specifications of the benefit and wage variables. For example, we removed the switch in the value of the E(SB) after 6 weeks, making it equal throughout to the predicted probability of award multiplied by the SB level, dropping at the same time the other household income variable; the estimated coefficients were very similar (although the standard errors doubled). It may also be

[17] With the logit functional form for the hazard, h, elasticities are given by $(1-h)\beta$ for variables in logs and $(1-h)\beta x$ if in levels. In our calculations in the text we take h as very small and the mean value of x.

noted that the inclusion of the income variables changes the estimated impact of some of the control variables, notably the impact of the local unemployment rate, which changes sign. The apparent implication is that the negative impact on the hazard of higher local unemployment in the model with no income variables reflects only an indirect effect through an increased probability of an SB award, although it may be that we are simply unable to identify the different effects adequately.

The elasticity for the hazard with respect to E(SB) implied by the results in *Table 8* is about -0.7 for both sexes, which represents a rather modest impact and one not out of line with that found in some OECD countries (for example, *Narendranathan* et al, [1985]). It is also seems in line with our non-parametric results, which showed that UI exhaustion has a big impact on the hazard for certain individuals but did not suggest that this has much to do with the probability of going on to receive SB. Finally, it echoes the low elasticities suggested by earlier work that looked at the impact of a change in UI rules on the behaviour of UI recipients (*Micklewright* and *Nagy,* [1995]).

6. CONCLUSIONS

Running out of entitlement is the most common way of leaving the UI register in Hungary. Our analysis of a follow-up survey of UI exhausters has shed light on what happens next and hence on a number of aspects of living standards of the unemployed, labour market flows and the design of policy, all of which may have relevance for other countries in the region:

- Means-tested social assistance benefit provides income support to about a half of all exhausters in Hungary. A model of claims by individuals and awards by local councils suggests that claiming costs may be important and that there is some variation in councils' treatment of claims that is unrelated to claimants' income levels. Further investigations of this type are needed in transition economies given a region-wide move to increased decentralisation of social protection policy. A positive finding in the Hungarian case is the absence of any association of the award probability with the local council resource base; the less well-off local councils do not appear to be ignoring the national rules.

- The impact of UI exhaustion on living standards (as proxied by income) depends notably on the household circumstances of the individual, which

have often been ignored in analysis of the unemployed in transition economies. The presence of other earners is a key issue here and we showed how Hungary compares in this respect with a range of other European countries. A half of the married men in our sample had a spouse who did not work but only a quarter of the married women; a half of all the men and two-thirds of the women had dependent children.

- One group of claimants appears to be timing the return to work to coincide with the exhaustion of UI entitlement. Changes in UI duration or benefit levels would be a very crude tool with which to change incentives for this group and a more appropriate policy response would be to try to identify these claimants early on in their UI spells and administer their claims in such a way as to pressurise them into earlier exits.

- The speed of return to work both before and after UI exhaustion does not appear to be very strongly related to the probability of entitlement to social assistance - the bulk of the Hungarian unemployed appear rather inelastic to changes in benefits. The reasons for this are a matter for interpretation. On one argument it may be due to the existence of opportunities for working in the black economy while receiving support from the state. A more charitable explanation would centre on the individuals' lack of command over full-time job offers paying a living wage.

REFERENCES

Atkinson, A. B. and Micklewright J. [1991]: Unemployment Compensation and Labor Market Transitions. *Journal of Economic Literature*, 29: 1679-1727.

Atkinson, A. B. and Micklewright. J. [1992]: *Economic Transformation in Eastern Europe and the Distribution of Income.* Cambridge University Press, Cambridge.

Bird, R.–Wallich, C. and Péteri, G. [1996]: Financing Local Government in Hungary. In: Bird, R.–Ebel, R. and Wallich, C.: *Decentralization of the Socialist State: Intergovernmental Finance in Transition Economies*, Averbury, Aldershot.

Blundell, R.– Fry, V. and Walker, I. [1988]: Modelling the Take-up of Means-Tested Benefits: The Case of Housing Benefits in the United Kingdom. *Economic Journal*, 98: 58-74.

Boeri, T. and Edwards S. [1996]: Long-term Unemployment and Short-Term Unemployment Benefits: The Changing Nature of Non-Employment Subsidies in Central and Eastern Europe. OECD, mimeo.

Duclos, J-Y. [1995]: Modelling the Take-Up of State Support. *Journal of Public Economics*, 58: 391-515.

Förster, M. [1996]: The Household Situation of the Unemployed. *Luxembourg Employment Study*, CEPS/INSTEAD, Luxembourg

Jenkins, S. [1995]: Easy Estimation Methods for Discrete-Time Duration Models. *Oxford Bulletin of Economics and Statistics*

Micklewright, J. and Nagy, Gy. [1995]: Unemployment Insurance and Incentives in Hungary: Preliminary Evidence. *CEPR Discussion Paper* 1118, and in: Newbery, D (ed.): *Tax and Benefit Reform in Central and Eastern Europe*, CEPR, London.

Micklewright, J. and Nagy, Gy. [1996]: A Follow-Up Survey of Unemployment Insurance Exhausters in Hungary. *European University Institute Working Paper in Economics* 96/8.

Narendranathan, W.– Nickell S. and Stern J. [1985]: Unemployment Benefits Revisited. *Economic Journal*, 95: 307-329.

The World Bank [1996]: *Hungary: Poverty and Social Transfer.*, Washington D.C.

TABLES

Table 1. Activity of UI Exhausters 1 Week and 3 Months after Exhaustion

	1 week after exhaustion			3 months after exhaustion		
	Men %	Women %	Total %	Men %	Women %	Total %
Base state:						
Searching for a job	70.5	68.3	69.4	54.1	54.9	54.5
Not searching for a job	7.6	14.0	10.8	6.7	13.3	10.0
Casual work + search	8.7	3.2	6.0	8.2	2.4	5.3
Casual work, no search	1.0	0.7	0.9	1.2	0.7	0.9
Exits:						
Employment	7.0	5.7	6.4	20.9	16.8	18.8
Training / Public works	0.5	0.5	0.5	2.3	1.2	0.8
Child care / Pension	4.0	6.6	5.3	5.8	9.3	7.6
Other	0.6	0.9	0.8	0.8	1.3	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Percentages are based on weighted data.

Table 2. Characteristics of UI exhausters

	Men %	Women %
Living alone	11.3	4.0
Single	31.2	22.1
Married, spouse works	34.1	57.9
Married, spouse does not work	34.7	19.0
Other working adult, not including spouse	19.3	16.0
Any working adult, including spouse	47.5	67.6
Any adult in household with income	74.9	78.0
Dependent child	47.9	68.3
Average household size	3.2	3.4

Note: Percentages are based on weighted data.

Table 3. Percent of long-term unemployed living in a household with at least one employed member

Northern Europe	
UK	34.6
Ireland	47.4
Belgium	48.0
Germany	49.1
France	55.3
Netherlands	56.0
Southern Europe	
Spain	64.7
Italy	67.2
Greece	70.9
Portugal	83.2
Central Europe	
Slovakia	51.9
Hungary	54.8
Czech	60.8
Poland	63.5
Slovenia	68.6

Note: Data for 1993/94 from Labour Force Surveys (*Förster,* [1996])

Table 4. Social Benefit Receipt if in "base" state at interview

	Men %	Women %	Search %	No search %	Casual work %	Total %
SB in receipt	61.1	56.9	62.3	41.9	26.6	59.0
Received earlier	2.8	1.9	2.1	3.9	3.4	2.4
Unsuccessful claim	12.4	15.6	13.7	15.6	19.5	14.0
Has not claimed	23.8	25.5	22.0	38.6	50.6	24.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: The "base" state are the first four rows in *Table 1.* Percentages based on weighted data.

Table 5. Bivariate Probit Model of SB Claim and Receipt

	Men		Women	
	Claim	Award	Claim	Award
Constant	-0.176	-0.025	1.825	1.505
	(0.7)	(0.05)	(6.7)	(3.8)
Income per capita (000s Forints)	-0.068	-0.144	-0.099	-0.175
	(6.2)	(5.7)	(8.7)	(9.7)
Previous UI (000s Forints)	-0.013		-0.084	
	(0.8)		(4.7)	
Married	-0.100		-0.269	
	(1.3)		(2.7)	
Incomplete primary education	0.396		0.952	
	(2.2)		(3.0)	
Vocational school	-0.190		-0.166	
	(2.2)		(1.8)	
Vocational secondary school	-0.319		-0.393	
	(2.3)		(3.5)	
General secondary school	-0.414		-0.228	
	(2.2)		(1.8)	
Higher education	-0.502		-0.807	
	(2.2)		(1.9)	
Age	0.009		-0.005	
	(2.3)		(1.2)	
Local unemployment rate (%)	0.103	0.069	0.064	0.040
	(9.7)	(2.6)	(5.5)	(2.4)
Budapest dummy	0.510	0.318	0.315	0.488
	(3.7)	(1.1)	(2.5)	(1.9)
Other big city dummy		-0.497		-0.218
		(2.3)		(1.0)
Population of local council area (log)		0.124		-0.025
		(2.6)		(0.5)
Taxable personal income in local council area (per capita, 1000 Forints)		-0.001		-0.002
		(0.5)		(0.1)
Error correlation (ρ)	-0.165		-0.132	
	(0.3)		(0.5)	
Log-likelihood	-1228.63		-1254.09	
Sample size	1546		1525	
Number of claimants	1135		1105	
Number of recipients	944		867	

Notes: T-statistics in parentheses. The sample used in estimation is those individuals who at interview are in casual work, searching for a job, or who are inactive.

Table 6. Income changes on exhausting UI

	Men		Women	
	No SB	SB	no SB	SB
	SB/UI %			
Bottom Decile		47.6		54.5
Top Decile		83.1		84.4
Mean		68.3		77.7
	Ratio of post- to pre-exhaustion household income, %			
Mean:				
All individuals	57.5	82.2	66.1	89.0
Married, spouse not working	52.0	81.8	48.8	87.2
Married, spouse working	67.0	86.4	73.0	92.9
No dependent children	53.9	80.1	62.1	84.3
Dependent children	63.0	84.8	68.6	91.0
Sample size	602	944	658	867

Note: Percentages are based on weighted data.

Table 7. Income changes on return to work

	Men		Women	
	No SB	SB	no SB	SB
	SB/Wage %			
Bottom Decile		39.1		37.2
Top Decile		64.0		69.7
Mean		46.3		57.7
	Ratio of post-exhaustion household income to that on return to work, %			
Mean:				
All individuals	61.2	67.4	67.3	75.0
Married, spouse not working	68.6	68.1	65.9	75.8
Married, spouse working	58.8	73.7	67.3	83.7
No dependent children	62.1	62.7	65.3	69.3
Dependent children	60.1	70.4	68.6	77.9
Sample size	188	324	206	213

Notes: Percentages are based on weighted data. We included among SB recipients those who returned to work quickly after exhaustion who did not receive SB but who had a high predicted probability of SB award (using the award equation in *Table 5).*

Table 8. Discrete-time duration model of the post-UI exhaustion job exit hazard (logit functional form)

	Controls only		Full model	
	Men	Women	Men	Women
Age (log)	-0.804	-0.025	-0.953	-0.370
	(4.6)	(0.1)	(5.1)	(1.5)
Incomplete primary education	-1.157	-0.489	-1.008	-0.048
	(3.0)	(1.3)	(2.6)	(0.1)
Vocational school	0.291	0.246	0.147	0.236
	(2.6)	(1.8)	(1.3)	(1.8)
Vocational secondary school	0.702	0.516	0.276	0.027
	(4.9)	(3.5)	(1.6)	(0.1)
General secondary school	0.427	0.626	0.601	0.201
	(1.7)	(4.2)	(2.3)	(0.9)
Higher education	0.661	1.071	-1.191	0.602
	(2.6)	(3.6)	(2.2)	(1.8)
Job leaver	-0.301	0.187	-0.313	0.167
	(1.7)	(0.8)	(1.7)	(0.7)
Married	0.450	0.036	0.425	-0.132
	(4.4)	(0.3)	(4.0)	(1.0)
Local unemployment rate (%)	-0.027	-0.029	0.026	0.028
	(2.5)	(2.2)	(2.0)	(1.4)
Expected Social Benefit (SB)			-0.144	-0.157
			(6.9)	(6.7)
Predicted wage			0.172	0.175
			(3.6)	(2.1)
Other household income			0.003	0.001
			(0.7)	(0.1)
Log-likelihood	-2539.40	-2099.31	-2502.78	-2066.01
Number of spells	2195	2050	2195	2050
Number of job exits	517	407	517	407

Notes: The likelihood is conditioned on survival past the first week after exhausting UI. T-statistics are given in parenthesis. Expected SB, the predicted wage and other household income are in thousands of forints per month. Expected SB varies with duration in the manner described in the text. All models include weekly dummy variables for the base-line hazard.

FIGURES

Figure 1. Monthly outflow rates and re-employment rates from the Unemployment Insurance Register in Hungary (quarterly averages)

Source: National Labour Centre
Note: Outflow rates are calculated as percentage of stock of benefit recipients a) leaving for any reason including UI exhaustion b) leaving to a job

Figure 2. Survivor functions for claimants with 360 and 330 days entitlement period

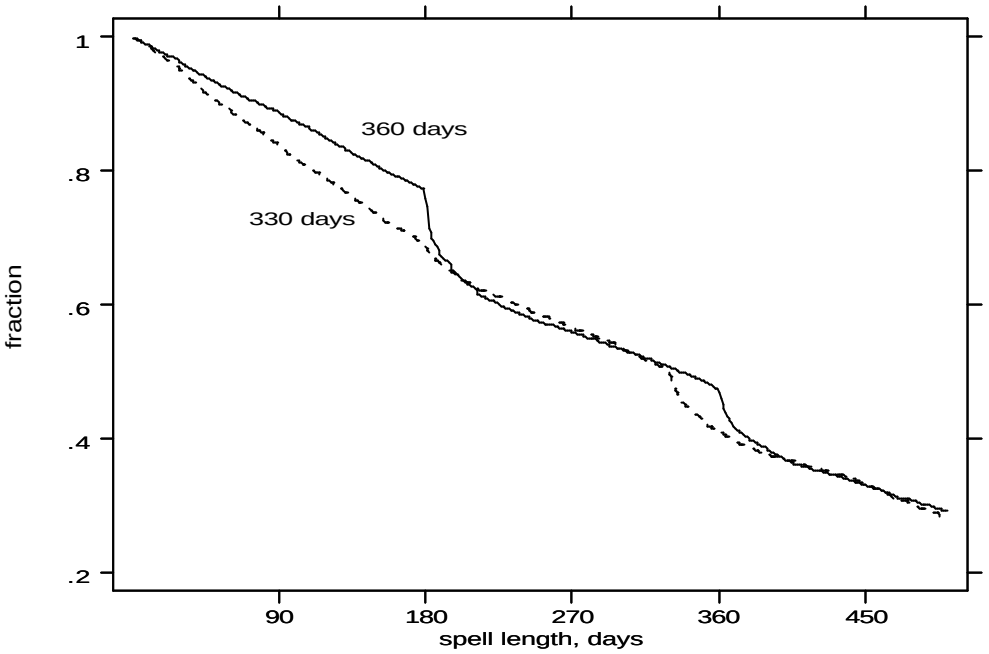
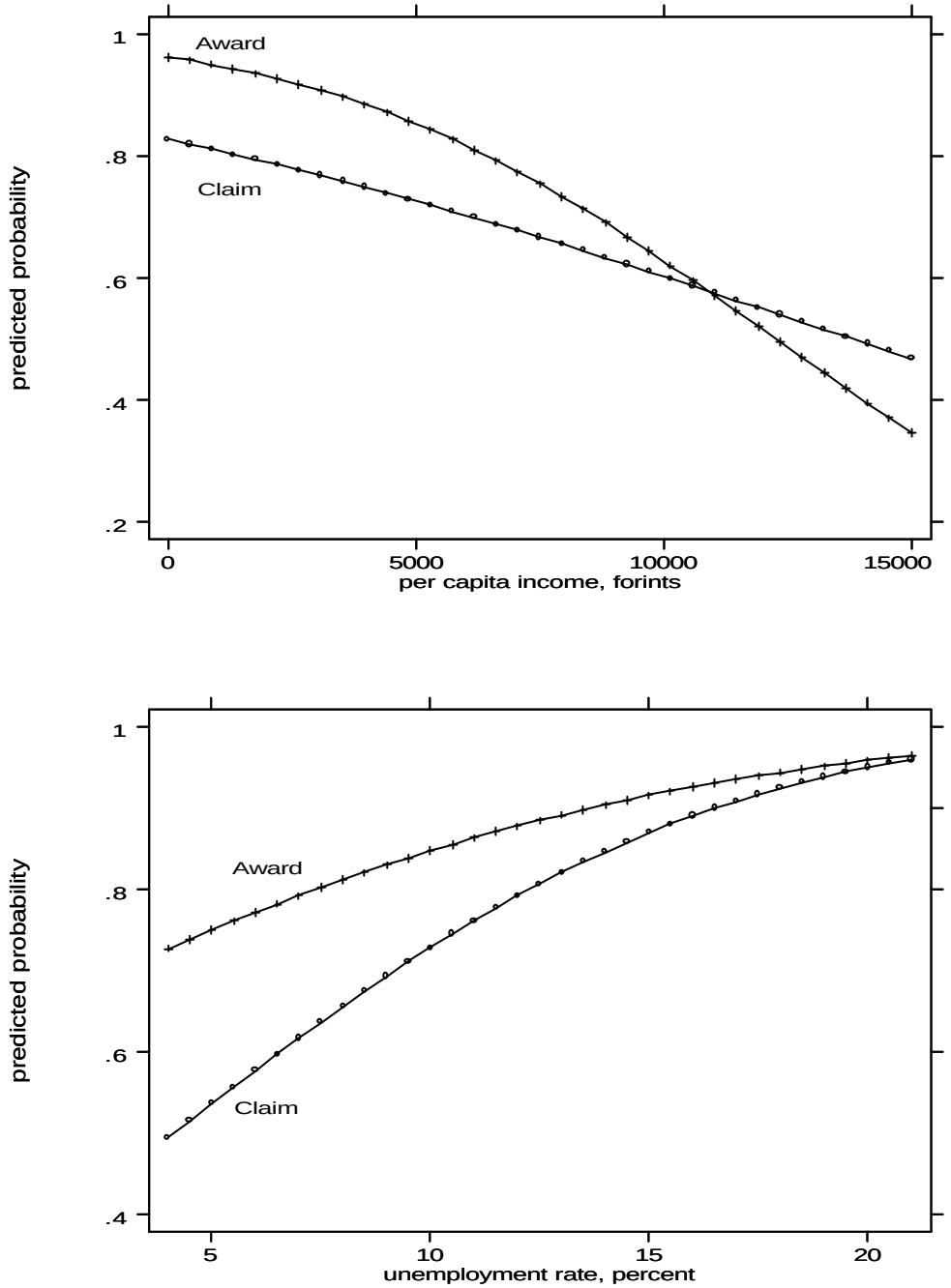


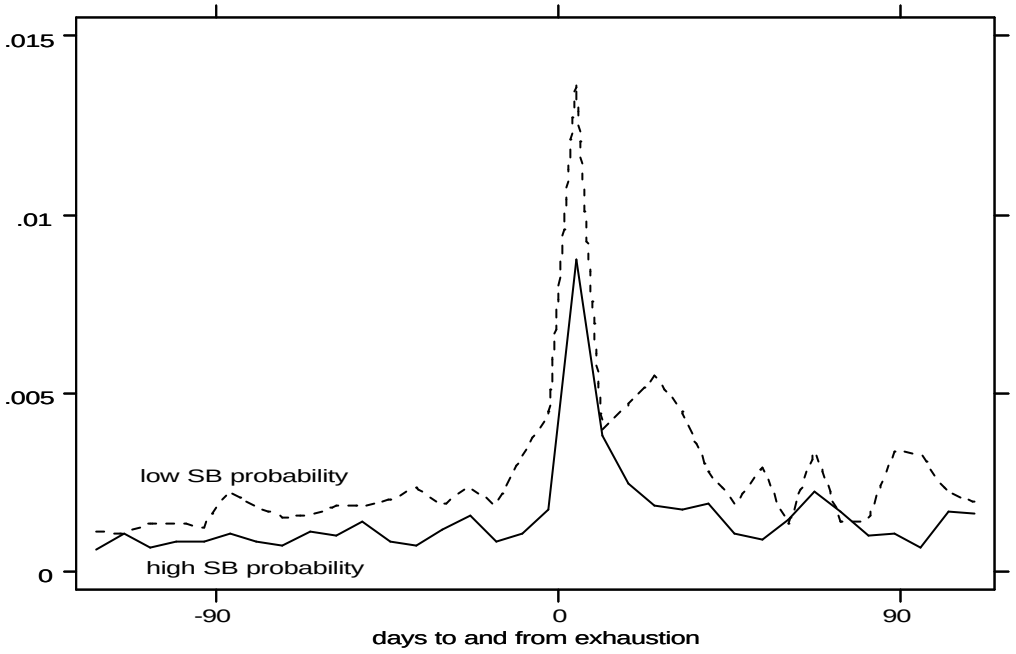
Figure 3. Estimated impacts of per capita household income and local unemployment rate on the probability of claim and award (men)



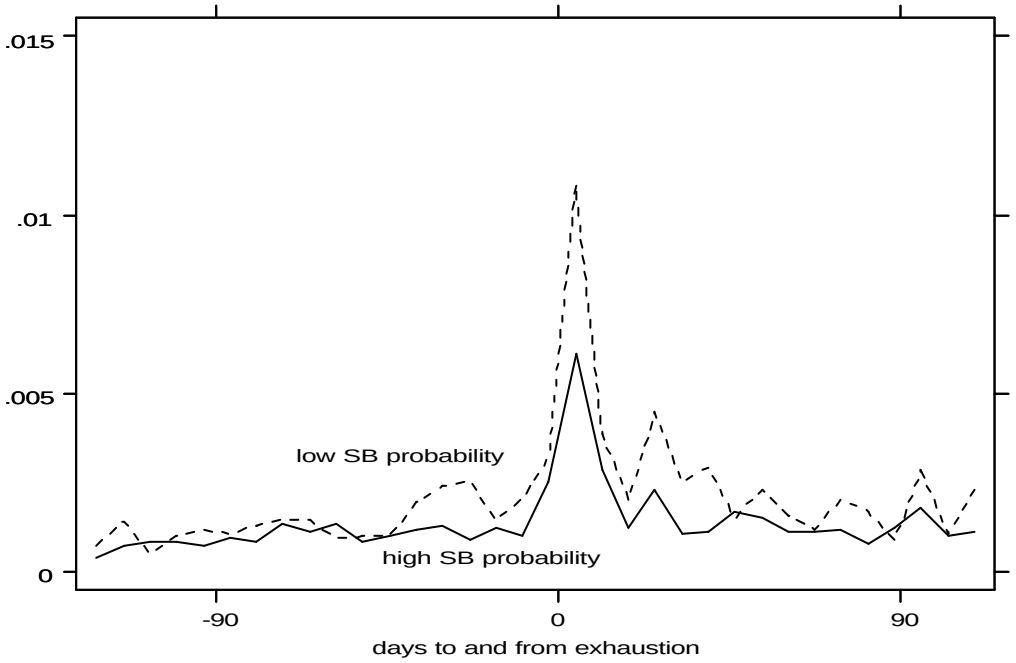
Note: Based on results in *Table 5* for individuals with assumed characteristics: primary school education, single, continuous variables set at their average values

Figure 4. Pre- and post exhaustion re-employment hazards by the predicted probability of SB receipt

a) Men



b) Women



Note: High and low SB probabilities refer to the top and bottom thirds of the distributions predicted by probits of receipt estimated for the sub-sample described in the text using variables from the UI register only (pre-unemployment earnings, age, educational level, local unemployment rate, population of local council area, per capita taxable personal income in local council area)