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ABSTRACT

In this paper we study first the determinants of unemployment duration distinguishing between exits to temporary and permanent jobs. Second, we study the determinants of unemployment duration for long-term unemployed, allowing for exits to inactivity or study in addition to exits to employment. We estimate multiple-exit discrete duration models by maximum likelihood and we compare the alternative models and estimation methods.

Among other results, we find that the hazard rates to temporary employment are much higher than the ones to a permanent job. In both cases receiving unemployment benefits has an important negative effect. Business cycle effects are also significant. In the case of exits to permanent jobs, their magnitude is similar (but of opposite sign) to that of unemployment benefits, but it is smaller in the case of temporary jobs. As for the long-term unemployed, their hazard rates to employment are much higher than the ones to inactivity or study, except for very specific groups like the very young or the old. Individual characteristics have a very important effect on the hazard rates from long-term unemployment and the effect of receiving benefits loses significance relative to the influence of the macroeconomic conditions.

I. INTRODUCTION

The Spanish labour market has two distinctive characteristics: a high level of long-term unemployment and extensive use of temporary employment. The growth in long-term unemployment in Spain coincides with the period 1977-85, when the Spanish unemployment rate rose from 5% to more than 20%. The large accumulation in the stock of unemployed was quickly transmitted to the group of those unemployed for more than one year, so that the ratio of long-term to total unemployment, which was 20% at the beginning of the period, rose to more than 55% in the late 1980s. Meanwhile temporary employment has seen unprecedented growth since the mid-80s, coinciding with the promotion of such hiring through new forms of contract and financial incentives. The ratio of temporary to total employment has in recent years reached levels of more than 30%.

This paper covers certain aspects which may lead to a better understanding of the workings of the Spanish labour market. On one hand it will focus on a study of the factors which affect the exit from long-term unemployment, given that there are reasons to justify treating this group separately: first, owing to its importance in total unemployment (55% in 1997); second, because studying long-term and short-term unemployment together may hamper identification of the specific characteristics of this group; and finally, because while for male unemployment entrants it does not seem relevant to consider exits other than into work, among the long-term unemployed other exits may be considered, such as into inactivity. On the other hand, the duality in the Spanish labour market, where temporary employment stood at 34% of wage-earners in 1997, makes it worth studying the exit rates to permanent and temporary employment separately, in order to characterise possible differences: Do the exit rates to these two types of employment differ significantly? Is the exit rate to a permanent job affected in the same way as to a temporary one by the receipt of unemployment benefit? And by the business cycle?

The data we use for the analysis come from the Labour Force Survey interview panel between the second quarter of 1987 and the third quarter of 1994, so that a full cycle of the Spanish economy is covered. The hazard rates, as explained in more detail in the presentation of the data, are calculated quarterly, the periodicity with which the survey was published until recently.

In relation to the literature on Spain, this paper is along the lines of those by Bover et al. (1996) and Alba (1996), which use the Spanish Labour Force rotating panel to study the determinants of unemployment duration and focus on the cohort of unemployed men (due to the lack of information on the family, which is so important in the case of women) aged 20-64 with work experience, which reduces the instability arising from the relationship between the youngest and oldest and activity. The former construct a panel of entrants into unemployment, expressing durations in months, and evaluates the effect of the receipt of benefits on the hazard rates from unemployment to employment compared to other factors; the latter, focuses on assessing the effects of benefits on the basis of different assumptions, and incorporates the exit into inactivity. Other contributions should also be mentioned, such as Antolín (1995), which estimates the determinants of the exit to employment and inactivity for women and men, although it does not take into account the duration of unemployment or the receipt of benefit; Cebrián et al. (1995), who estimate the hazard of finding employment before benefits are exhausted using INEM (National Employment Office) records; and García Brosa (1996), who analyses the effect on the hazard of being unemployed in the fourth quarter of 1990 of the receipt of benefits and of an approximation of its duration for a sample of unemployed in Catalonia from the Labour Force Survey.

The paper is structured as follows. Section two reviews developments in long-term unemployment and temporary employment in Spain in recent years, with particular emphasis on their composition. Section three presents the data base used, comparing the alternative models and estimation methods. Section four presents and discusses the estimation results. Finally, section five summarises the conclusions.

II. LONG-TERM UNEMPLOYMENT AND TEMPORARY EMPLOYMENT CONTRACTS IN SPAIN

The dynamics of long-term unemployment have been closely linked to those of total unemployment, responding to changes in the latter with a lag of about 12 months (the period of unemployment defined as long-term). So, for example, while the rate of unemployment reached a high in 1985-86, the rate of long-term unemployment did not do so until 1987. Likewise the 1990-91 low in total unemployment was reflected in the latter group in 1991. As a result, the long-term unemployment ratio also responds with some delay to rises and falls in total unemployment.

Analysis of the composition of long-term unemployment and how it has changed over time (see Figures 1.1 and 1.3) contributes to a better understanding of the overall trends. As regards gender, the proportion of women has been increasing; they represented less than 40% of long-term unemployment in 1977 and close to 60% in 1997. With regard to age, the long-term unemployed have aged, since the weight of the youngest, especially those aged 16-19, has fallen significantly, while the central age group (30-44) has gained weight. These developments in relation to age have affected men and women alike, although in the case of women the 45-64 age group has also increased. By level of education, the proportion with primary education at most fell drastically, specially among men, and the weight shifted to the higher levels of education: in the case of men, to secondary education and vocational training, and in that of women, to vocational training and higher education.

It remains to be seen if the above trends in the composition of long-term unemployment coincide with those in unemployment as a whole, or whether there are groups which have been especially affected. Analysis of the long-term unemployment ratios enables this point to be clarified. It should be pointed out in this respect that the difference between women and men has been growing over time, to stand in recent years at around 11 percentage points. By age, where the dispersion has also been growing, leaving aside the youngest and oldest, whose ratios are more extreme and variable, the other cohorts have ratios of close to 60%, only that of the 20-24 age group being lower. Lastly, there are practically no differences as regards levels of education.

Finally, it is worth considering Spanish long-term unemployment from an international perspective. Figure 1.4 gives unemployment rates and long-term unemployment ratios for a sample of OECD countries in the period 1985-96. It can be seen that Spain's unemployment rate, which fluctuated at around 20%, was the highest in the sample, after which we find a group of countries with rates close to 10%, such as Italy, France and the United Kingdom, and then another with rates close to 5% (Germany, Portugal and the US), with Ireland -the only country with a downward trend throughout the period- between Spain and the first group mentioned. However, as regards long-term unemployment ratios, the grouping is somewhat different. On one hand, there is a clear separation between the US labour market model, in which the rate of entry into unemployment is high and the average duration low, with a ratio below 10% and the European, with a lower rate of entry but a longer average duration, ranging from 40% to 70%. On the other hand, among

EU countries, Germany, the UK, Portugal and France have ratios below 50%, then comes Spain, with an average ratio of over 50%, and finally with a ratio of over 60%, Ireland and Italy.

It is also worth highlighting the trends in temporary employment in Spain. Figure 2 contains information on the composition of temporary employment both in absolute terms and relative to total employment. A higher and stable proportion of men, with a predominance of the young, is observed, although there is a slight tendency for ageing to take place. The duration of the contracts is mostly less than a year, the greatest weight being concentrated between the 4- and 6-month duration.

With regard to the temporary employment ratio, it is seen to be high historically among women, although the differential in recent years appears to have declined, and to differ considerably according to age, the relationship being inverse, i.e. the ratio declines with age. Among persons below the age of 25 it was 80% on average in 1997, and among persons aged 25 to 29 it stood at 50%, being below 20% only among persons over the age of 50.

In comparison with Spain's main trading partners, both the level reached by the ratio and its spectacular growth since the mid-80s are remarkable.

III. DESCRIPTION OF DATA, EMPIRICAL SPECIFICATION AND ECONOMETRIC METHODS

III.1 Description of the data

The sample we use comes from data on individuals from the rotating panel of the Labour Force Survey (National Statistics Office), for the second quarter of 1987 to the third quarter of 1994[1]. In this survey households are interviewed for a maximum of six quarters, and each quarter one-sixth of the sample is replaced. Given the large size of the original sample, in Bover et al. (1996) only individuals out of work on one of the dates on which they were interviewed are used. It was

[1] Note that the sample period ends before the 1994 reform, which increased in theory the possibilities of a dismissal to be ruled fair due to economic reasons, and that of 1997 which reduced severance payments for new permanent contracts.

considered that the information provided by these workers on the beginning of the period of unemployment would be more reliable than that from those who were already unemployed for over three months at the time of the first interview (and the duration of unemployment could be deduced from the successive interviews). However, only periods of unemployment with a maximum duration of eighteen months can be so studied. In our case, given that one of the objectives of the paper is to study the factors which affect the hazard rates from long-term unemployment (which we understand as periods of unemployment of one year or over), observations of the entrants into unemployment alone are not enough. Accordingly, after certain preliminary filters, our analysis is completely based on unemployment durations obtained from the replies of individuals to the questions as to how long they have been unemployed and not on the time they are actually observed to be unemployed in the successive interviews.

The type of information available does not reveal the socio-economic conditions of each individual's family, so that it is best to omit women from the study; their household socio-economic conditions (number of children and their ages, household income, etc.) are fundamental in their decision whether to seek employment and their incentives to search. Also omitted are the group aged 16-19 years, due to the evident instability in its activity rate, the group aged over 65 due to its high retirement rate, and the unemployed without previous work experience, as it is impossible to assign sectoral economic variables to them. Other adjustments to the data are commented on in Appendix I.

From this data base two samples are constructed, one to study the outflow from long-term unemployment and the other to study the outflow to permanent or temporary jobs, which includes all the unemployed. The way in which they are constructed is similar: the individuals classified as unemployed are selected, with note taken of the declared duration, and their situation in the following interview is observed. Each individual will therefore appear as many times as he declares himself unemployed, but generally with a different duration on each occasion. The transition allows the dependent variable to be constructed, or, in the case of the last interview, it makes the data censored. For the long-term unemployed the transitions to work, inactivity and studying (compared to staying unemployed) are defined. For the sample of unemployed of all durations the transitions to permanent employment or temporary employment as against staying unemployed or inactive are constructed, in line with Bover et al. (1996), which consider as alternatives to the transition to

work, both unemployment and inactivity at the second interview. This is, therefore, a wide definition of unemployment, but it is justified in a sample which only includes men and in which short durations predominate.

The construction of the explanatory variables, detailed in Appendix I, is the same for both samples. However, the treatment of benefit receipt deserves a more detailed explanation. An individual is classified as a benefit recepient if he declares to be registered at the employment office and to be receiving benefit. For short durations we follow the approach of Bover et al. (1996) in order to take into account those individuals who still do not receive benefit, owing to administrative delays, but do eventually receive them. Specifically, a person who has been unemployed for between one and three months is considered to receive benefit if he declares that he does in that interview or in one of the following two interviews, and a person who has been unemployed for four to six months if he does so in that interview or in the following one.

After the adjustments, we obtained one sample of 110,233 general unemployment durations and another of 36,736 long-term unemployment durations. The frequencies of the individual variables of each sample are set out in Tables A.I.1 and A.I.2.

In this paper we specify single and multiple discrete duration models. As we shall see below, those models can be regarded as a sequence of discrete choice models (with cross-equation restrictions) defined for the population which remains unemployed at each duration (cf. Kiefer (1987), Narendranathan and Stewart (1993a), Sueyoshi (1995), and Stewart (1995)).

III.2 Empirical specification and econometric methods

Single-exit discrete duration models

On one hand we present some estimates of a model in which the only exit from or possible alternative to unemployment is to find a job. For this model, the log-likelihood function is given by the sum of the contributions of the N individuals (i)

$$L(\beta) = \sum_{i=1}^{N} \left\{ (1-c_i) \sum_{t=1}^{T_i^o} log\ [1-\phi_i(t)] \right.$$

$$\left. + c_i \left(\sum_{t=1}^{T_i^o-1} log\ [1 - \phi_i(t)] + log\ \phi_i(T_i^0) \right) \right\}$$

where, following the notation used by Bover et al. (1996): β is the parameter vector to be estimated; c_i is an indicator which takes the value 1 if the end of the period of unemployment is observed, and 0 if it is not; T_i^o is the duration observed; $\phi_i(t)$ represents the hazard rate at t: $\phi_i(t) = Prob(T = t | T \geq t, x(t)) = F[\beta_0(t) + \beta_1(t)' x(t)]$; F(.) is a cumulative probability function (we use a logistic specification in this paper); $x(t)$ is a vector of individual, sectoral and aggregate characteristics that can vary over time, including an indicator of benefit receipt and interactions between the explanatory variables; $\beta_0(t)$ is a specific parameter of each duration t to capture in a flexible way additive duration dependence, and $\beta_1(t)$ is a vector of polynomials in $\log(t)$ which are introduced to capture interactive effects between the duration and the explanatory variables.

Multiple-exit discrete duration models

On the other hand we shall consider two different types of models in which there is more than one possible exit from unemployment. Specifically, in a first part we are going to distinguish between exits to a permanent job and exits to a temporary job for persons who have been unemployed for between 1 and 36 months, and in a second part, for the long-term unemployed, we shall incorporate as alternatives to employment, exits to inactivity and studying.

Specifically, if we have a discrete duration variable T and two alternatives represented by the indicators D_1 and D_2 , we can define the following intensities of transition to each of the states:

$$\phi_1(t) = Pr\ (T = t,\ D_1 = 1 \mid T \geq t)$$

$$\phi_2(t) = Pr\ (T = t,\ D_2 = 1 \mid T \geq t),$$

such that the hazard rate from unemployment is given by:

$$\phi(t) = \phi_1(t) + \phi_2(t)$$

Likewise, in order to see the discrete duration models as discrete choice models, it is useful to introduce sequences of exit indicators at t to a given alternative: $Y_{1t} = 1(T=t, D_1 = 1)$, $Y_{2t} = 1(T=t, D_2 = 1)$ for $t = 1, 2, 3....$ According to this notation $\phi_1(t) = Pr(Y_{1t} = 1 \mid T \geq t)$ and $\phi_2(t) = Pr(Y_{2t} = 1 \mid T \geq t)$.

Alternatively, we can define exit rates to each of the states conditional upon not exiting to the alternative state:

$$h_1(t) = Pr\ (Y_{1t} = 1 \mid T \geq t,\ Y_{2t} = 0)$$

$$h_2(t) = Pr\ (Y_{2t} = 1 \mid T \geq t,\ Y_{1t} = 0)$$

The relationship with the previous transition intensities is given by:

$$h_1(t) = \frac{Pr\ (Y_{1t} = 1 \mid T \geq t)}{Pr\ (Y_{2t} = 0 \mid T \geq t)} = \frac{\phi_1(t)}{1-\phi_2(t)}$$

and similarly

$$h_2(t) = \frac{\phi_2(t)}{1-\phi_1(t)}$$

Thus, unlike the continuous case, in the context of discrete duration variables and multiple alternatives, we can choose between modelling the intensities $\phi_j(t)$ or the conditional hazard rates $h_j(t)$. For example, if T represents the duration of unemployment and exits 1 and 2 are employment and inactivity, respectively, $\phi_1(t)$ is the probability of exiting to employment at $T=t$ among those who remain unemployed for at least $T \geq t$ periods. For its part, $h_1(t)$ is the

probability of exiting to employment at $T=t$ among those who remain unemployed for at least $T \geq t$ and do not exit to inactivity at $T=t$.

A specification commonly used in multiple choice problems which we shall also use here is the multinomial logit model. Accordingly, the dependence of $\phi_1(t)$ and $\phi_2(t)$ on the explanatory variables x is specified by

$$\phi_1(t) = \frac{e^{x'\beta_1}}{1 + e^{x'\beta_1} + e^{x'\beta_2}}$$

$$\phi_2(t) = \frac{e^{x'\beta_2}}{1 + e^{x'\beta_1} + e^{x'\beta_2}}$$

Note that, in accordance with the relationships given above, this specification for $\phi_1(t)$ and $\phi_2(t)$ implies that

$$h_1(t) = \frac{e^{x'\beta_1}}{1 + e^{x'\beta_1}}$$

$$h_2(t) = \frac{e^{x'\beta_2}}{1 + e^{x'\beta_2}}$$

That is, if the transition intensities are multinomial logit, the conditional exit rates are binary logit with the same parameters. As a result, the use of the logistic specification leads to the same model in both cases.

Nevertheless, having obtained estimates of the parameters β_1, β_2 , we can obtain two different measurements of the effect of the explanatory variables on the probabilities of exit to a specific alternative depending on whether changes in the $\phi_j(t)$ or changes in the $h_j(t)$ are used. Specifically, for a continuous variable x_k and for the exit to alternative 1 we can use

$$\epsilon_{\phi_1 tk} = \frac{\partial \phi_1(t)}{\partial x_k} \cdot \frac{x_k}{\phi_1(t)}$$

or else

$$\epsilon_{h_1 tk} = \frac{\partial h_1(t)}{\partial x_k} \cdot \frac{x_k}{h_1(t)}$$

It can be easily shown that the relationship between the two elasticities is given by

$$\epsilon_{h1tk} = \epsilon_{\phi 1tk} + \frac{\phi_2(t)}{1 - \phi_2(t)} \epsilon_{\phi 2tk}$$

$$\epsilon_{h2tk} = \epsilon_{\phi 2tk} + \frac{\phi_1(t)}{1 - \phi_1(t)} \epsilon_{\phi 1tk}$$

In adition, in the logistic case:

$$\epsilon_{h_1 k} = \beta_{1k} (1 - h_1) x_k$$

where β_{1k} denotes the k^{th} coefficient of the vector β_1 .

The differences between the two types of elasticity may be greater when the temporal aggregation of the durations is large. In the description of the results given below we have chosen to assess the effects of the explanatory variables using the changes in the conditional probabilities $h_j(t)$, although we also provide in certain cases the transition intensities $\phi_j(t)$ to see the extent to which the conclusions may vary in our case.

The models for the conditional probabilities $h_1(t)$, $h_2(t)$, are usually called "competing risk models". This name derives from the fact that if we consider the existence of two latent duration variables T_1^* and T_2^*, such that the observed duration is $T = \min (T_1^*, T_2^*)$ and T_1^*, T_2^* are independent, then the conditional exit rates can be interpreted as exit rates for the latent durations:

$$h_1(t) = Pr\ (T_1^* = t \mid T_1^* \geq t)$$

$$h_2(t) = Pr\ (T_2^* = t \mid T_2^* \geq t)$$

That is, to analyse exits to alternative 1 we take the exits to alternative 2 as censored observations, and vice versa.

Note that irrespective of whether T_1^*, T_2^* correspond to well defined concepts (and in the case of exits to employment or inactivity it is difficult to imagine that they do), $h_1(t)$, $h_2(t)$ generally represent useful descriptive characteristics for the durations and exits observed.

We now turn to consider the estimation of the parameters (β_1, β_2) of the logistic specification. We are going to consider two different methods for estimating the same model. The first consists in the joint estimation of β_1 and β_2 by maximum likelihood, while the second consists in separate estimation of β_1 and β_2 by conditional maximum likelihood. Both methods provide consistent and asymptotically normal estimates of the parameters, although the first estimator is in general asymptotically more efficient than the second. The advantage of the second is basically that its computation is faster. Moreover, separate estimators of the parameters corresponding to one of the alternatives are robust to specification errors in the regression index for the other alternative.

The sample in this paper is very large so that the relative inefficiency of separate estimation of β_1 and β_2 is of little importance. For the same reason, the time to calculate the joint estimation is significantly greater than that of separate estimation, which would hamper the specification searches. Accordingly, we have chosen to use mainly the conditional maximum likelihood estimators, although we also present some joint estimates, which show that the differences between them are very small in our case.

The joint log-likelihood function is given by:

$$L(\beta_1,\beta_2) = \sum_{i=1}^{N}\left\{(1-c_i)\sum_{t=1}^{T_i^0} log\left[1-\phi_{1i}(t)-\phi_{2i}(t)\right]\right.$$

$$\left. + c_i\left(\sum_{t=1}^{T_i^0-1} log\left[1-\phi_{1i}(t)-\phi_{2i}(t)\right] + D_{1i} log\,\phi_{1i}(T_i^0) + D_{2i} log\,\phi_{2i}(T_i^0)\right)\right\}$$

Likewise, using the sequences of indicators defined above we can express $L(\beta_1,\beta_2)$ as

$$L\ (\beta_1,\beta_2) = \sum_{t=1}^{max(T_i^0)} L_t$$

where

$$L_t = \sum_{i=1}^{N} 1\ (T_i^0 \geq t)\ \{c_i\ Y_{1ti}\ log\ \phi_{1i}(t) + c_i\ Y_{2ti}\ log\ \phi_{2i}(t)$$

$$+ (1 - c_i\ Y_{1ti} - c_i\ Y_{2ti})\ log\ [1 - \phi_{1i}(t) - \phi_{2i}(t)]\ \}$$

which shows that $L(\beta_1,\beta_2)$ can be regarded as the log-likelihood of a multinomial logit model defined on the basis of the concatenation of the samples surviving at each duration. The joint maximum likelihood estimators $(\hat{\beta}_1,\ \hat{\beta}_2)$ are defined as the values which maximise $L(\beta_1,\beta_2)$.

In addition, the conditional log-likelihood function for exit 1 is given by:

$$L_{c1}(\beta_1) = \sum_{i=1}^{N}\left\{c_i\left(D_{1i} log\,h_{1i}(T_i^0) + D_{1i}\sum_{t=1}^{T_i^0-1} log\left[1-h_{1i}(t)\right]\right)\right.$$

$$\left. + \left[D_{2i} + (1-c_i)\right]\sum_{t=1}^{T_i^0} log\left[1-h_{1i}(t)\right]\right\}$$

with a similar expression for the likelihood corresponding to exit 2, $L_{c2}(\beta_2)$. Note that in $L_{c1}(\beta_1)$ the exits to alternative 2 are treated as censored observations, so that formally it is a function with exactly the same form as the likelihood with a single

exit of the previous section. The implication is that the conditional maximum likelihood estimators, $(\tilde{\beta}_1, \tilde{\beta}_2)$, defined as the maximisers of $L_{c1}(\beta_1)$ and $L_{c2}(\beta_2)$, respectively, can be obtained as separate maximum-likelihood estimates of two binary logit models.

Both types of estimators have been used in various papers in the literature, but generally without relating the alternative models and estimation methods to each other. Narendranathan and Stewart (1993b) and Carrasco (1998) obtain estimates by conditional maximum likelihood, while Portugal and Addison (1997) and Alba (1998) obtain estimates by joint maximum likelihood. In the first type of studies the analysis focuses on the conditional exit rates $h_j(t)$ ("competing risk models") while in the second the intensities of transition to the states are studied. Nonetheless, given the logistic specification, both cases use the same model.

IV. RESULTS

The analysis of the results is based on Tables 1 to 3, which allow the sign and significance of the explanatory variables to be assessed, and on Figures 3.1 to 3.6 and 4.1 to 4.6, which supplement the former, indicating the quantitative importance of the effect of the main variables in terms of the hazard rate. Also some additional comparisons are presented in Tables A.III.1 and A.III.2 in Appendix III.

We comment first on exits to permanent or temporary employment for all the durations, and then on exits from long-term unemployment.

Columns one to three of Tables 1 and 3, with a breakdown of the exits considered in each case[2], set out the results of the estimation by conditioned maximum likelihood. The differences between the first three columns are as follows: in the first sectoral and annual dummy variables appear as regressors; in the second economic variables; and in the third sectoral dummy variables and economic variables, so as to avoid any of the sectoral economic variables only capturing permanent unobservable differences between sectors, the latter being the specification

[2] Two for the exits to permanent and temporary employment (Table 1), and three for the exits to employment, inactivity and studying for the long-term unemployed (Table 3).

finally chosen. The fourth column replicates the third, but estimating by joint maximum likelihood.

IV.1. Exit to employment: permanent compared with temporary employment

One interesting aspect of the exits from unemployment to employment is the type of employment found, distinguishing between temporary and permanent. This study uses a sample of unemployed persons with durations of between 1 and 36 months. To show the differences obtained when distinguishing by type of employment, Appendix II presents an estimation of the hazard rate from unemployment obtained from the same sample but without distinguishing by type of employment found. These estimates will also permit comparisons to be made with exits from long-term unemployment and with the results of previous studies.

In principle, it might be thought that the type of contract offered would play an important role: to the extent that the predominant form of contract in the market is the temporary one, both due to the lower dismissal costs associated with it and due to its higher turnover, the hazard rate to a job of this type must necessarily be higher. However, those seeking work will have a preference for permanent jobs.

Duration dependence

The dependence of the hazard rate from unemployment on the time spent in that situation is captured, on one hand, through dummy variables constructed for each duration -from Dur 1 to Dur 36-, taking value 1 for the number of months that the individual has been unemployed and 0 otherwise, and on the other hand, through the interaction of the explanatory variables with the duration itself, or more specifically with its logarithm (log Dur). Among the interactions which have been significant there are both individual and economic variables, as shown in Table 1.

Figure 3.1 shows that the relationship between the hazard rate and duration is negative, so that the longer the time spent unemployed the lower the hazard rate to a job, whether temporary or permanent. In both cases, the negative relationship is especially significant during the first year, the decline being much smoother thereafter. At the same time it is worth remarking that the average fall in the first four months is much more important, in absolute terms, in temporary than in

permanent employment. For example, for those not receiving benefit, the fall amounts to 10 and 4 percentage points respectively.

Individual characteristics

Before analysing the effect of the different characteristics, it is necessary to point out the important difference in the hazard rates to the two types of employment. In the first month the estimated hazard rate to a temporary job is almost 40 percentage points higher than that estimated for a permanent job, if no benefit is received, and more than 20 points if it is. These large differences in hazard rates have to be taken into account when assessing the importance of the effects of the different variables and, therefore, such effects must be evaluated not only in absolute but also in relative terms.

There are two aspects to highlight of the effect of benefit receipt, as Figure 3.1. also reveals. First, it affects the hazard rate to both types of jobs negatively, although its effect lessens as the months go by. Second, the effect of benefit is greater, in absolute terms, on exits to a temporary job than to a permanent one; the reduction in the first month is 24 and 6 percentage points, respectively. However, in relative terms, the hazard rates fall by approximately one-half in both cases. It should be pointed out that these calculations correspond to a set of individual characteristics -those which appear in the figures- and macroeconomic ones -the period averages- that are considered representative.

This reduction induced by the receipt of benefit widens when combined with two variables. The first is the time spent in the previous job, a fundamental factor when determining the duration of the benefits. This can be seen in Table A.III.1 of Appendix III, where it is apparent that the reduction in the hazard rate is greater if the time in the previous job is 2 years than if it is 6 months. The second is whether a person is over the age of 45, a factor which basically affects the amount of the benefit, although there may be other underlying factors, such as the closeness of the transition to retirement. This is reflected in Figure 3.2, where the hazard rate for the 45 to 64 age group is lower than that for the rest, but relatively close, while in Table A.III.1 when receiving benefit this group becomes much more separated.

As regards age, column 3 of Table 1 shows that in exits to a temporary job the most favoured are the youngest, aged 20 to 24, and in exits to a permanent job

the central group aged between 30 and 44. Figure 3.2 qualifies the aforesaid by taking into account the other interactions. Specifically, it is seen that the youngest have the highest hazard of exiting to a temporary job, except in the first month when that of the 30-44 age group is higher, while in exits to a permanent job, the 30-44 age group has a higher hazard than the youngest for only three months, due to the negative sign of the interaction with the logarithm of the duration. In any event, from the fourth month, the hazard rates to both types of employment are practically inversely related to age.

Another relevant variable is the time spent in the previous job (calculated in months), although it may incorporate effects of the opposite sign. On one hand, it may be an indicator of the individual's experience, which would facilitate him finding another job. But, on the other, it may indicate the existence of a high reservation wage, or involve the receipt of a redundancy payment, and this may reduce the intensity of job search in an additional way to the aforementioned unemployment benefit. Estimates show that time in employment plays a differential role in exits to both types of employment (see column 3 of Table 1), as it proves significant and with a positive sign in permanent employment, while it has no effect on temporary employment.

Figure 3.3 corroborates the foregoing, but relativises the effect of this variable. In the exit to temporary employment, experience has no relevance in the early months of unemployment, and only when time passes is the hazard rate seen to decline, but the magnitude of this effect is negligible. In the case of permanent employment the behaviour is the opposite; the time in the previous job is a positive factor in the early months of unemployment but disappears with some speed. Lastly, if the effect of benefit receipt is examined, the time in the previous job diminishes in importance in the exit to a permanent job, but the negative effect in the exit to a temporary job is amplified, as shown in Table A.III.1.

As to educational background, only university education has an effect on the hazard rate from unemployment, albeit with a different sign according to the type of employment. Specifically, it reduces the hazard rate to a temporary job and increases it to a permanent one (see Table A.III.1). In any event, the difference does not exceed three percentage points in the first month.

Being the head of household, finally, has a positive and very large effect in both cases (see Table A.III.1), though it diminishes over time in exits to a temporary job.

It should be stressed here that three individual factors have been found which have significant differential effects on the hazard rate, depending on whether a permanent or temporary job is involved, and that they cannot be detected in an overall analysis of exits to a job. These are age, time in the previous job and completed studies. Specifically, the estimation of exits to a job (Table A.II) does not reflect either the positive and significant effect on the hazard rate to a permanent job of being between 30 and 44 years of age or of being a university graduate during the initial months of unemployment, or the non-significance of time in the previous job on the exit to a temporary job.

The business cycle

The economic cycle can be captured by means of annual and quarterly dummy variables along with sectoral dummy variables or, alternatively, using macroeconomic variables. Specifically, use is made of the GDP growth rate, which reflects the state of economic activity as a whole, and the unemployment rate and the ratio of temporary to total employees across sectors, as indicators of the situation of the sector in which the person has worked previously.

When only dummy variables are used (columns 1a and 1b of Table 1), the results suggest that the hazard rate to temporary employment has a procyclical nature, with increases in the years of job creation (1998-1991) and decreases in those of job destruction (1992 onwards). In permanent employment, meanwhile, the hazard rate diminishes in all years in relation to the baseline year (1987), probably reflecting the trend decline in permanent employment over these years, albeit more so in years of decline in employment as a whole (see Table A.I.4). As regards the quarterly dummies, the highest hazard rate is, in both cases, in the second quarter, which reflects the possibility of finding a job in the third quarter, this being precisely the seasonally most favourable one for job creation.

By branch of activity, the highest hazard rate to a permanent job is in agriculture, followed by industry, construction and services, while in exits to a temporary job, construction is ahead of industry.

Using sectoral economic and dummy variables (column 3 of Table 1), the positive response of exits to permanent and temporary employment to GDP growth, likewise shown in Figure 3.4, is clear. Moreover, the sectoral unemployment rate adversely affects the hazard rate to the two types of employment (see Figure 3.5) but, in the case of temporary employment, especially those younger than 30, and, in permanent employment, those younger than 45. Further, in temporary employment the effect becomes more negative with duration. Lastly, the temporary employment ratio proves significant in the two hazard rates although, as was to be expected, it positively affects temporary employment and bears negatively on permanent employment (see Figure 3.6).

The entire analysis of the effects of the various variables on hazard rates from unemployment has been conducted in terms of the hazard rates to each of the states - permanent or temporary employment- conditional upon not exiting to the alternative state -temporary or permanent employment, respectively- (called $h_j(t)$, in section III). Table 2 shows the effects of the variables in terms of the intensity of job search, $\phi_j(t)$ in the notation of section III, comparing them with the corresponding $h_j(t)$. As is to be expected, the hazards of exit conditional upon not exiting to the alternative state are higher, but the conclusions on the effect of the various variables on the hazards of leaving unemployment in each duration do not vary.

IV.2. Exit to employment from long-term unemployment

To study exits from long-term unemployment, it seems relevant to consider exits other than employment. Thus, in the estimations discussed below, exits to inactivity and to studying have been allowed togheter with exits to employment, both in conditional maximum likelihood and joint maximum likelihood models. To enable comparison with the results obtained for all durations (without distinguishing between exits to permanent or temporary employment), Table A.II offers the results obtained considering employment as the only exit from unemployment. The results for exits to employment, which will be discussed first, do not change significantly in both specifications; consequently, those based on the estimation of the model with multiple exits are discussed (Table 3).

Duration dependence

In the different estimations made with the sample of long-term unemployed, the interactions of the explanatory variables with the logarithm of the duration do not prove significant. This indicates that, among the long-term unemployed, the effects of the explanatory variables are to some extent independent of duration; thus, for instance, the effect of the level of education or of age does not vary significantly between those unemployed for 24 months and those for 36 months. However, on the basis of the estimation obtained with the sample of both short- and long-term unemployed (Table A.II), this constant effect of the variables would not be identified for the latter. Accordingly, if the complete sample is used, the duration dependence (specified parsimoniously by the logarithm of duration) of the effects of the various variables present in the short unemployment durations is predominant and is extrapolated for all durations.

As to additive duration dependence, Figure 4.1 shows that the profile of the hazard rate from unemployment has a mildly declining trend between 12 and 36 months, somewhat more markedly so as from 24 months. It can also be seen that the unemployed receiving benefit, as a result of the positive sign of the interaction between benefit receipt and duration, evidence a somewhat less accentuated downward profile than those who do not.

Individual characteristics

Benefit receipt (as the negative sign of the benefit variable -column 3a of Table 3- shows) reduces the hazard rate from long-term unemployment, as was the case when studying exits to a permanent or temporary job for the sample of all the unemployed. However, unlike in that case, benefit receipt is not the factor of greatest size or of most significance. Note, nevertheless, that it is more important than that arising for this group in samples with unemployed of all durations. Indeed, in Figure A.II.1 of Appendix II, based on estimations obtained with all the unemployed, the estimated hazard rate would fall, for somebody unemployed for 12 months, by less than 4.5 percentage points, diminishing rapidly until disappearing, while in Figure 4.1 a fall of over 6.2 points is estimated which, though it declines a little as the duration increases, does not disappear.

On the receipt of benefit there is, moreover, a mitigating effect of the unemployed in the central age cohort (30-44 years old), so that hazard rates, whether benefit is received or not, are closer to one another for this age band than for other groups, a fact reflected in Table A.III.2.

The interactions of benefit with time in the previous job or with the over-45 group, which we had related with the institutional characteristics of benefit in Spain, have not proven significant. This indicates that, among the long-term unemployed, the importance of these factors has been relatively diminishing. This is in keeping with the results of Appendix II where, for a sample of unemployed of all durations, it is estimated that their effect diminishes with duration.

Another individual characteristic worth highlighting is age. This variable is inversely related to the hazard rate from unemployment. As the estimates indicate, for the youngest, aged 20-24, the hazard rate increases in relation to the reference group (25-29 years old), while it diminishes for those between 30 and 44, and even more for those over 45. Indeed, this latter factor -age over 45- causes the larger estimated effect (see Figure 4.2), and is ranked second as regards significance, showing the low probability for this age group to resume employment.

As regards the time in the previous job, estimates show that it negatively affects the hazard rate, and more significantly for the over-45 years old (see column 3a of Table 3). Such a result can be explained by the loss of importance, in the stock of long-term unemployed, of the positive effect of experience. In any event, as Figure 4.3 shows, its magnitude is fairly irrelevant. It might be mentioned, moreover, that when this variable is interacted with benefit receipt to test whether both explain the same event, its significance diminishes.

With regard to level of education, there are no differences between the illiterate and those with a primary education at most, and university graduates. By contrast, an increase can be seen in the hazard rate if individuals have had a secondary education or technical/vocational training, albeit a minor one, as Figure 4.4 shows. The effect of the reservation wage may explain the difference with the university-graduate group, while the group lacking an education may have a low-skills problem.

Lastly, being a head of household has a positive and significant incidence on the likelihood of exiting to a job (see Table A.III.2).

The business cycle

The results using dummy variables do not indicate a clear procyclical pattern, as can be seen in column 1a of Table 3, since in the years of recession (1992-94) the likelihood of finding a job falls significantly in relation to the baseline year (1987), while in the expansion years (1988-1990) no change is discerned from the baseline. Further, as previously indicated, the fact that the third quarter is the period most favourable to employment creation means that the hazard rate to employment increases in the second quarter.

Across sectors, the highest hazard rate is in agriculture, followed successively by construction, industry and services.

When the annual dummy variables are replaced by economic variables, the hazard rate is seen to increase with economic activity -measured by the growth rate of GDP- (column 3a and Figure 4.5). Of note is the magnitude and significance of the negative effect of the unemployment rate in the branch of activity of the previous job (Figure 4.6), especially among the young, since the interactions with the 30-44 and over-45 groups reduce this negative effect. Lastly, the hazard rate to employment for the long-term unemployed is not affected either by the changes in the sector unemployment rate or in the temporary employment ratio. With regard to this latter regressor, it can be seen in columns 2a and 3a of Table 3 that the inclusion of sectoral dummy variables eliminates the positive effect it appeared to exert.

IV.3. Alternative exits from long-term unemployment: to inactivity and studying

In studying the group of the long-term unemployed, consideration of inactivity as an exit alternative to employment appears to be relevant insofar as it is to be expected that the longer an individual remains unemployed, the more readily the discouragement effect will arise leading individuals to abandon the labour force. Along these same lines, the possibility is also examined that the unemployed may decide to study as an alternative which may enable them to find work more easily in the future.

Duration dependence

As occurred in the exit to employment, the profile of the duration dependence is determined almost exclusively by the additive duration dummies.

Both the hazard rate to inactivity and to studying are seen to be more or less constant for all unemployment durations ie, the passing of months in unemployment is not seen to cause increases or decreases in exits to any of the states considered (Figure 4.1). A slightly tendency is noticeable only in exits to inactivity among the unemployed receiving benefit (given by the positive sign of the coefficient which affects the benefit variable interacted with the duration logarithm). That might indicate that as the benefit period runs out, the negative effect involved in receiving it tends to disappear.

Individual characteristics

Receipt of unemployment benefit reduces the hazard rates to inactivity and to studying (Table 3, columns 3b and 3c, respectively), although the effect in the former case is greater and is negligible in the latter (Figure 4.1). However, in the transition to inactivity this effect tends to disappear the greater the time an individual is unemployed, as we mentioned earlier. In exits to inactivity there is also a positive effect in the event of receiving benefit and being aged between 45-64 (Table A.III.2). This may suggest that, for this age cohort, the transition from unemployed with benefit to inactivity is more likely when benefit ends, probably on linking up to retirement.

As for age, it is shown in both cases to be one of the determining variables. Those most ready to take up studying are the youngest individuals -under 25-, while the oldest -over 45- (who are, moreover, those least likely to find employment and most likely to move into retirement) are most likely to move into inactivity (see Figure 4.2).

Time in the previous job has a positive effect on the hazard rate to inactivity and a negative effect on the possibility of commencing studying. In both cases, however, the effect is quantitatively negligible (see Figure 4.3).

The level of education also plays a relevant role in both exits. On one hand, a university education has a positive effect on exits to inactivity, in general, compared with other levels of education and training. On the other, exits to studying are directly related to the level of education and training, and it is, moreover, the individual variable which most affects it (Figure 4.4). It is, then, the unemployed with a higher level of education who, above all, consider taking up studying as an alternative to their situation.

Finally, being head of household has no influence on either of the two exits considered.

The business cycle

The analysis based on dummy variables shows that exits to inactivity increase in some of the years in which employment developments were negative (column 1b of Table 3), such as 1992, but no evidence is found in the case of exits to studying (column 1c of Table 3). As to quarterly periods, it is the third quarter which evidences most transitions to inactivity. That may be explained by the fact that the fourth quarter is seasonally that of least job creation, while the third and fourth quarters see most exits to studying, coinciding with the start of most courses.

Replacing the annual dummies by economic variables gives a situation whereby hazard rates respond negatively to GDP growth (Figure 4.5), especially among the youngest individuals in the case of inactivity. The unemployment rate for the sector negatively affects exits to inactivity, when the expected sign is the opposite; however, this may be due to the fact that the dominant effect is that of the endogenous variable, i.e. lesser exits to inactivity presuppose a greater unemployment rate (Figure 4.6). Moreover, it exerts a positive influence on exits to studying, albeit not significantly. Lastly, the temporary employment ratio has a positive effect on exits to inactivity, this being attributable perhaps to the potential discouraging role of this type of employment.

IV.4. Discussion of the results

This section evaluates the different estimated hazard rates and the effects which, at a quantitative level, the most relevant variables from the economic standpoint have on such rates. The starting point is a reference case which combines

a set of characteristics that appear in the figures and the average sample values of the macroeconomic variables.

The first noticeable aspect in the distinction between the outflow to permanent and that to temporary employment is the significant difference in hazard rates (Figure 3.1). In the first three months of unemployment the hazard rate to a temporary job is far higher (37 percentage points on average, if no benefit is received, and 22 points if it is received). This is in line with the earlier mentioned predominance of temporary employment contracts in the Spanish labour market.

Another aspect worth highlighting is the difference that the effect of benefit has in terms of the hazard rate. Specifically, in the first three months it reduces exits to a permanent job by five percentage points and those to a temporary job by 19 points. This is a foreseeable result since, conceivably, the possibility of taking up permanent employment offsets, to a greater extent than a temporary job does, the desincentive that benefit receipt entails. Nonetheless, the desincentive effect found even in the exits to a permanent job remains significant, as the reduction in relative terms is even greater in this case: 56% compared with 42% for temporary employment.

There are also certain differences in the response to changes in the economic variables. The increase in the hazard rate observed at the time of greatest GDP growth (as compared to its mean sample value) is six percentage points in exits to a temporary job and four points in exits to a permanent one; however, in relative terms the significance of the latter is greater (Figure 3.4). To move from the mean to the highest sectoral unemployment rate reduces the respective hazard rates by eight and five percentage points, this being once again more significant relatively for a permanent job (Figure 3.5). Finally, the temporary employment ratio effect has a different sign according to the type of employment involved; moving from the mean temporary employment ratio to its maximum value reduces the hazard rate to a permanent job by three points and increases that to temporary employment by four points (Figure 3.6). Therefore, exits to a permanent job are **relatively** more sensitive to economic variables than exits to a temporary one.

Further of note is the comparison between the effect of unemployment benefit and that of the economic variables for each type of employment. Consideration is given to the effect of GDP growth, of the unemployment rate and of both jointly, i.e.

the unemployment rate observed with the lowest GDP growth (see Table A.III.1). In exits to permanent employment, the difference between the effect of benefit and of whichever of the economic variables indicated is very small; the only notable difference is a slight one in favour of benefit in relation to GDP growth in the first six months, while the effect of the unemployment rate exceeds that of benefit, also very slightly, as from the fifth month. However, viewed jointly, benefit is dominated by the combined effect of GDP and of unemployment from the second month. By contrast, in exits to temporary employment the effect of benefit exceeds the others to a greater extent; yet, as unemployment duration increases, it is the economic variables which have a greater effect. Specifically, in the first month, benefit has an effect which exceeds that of GDP growth and the unemployment rate by more than 15 percentage points. However, it is exceeded by both in the eleventh and seventh month, respectively. Considering GDP growth and the unemployment rate jointly, the greater effect of benefit diminishes to 12 points in the first month and is exceeded by the fifth month. The importance of benefit relative to the effects of the economic variables is, therefore, greater in exits to a temporary job than to a permanent one.

With regard to the long-term unemployed, the salient fact is the high difference estimated for the hazard rate to employment as compared with that to inactivity or studying (see Figure 4,.1). Concretely, the average rates in the first three months (which are those from month 12 to month 15) are, respectively, 28%, 4% and 2%. Consideration, therefore, of exits other than to employment have to be set against the background of specific personal characteristics that make them relevant, and the effects of the economic variables have to be reflected in relative terms, to bridge the enormous level gap.

In which cases may inactivity or studying be said to compete with employment as potential exits from long-term unemployment? As indicated in an earlier section, the most significant variable in exits to inactivity is age, and in the case of studying it is both age and the level of education. Indeed, when the unemployed are in the over-45 age group, the average hazard rate to employment in the first three months is 17%, and 7% to inactivity, both rates being much closer than in the reference group, and even more so in the case of benefit receipt (13% and 7%). Moreover, when the age cohort considered is 20-24 and with a higher-education level, the average hazard rates to employment and to studying are 31% and 11%, respectively.

Turning to the estimates, it can be seen that for the long-term unemployed the influence of personal characteristics is very considerable. Specifically, in exits to employment the most sizeable effects are that of the sectoral unemployment rate and that of belonging to the over-45 age group, which have a negative effect. This is in contrast to what occurs with the unemployed at the start of their unemployment period [as studied in Bover et al. (1996) and in this paper], where the most significant effects are those caused by receipt of benefit and by economic variables, such as GDP growth and the unemployment rate. In the case of exits to inactivity or to studying, age and the level of education and training are quantitatively the most important variables.

Regarding exits to employment, the effect of belonging to the oldest age group (45-64) is as large as the one caused by an increase in the unemployment rate from its mean to its maximum sample value. In particular, in the first three months, the reduction in the hazard rate is in both cases slightly higher than ten percentage points (Figures 4.2 and 4.6), while receipt of benefit and moving from mean to minimum GDP growth have a lesser effect of around five points. Notably, however, when the effect of GDP and its associated unemployment rate are considered together, the reduction in the hazard rate is also over ten points. These results differ from those indicated for the sample of unemployed with short durations, especially in the case of exiting to a temporary job, where the most significant effect was found to be that of receiving benefit.

With respect to exits to inactivity, age and level of education are the variables with the most important effects (Figures 4.2 and 4.4). Both for the unemployed over 45 and for those with a university education, the hazard rate to inactivity is substantially raised, by around three percentage points (80% and 60%, respectively, in relative terms) above the effect of the unemployment rate and the receipt of benefit, which follow in magnitude terms (49% and 37%, respectively). However, it should be pointed out that, proportionately, they are more affected than exits to employment by benefit and the general economic situation. Specifically, benefit receipt reduces the hazard rate, in relative terms, by 37%, compared with 20% for employment (Figure 4.1). The explanation for this result lies in the fact that while benefit discourages job search, benefit receipt is in theory incompatible with inactivity, whereby exit to inactivity is affected proportionately more. Finally, GDP growth moving to its maximum reduces the hazard rate by 19% (Figure 4.5).

Lastly, in exits to studying, the individual variables are of even greater importance, especially age and level of education (Figures 4.2 and 4.4). Changes the hazard rate when the individual in question is over 45, under 25 or with a university education, bear no comparison with that of any other variable, with a 70% decrease, and a 64% and 261% increase, respectively, in relative terms. At the same time, it should be pointed out that the exit to studying is the least affected (and in a not very significant way) by unemployment benefit. Specifically, it reduces the hazard rate by an average of 15% in relative terms (Figure 4.1). Conversely, it is the most affected in relative terms by the cyclical position of the economy (Figure 4.5), since when GDP growth reaches its peak the fall is 26% (13% in employment) as compared to the mean GDP growth situation.

V. CONCLUSIONS

We have studied the influence of individual and economic variables on exits from unemployment using a sample of unemployed men with work experience taken from the Labour Force Survey, between the second quarter of 1987 and the third quarter of 1994, and following the line of research opened up by other studies. Specifically, the exit to employment has been split into exits to permanent and temporary jobs in a sample of unemployed of all durations. Also the long-term unemployed have been studied in depth, in order to identify differential features of this group and to open the possibility of exits other than to employment, such as to studying and inactivity.

The main conclusions deriving from the paper can be separated into two blocks. First, it is necessary to highlight the great difference between the level of the hazard rates to temporary and to permanent employment. As to the determinants of such rates we found that: (i) in absolute terms benefit reduces the hazard rate to temporary employment to a greater extent than to permanent employment, although in relative terms the reduction is similar; (ii) time in the previous job and being over 45 years of age intensify the effect of benefit (through their interaction with it), a finding already highlighted by Bover et al. (1998), these factors being directly related to the institutional characteristics of unemployment benefits in Spain; (iii) time in the previous job when not combined with the receipt of benefit has little effect on the hazard rate; (iv) exits to permanent employment are more affected by cyclical and sectoral conditions, in relative terms; (v) when GDP growth and sectoral

unemployment rate are considered together, their effect is larger than the effect of receiving benefits for exits to a permanent employment; in the case of exits to a temporary job, the effect of benefits dominates the joint effect of economic conditions for unemployment durations of less than six months; (vi) a higher temporary employment ratio boosts exits to temporary employment, but reduces exits to permanent employment.

Second, our main findings regarding long-term unemployed are: (i) the effect of benefit on the exit to employment is still significant in this group, but less than the effect produced by changes in macroeconomic conditions, such as the unemployment rate or the combined effect of the latter and GDP growth; (ii) the most significant effects on the hazard rate to employment are those produced by being over-45 years of age and the unemployment rate; (iii) the exit to employment is very significantly larger than the other exits considered, except in the case of very specific groups. Thus, the exit to inactivity and studying prove to be relevant alternatives to employment for the over-45s in the first case, and for the young with high levels of education in the second; (iv) the exits to inactivity and studying are more affected by individual variables than by economic variables, specially by age and education level.

Table 1: ESTIMATES OF LOGISTIC HAZARDS OF LEAVING UNEMPLOYMENT[1]: PERMANENT AND FIXED-TERM EMPLOYMENT

Individual Characteristics:	Conditional Maximum Likelihood (ML) Estimation						Joint ML Estimation	
	Permanent 1a	Fixed-term 1b	Permanent 2a	Fixed-term 2b	Permanent 3a	Fixed-term 3b	Permanent 4a	Fixed-term 4b
Benefits	-0.838	-0.792	-0.804	-0.763	-0.820	-0.785	-0.796	-0.782
	(6.05)	(13.09)	(5.81)	(12.63)	(5.93)	(12.97)	(5.80)	(12.92)
Benefits x log Dur	0.199	0.273	0.189	0.266	0.195	0.274	0.191	0.272
	(2.83)	(9.19)	(2.68)	(8.96)	(2.77)	(9.21)	(2.70)	(9.16)
Benefits x Tenure in previous job	-0.083	-0.137	-0.087	-0.140	-0.086	-0.139	-0.094	-0.137
	(2.49)	(5.93)	(2.62)	(6.10)	(2.59)	(6.00)	(2.85)	(5.99)
Benefits x Tenure in previous job x log Dur	0.0005	0.041	0.003	0.044	0.002	0.042	0.006	0.042
	(0.03)	(3.66)	(0.18)	(3.93)	(0.09)	(3.74)	(0.30)	(3.73)
Benefits x Tenure in previous job^2	0.002	0.004	0.002	0.004	0.002	0.004	0.002	0.004
	(1.41)	(4.23)	(1.56)	(4.46)	(1.54)	(4.36)	(1.74)	(4.32)
Benefits x Tenure in previous job^2 x log Dur	0.001	-0.001	0.0005	-0.001	0.001	-0.001	0.0004	-0.001
	(0.76)	(2.57)	(0.60)	(2.83)	(0.67)	(2.68)	(0.53)	(2.62)
Benefits x Age 20-24	0.073	0.010	0.070	0.007	0.071	0.009	0.072	0.008
	(0.57)	(0.18)	(0.54)	(0.13)	(0.55)	(0.17)	(0.55)	(0.15)
Benefits x Age 30-44	-0.378	-0.264	-0.381	-0.275	-0.382	-0.269	-0.388	-0.267
	(2.09)	(3.20)	(2.11)	(3.34)	(2.11)	(3.26)	(2.16)	(3.24)
Benefits x Age 30-44 x log Dur	0.318	0.161	0.314	0.160	0.318	0.160	0.318	0.158
	(3.25)	(3.80)	(3.21)	(3.78)	(3.25)	(3.76)	(3.25)	(3.73)
Benefits x Age 45-64	-0.628	-0.487	-0.631	-0.501	-0.628	-0.490	-0.660	-0.486
	(2.95)	(5.07)	(2.97)	(5.23)	(2.95)	(5.11)	(3.14)	(5.07)
Benefits x Age 45-64 x log Dur	0.266	0.168	0.259	0.167	0.266	0.167	0.270	0.164
	(2.30)	(3.25)	(2.24)	(3.24)	(2.30)	(3.24)	(2.35)	(3.20)
Age 20-24	-0.023	0.059	-0.012	0.063	-0.021	0.055	-0.018	0.054
	(0.29)	(1.74)	(0.16)	(1.85)	(0.27)	(1.61)	(0.23)	(1.59)
Age 30-44	0.352	0.158	0.349	-0.011	0.351	-0.034	0.196	-0.030
	(2.93)	(2.60)	(2.91)	(0.14)	(2.92)	(0.44)	(1.11)	(0.39)
Age 30-44 x log Dur	-0.309	-0.155	-0.310	-0.155	-0.306	-0.150	-0.279	-0.151
	(4.90)	(5.06)	(4.91)	(5.01)	(4.86)	(4.90)	(4.10)	(4.93)
Age 45-64	0.010	0.008	-0.229	0.213	-0.296	-0.270	-0.389	-0.266
	(0.07)	(0.11)	(1.16)	(2.17)	(1.47)	(2.74)	(1.80)	(2.71)
Age 45-64 x log Dur	-0.245	-0.250	-0.250	-0.252	-0.242	-0.244	-0.211	-0.244
	(3.11)	(5.94)	(3.18)	(6.00)	(3.07)	(5.80)	(2.41)	(5.82)
Tenure in previous job	0.141	0.001	0.137	-0.003	0.144	0.004	0.151	0.001
	(6.05)	(0.05)	(5.89)	(0.19)	(6.16)	(0.20)	(6.54)	(0.06)
Tenure in previous job x log Dur	-0.030	-0.015	-0.029	-0.014	-0.031	-0.016	-0.034	-0.016
	(2.05)	(1.67)	(2.01)	(1.59)	(2.13)	(1.86)	(2.35)	(1.80)
Tenure in previous job^2	-0.003	-0.001	-0.003	-0.001	-0.003	-0.001	-0.003	-0.001
	(3.06)	(1.22)	(2.96)	(1.02)	(3.18)	(1.33)	(3.46)	(1.16)
Tenure in previous job^2 x log Dur	-0.0002	0.0003	-0.0002	0.0003	-0.0001	0.0003	-0.0001	0.0003
	(0.30)	(0.87)	(0.26)	(0.84)	(0.22)	(1.01)	(0.08)	(0.89)
Secondary Education	-0.016	0.001	-0.055	-0.013	-0.020	0.002	-0.016	0.004
	(0.32)	(0.04)	(1.10)	(0.60)	(0.39)	(0.11)	(0.32)	(0.20)
Secondary Education x log Dur	–	–	–	–	–	–	–	–
University Education	0.182	-0.128	0.123	-0.177	0.178	-0.130	0.202	-0.128
	(1.81)	(2.47)	(1.23)	(3.44)	(1.77)	(2.51)	(2.01)	(2.47)
University Education x log Dur	–	–	–	–	–	–	–	–
Head of household	0.453	0.448	0.449	0.441	0.449	0.441	0.519	0.435
	(8.21)	(10.23)	(8.15)	(10.07)	(8.13)	(10.06)	(5.55)	(9.94)
Head of household x log Dur	–	-0.078	–	-0.078	–	-0.077	-0.051	-0.074
		(3.28)		(3.27)		(3.23)	(0.96)	(3.11)

Table 1: ESTIMATES OF LOGISTIC HAZARDS OF LEAVING UNEMPLOYMENT: PERMANENT AND FIXED-TERM EMPLOYMENT (contd.)

Sectoral and Time Dummies, and Economic Variables	Conditional Maximum Likelihood (ML) Estimation						Joint ML Estimation	
	Permanent 1a	Fixed-term 1b	Permanent 2a	Fixed-term 2b	Permanent 3a	Fixed-term 3b	Permanent 4a	Fixed-term 4b
GDP growth			0.168	0.070	0.108	0.061	0.115	0.061
			(11.70)	(11.75)	(5.91)	(8.41)	(6.27)	(8.39)
GDP growth x log Dur			--	--	--	--	--	--
Sectoral unemployment rate			-0.032	-0.018	-0.049	-0.016	-0.045	-0.016
			(4.99)	(4.77)	(5.05)	(3.47)	(3.51)	(3.46)
Sectoral unemployment rate x log Dur			--	-0.004	--	-0.005	-0.003	-0.005
				(2.75)		(3.03)	(0.72)	(3.06)
Sectoral unemployment rate x Age 30-44			--	0.012	--	0.013	0.009	0.013
				(3.51)		(3.82)	(0.91)	(3.78)
Sectoral unemployment rate x Age 45-64			0.019	0.016	0.022	0.018	0.027	0.018
			(1.98)	(3.98)	(2.21)	(4.46)	(2.48)	(4.45)
Change in the sectoral unemployment rate			-0.025	-0.002	0.0005	0.003	-0.002	0.003
			(2.67)	(0.42)	(0.04)	(0.61)	(0.15)	(0.67)
Sectoral temporary employment ratio			0.009	0.014	-0.022	0.007	-0.021	0.007
			(4.20)	(16.30)	(3.60)	(2.67)	(3.33)	(2.63)
Industry	-0.250	-0.370			-1.000	-0.201	-0.972	-0.205
	(3.74)	(11.85)			(5.17)	(2.43)	(5.04)	(2.48)
Construction	-0.321	-0.260			-0.099	-0.156	-0.142	-0.154
	(5.31)	(9.85)			(1.18)	(4.42)	(1.69)	(4.38)
Services	-0.346	-0.498			-1.096	-0.370	-1.058	-0.373
	(5.66)	(18.01)			(5.87)	(4.77)	(5.68)	(4.83)
1988	-0.101	0.087						
	(1.43)	(2.25)						
1989	-0.179	0.167						
	(2.47)	(4.34)						
1990	-0.312	0.194						
	(4.09)	(5.00)						
1991	-0.552	0.125						
	(6.95)	(3.25)						
1992	-1.109	-0.195						
	(13.03)	(5.12)						
1993	-1.264	-0.292						
	(15.28)	(7.90)						
1994	-1.318	-0.137						
	(12.40)	(3.17)						
Second quarter	0.170	0.104	0.232	0.106	0.173	0.094	0.173	0.097
	(3.03)	(4.29)	(4.24)	(4.43)	(3.10)	(3.91)	(3.10)	(4.05)
Third quarter	0.024	-0.027	0.150	-0.009	0.073	-0.026	0.078	-0.022
	(0.39)	(0.99)	(2.55)	(0.34)	(1.21)	(0.96)	(1.29)	(0.82)
Fourth quarter	-0.304	-0.114	-0.164	-0.100	-0.196	-0.106	-0.192	-0.104
	(4.83)	(4.29)	(2.67)	(3.90)	(3.18)	(4.12)	(3.12)	(4.03)
Number of spells	69,528	84,018	69,528	84,018	69,528	84,018	86,660	
Log likelihood	-10,330	-39,524	-10,355	-39,593	-10,332	-39,547	-50,682	

[1] Notes:

1. t-ratios in parentheses.
2. In all the specifications we include monthly duration dummies variables for spells up to 24 months and quarterly duration dummies for 25 to 36 month spells.

Table 2: TRANSITION INTENSITIES AND CONDITIONAL HAZARD RATES

	Unemployment duration (in months)									
	1		3		7		12		24	
	Transition intensities	Conditional hazard rates	Transition intensities	Conditional hazard rates	Transition intensities	Conditional hazard rates	Transition intensities	Conditional hazard rates	Transition intensities	Conditional hazard rates
Exit to a permanent job										
Receiving benefits	0.028	0.037	0.026	0.035	0.020	0.026	0.019	0.024	0.015	0.019
Not receiving benefits	0.050	0.093	0.043	0.072	0.032	0.046	0.029	0.038	0.022	0.026
Not receiving benefits										
Age 20-24	0.047	0.091	0.041	0.070	0.030	0.046	0.028	0.037	0.021	0.026
Age 25-29	0.050	0.093	0.043	0.072	0.032	0.046	0.029	0.038	0.022	0.026
Age 30-44	0.064	0.127	0.044	0.073	0.026	0.037	0.021	0.026	0.012	0.014
Age 45-64	0.051	0.095	0.038	0.057	0.023	0.030	0.019	0.022	0.012	0.013
6 months tenure in prev.job	0.041	0.077	0.037	0.062	0.028	0.042	0.027	0.035	0.020	0.025
2 years tenure in prev.job	0.050	0.093	0.043	0.072	0.032	0.046	0.029	0.038	0.022	0.026
High GDP growth	0.065	0.132	0.057	0.104	0.043	0.068	0.041	0.056	0.031	0.039
Mean GDP growth	0.050	0.093	0.043	0.072	0.032	0.046	0.029	0.038	0.022	0.026
Low GDP growth	0.036	0.062	0.031	0.048	0.022	0.030	0.020	0.025	0.015	0.017
High sec.unemployment rate	0.025	0.043	0.022	0.033	0.016	0.021	0.014	0.017	0.010	0.012
Mean sec.unemployment rate	0.050	0.093	0.043	0.072	0.032	0.046	0.029	0.038	0.022	0.026
Low sec.unemployment rate	0.064	0.124	0.055	0.097	0.041	0.063	0.039	0.052	0.029	0.036
High sec.temporary emp.ratio	0.028	0.058	0.025	0.045	0.018	0.028	0.017	0.023	0.013	0.016
Mean sec.temporary emp.ratio	0.050	0.093	0.043	0.072	0.032	0.046	0.029	0.038	0.022	0.026
Low sec.temporary emp.ratio	0.092	0.154	0.079	0.121	0.058	0.080	0.053	0.066	0.039	0.046
Exit to a fixed-term job										
Receiving benefits	0.244	0.251	0.265	0.272	0.249	0.254	0.204	0.208	0.187	0.190
Not receiving benefits	0.464	0.488	0.401	0.419	0.318	0.328	0.230	0.237	0.174	0.178
Not receiving benefits										
Age 20-24	0.478	0.502	0.414	0.432	0.330	0.340	0.340	0.247	0.182	0.186
Age 25-29	0.464	0.488	0.401	0.419	0.318	0.328	0.230	0.237	0.174	0.178
Age 30-44	0.494	0.527	0.399	0.417	0.291	0.299	0.196	0.200	0.134	0.136
Age 45-64	0.462	0.487	0.341	0.354	0.227	0.232	0.142	0.144	0.089	0.090
6 months tenure in prev.job	0.468	0.488	0.409	0.424	0.328	0.337	0.241	0.247	0.185	0.189
2 years tenure in prev.job	0.464	0.488	0.401	0.419	0.318	0.328	0.230	0.237	0.174	0.178
High GDP growth	0.509	0.545	0.447	0.475	0.363	0.380	0.269	0.281	0.207	0.214
Mean GDP growth	0.464	0.488	0.401	0.419	0.318	0.328	0.230	0.237	0.174	0.178
Low GDP growth	0.411	0.427	0.349	0.360	0.270	0.276	0.191	0.195	0.143	0.145
High sec.unemployment rate	0.411	0.422	0.327	0.334	0.237	0.241	0.159	0.162	0.111	0.113
Mean sec.unemployment rate	0.464	0.488	0.401	0.419	0.318	0.328	0.230	0.237	0.174	0.178
Low sec.unemployment rate	0.482	0.515	0.429	0.454	0.352	0.367	0.263	0.273	0.206	0.212
High sec.temporary emp.ratio	0.514	0.528	0.447	0.458	0.358	0.365	0.263	0.267	0.200	0.203
Mean sec.temporary emp.ratio	0.464	0.488	0.401	0.419	0.318	0.328	0.230	0.237	0.174	0.178
Low sec.temporary emp.ratio	0.402	0.442	0.345	0.375	0.272	0.289	0.195	0.205	0.147	0.153

Table 3: ESTIMATES OF LOGISTIC HAZARDS OF LEAVING LONG-TERM UNEMPLOYMENT[1]: EXITS TO EMPLOYMENT, INACTIVITY AND STUDY

	Conditional Maximum Likelihood Estimation									Joint Maximum Likelihood Estimation		
	Employment 1a	Inactivity 1b	Study 1c	Employment 2a	Inactivity 2b	Study 2c	Employment 3a	Inactivity 3b	Study 3c	Employment 4a	Inactivity 4b	Study 4c
Individual Characteristics:												
Benefits	-0.646	-1.247	-0.166	-0.654	-1.208	-0.177	-0.635	-1.204	-0.168	-0.616	-1.218	-0.861
	(2.10)	(2.55)	(1.44)	(2.12)	(2.47)	(1.54)	(2.06)	(2.46)	(1.45)	(2.00)	(2.49)	(0.88)
Benefits x log Dur	0.134	0.298	--	0.137	0.286	--	0.130	0.286	--	0.135	0.291	0.251
	(1.26)	(1.84)		(1.30)	(1.77)		(1.23)	(1.76)		(1.28)	(1.80)	(0.75)
Benefits x Tenure in previous job	--	--	--	--	--	--	--	--	--	--	--	--
Benefits x Tenure in previous job x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Benefits x Age 20-24	--	--	--	--	--	--	--	--	--	--	--	--
Benefits x Age 30-44	0.188	-0.134	--	0.187	-0.122	--	0.185	-0.122	--	0.157	-0.125	-0.130
	(2.55)	(0.76)		(2.54)	(0.70)		(2.50)	(0.70)		(1.96)	(0.71)	(0.51)
Benefits x Age 30-44 x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Benefits x Age 45-64	--	0.440	--	--	0.433	--	--	0.436	--	-0.108	0.435	0.161
		(2.95)			(2.91)			(2.92)		(1.11)	(2.92)	(0.31)
Benefits x Age 45-64 x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Age 20-24	0.146	0.125	0.374	0.150	0.766	1.070	0.143	0.763	1.063	0.137	0.673	1.617
	(2.88)	(1.20)	(3.11)	(2.96)	(2.58)	(3.63)	(2.81)	(2.57)	(3.62)	(0.82)	(2.15)	(3.93)
Age 30-44	-0.289	-0.163	-0.422	0.476	0.172	-0.579	-0.484	0.170	-0.588	-0.564	0.109	-0.145
	(4.70)	(1.32)	(2.77)	(4.44)	(0.66)	(3.24)	(4.49)	(0.65)	(3.29)	(3.51)	(0.35)	(0.30)
Age 30-44 x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Age 45-64	-0.626	0.604	-1.209	-0.938	0.902	-1.201	-0.962	0.903	-1.205	-0.884	0.836	-1.161
	(8.95)	(4.54)	(4.16)	(7.10)	(3.68)	(4.13)	(7.21)	(3.68)	(4.15)	(5.31)	(3.24)	(1.44)
Age 45-64 x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Tenure in previous job	-0.001	0.002	-0.004	-0.001	0.002	-0.004	-0.001	0.002	-0.003	-0.001	0.002	-0.003
	(2.71)	(2.53)	(2.37)	(2.47)	(2.45)	(2.40)	(2.64)	(2.48)	(2.29)	(2.89)	(2.45)	(1.74)
Tenure in previous job x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Tenure in previous job x Age 45-64	-0.002	-0.00005	--	-0.001	-0.0001	--	-0.001	0.0002	--	-0.001	-0.0001	-0.001
	(2.82)	(0.05)		(2.57)	(0.15)		(2.55)	(0.17)		(1.99)	(0.16)	(0.42)

Table 3 (Contd.)

	Conditional Maximum Likelihood Estimation									Joint Maximum Likelihood Estimation		
	Employment 1a	Inactivity 1b	Study 1c	Employment 2a	Inactivity 2b	Study 2c	Employment 3a	Inactivity 3b	Study 3c	Employment 4a	Inactivity 4b	Study 4c
Secondary Education	0.093	-0.058	1.393	0.075	-0.055	1.416	0.091	-0.054	1.411	0.089	-0.053	1.411
	(2.34)	(0.80)	(9.26)	(1.89)	(0.76)	(9.38)	(2.28)	(0.74)	(9.32)	(2.23)	(0.73)	(9.26)
Secondary Education x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
University Education	0.097	0.448	2.472	0.065	0.474	2.530	0.101	0.472	2.506	0.089	0.456	2.479
	(1.09)	(3.39)	(13.08)	(0.73)	(3.60)	(13.41)	(1.12)	(3.58)	(13.18)	(0.99)	(3.47)	(12.99)
University Education x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Head of household	0.355	-0.017	-0.149	0.353	-0.026	-0.149	0.352	-0.026	-0.146	0.350	-0.024	-0.142
	(7.64)	(0.21)	(0.95)	(7.60)	(0.32)	(0.95)	(7.57)	(0.31)	(0.93)	(7.54)	(0.29)	(0.90)
Head of household x log Dur	--	--	--	--	--	--	--	--	--	--	--	--
Sectoral and Time Dummies, and Economic Variables:												
GDP growth				0.075	-0.052	-0.088	0.048	-0.055	-0.078	0.027	-0.052	-0.018
				(1.89)	(2.53)	(2.47)	(3.45)	(2.34)	(1.82)	(1.59)	(2.09)	(0.34)
GDP growth x Age 20-24				--	-0.088	--	--	-0.087	--	0.030	-0.089	-0.106
					(2.54)			(2.53)		(1.53)	(2.52)	(2.12)
GDP growth x Age 30-44				--	--	0.086	--	--	0.089	0.041	-0.009	0.024
						(1.81)			(1.87)	(2.30)	(0.29)	(0.41)
Sectoral unemployment rate				-0.030	-0.041	0.004	-0.042	-0.040	0.021	-0.044	-0.052	0.037
				(5.52)	(3.81)	(0.27)	(6.10)	(3.18)	(0.91)	(4.78)	(3.08)	(1.36)
Sectoral unemployment rate x Age 20-24				--	-0.033	-0.051	--	-0.033	-0.051	-0.005	-0.026	-0.078
					(1.95)	(2.57)		(1.94)	(2.55)	(0.51)	(1.43)	(3.08)
Sectoral unemployment rate x Age 30-44				0.013	--	--	0.014	--	--	0.024	0.019	-0.017
				(2.12)			(2.24)			(2.25)	(0.90)	(0.45)
Sectoral unemployment rate x Age 45-64				0.021	0.028	--	0.022	0.028	--	0.013	0.039	0.015
				(2.84)	(2.08)		(3.03)	(2.07)		(1.18)	(2.27)	(0.24)
Change in the sectoral unemployment rate				-0.008	-0.024	-0.004	0.010	-0.020	-0.003	0.010	-0.019	-0.004
				(0.91)	(1.67)	(0.13)	(1.03)	(1.23)	(0.10)	(1.06)	(1.15)	(0.11)
Sectoral temporary employment ratio				0.013	0.030	-0.012	-0.003	0.026	-0.016	-0.002	0.029	-0.017
				(7.38)	(6.38)	(1.92)	(0.59)	(2.88)	(0.99)	(0.37)	(3.12)	(1.08)
Sectoral temporary employment ratio x Age 30-44				--	-0.009	--	--	-0.009	--	-0.005	-0.015	-0.001
					(1.52)			(1.51)		(1.18)	(1.80)	(0.009)
Sectoral temporary employment ratio x Age 45-64				--	-0.019	--	--	-0.019	--	0.003	-0.022	-0.010
					(3.23)			(3.23)		(0.65)	(3.46)	(0.34)

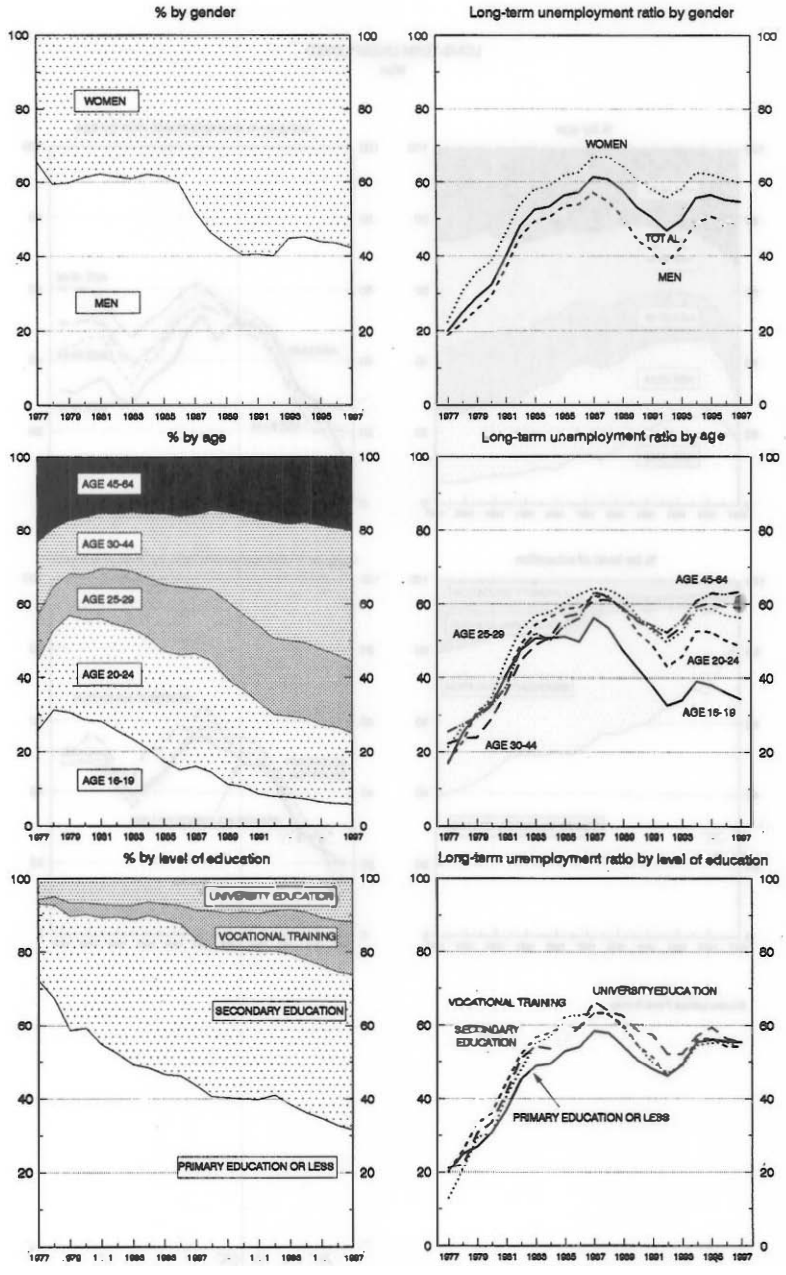
Table 3 (Contd.)

	Conditional Maximum Likelihood Estimation									Joint Maximum Likelihood Estimation		
	Employment 1a	Inactivity 1b	Study 1c	Employment 2a	Inactivity 2b	Study 2c	Employment 3a	Inactivity 3b	Study 3c	Employment 4a	Inactivity 4b	Study 4c
Industry	-0.344	-0.522	0.160				-0.493	-0.165	-0.307	-0.484	-0.134	-0.381
	(4.99)	(4.76)	(0.62)				(3.15)	(0.63)	(0.58)	(3.09)	(0.51)	(0.73)
Construction	-0.218	-0.288	-0.289				0.022	-0.033	-0.313	0.032	-0.014	-0.351
	(3.34)	(2.75)	(1.07)				(0.028)	(0.26)	(0.95)	(0.40)	(0.11)	(1.06)
Services	-0.394	-0.396	0.293				-0.586	-0.120	0.120	-0.581	-0.097	-0.202
	(6.08)	(3.81)	(1.19)				(3.98)	(0.49)	(0.25)	(3.95)	(0.40)	(0.42)
1988	0.032	-0.013	0.404									
	(0.47)	(0.10)	(1.77)									
1989	0.084	0.117	0.055									
	(1.22)	(0.93)	(0.22)									
1990	0.006	0.059	0.302									
	(0.08)	(0.45)	(1.25)									
1991	0.037	0.394	0.232									
	(0.52)	(3.26)	(0.97)									
1993	-0.260	0.655	0.304									
	(3.69)	(5.78)	(1.38)									
1993	-0.533	0.167	0.335									
	(8.09)	(1.50)	(1.65)									
1994	-0.442	0.121	0.272									
	(5.86)	(0.94)	(1.09)									
Second quarter	0.188	0.036	0.032	0.188	0.030	0.005	0.176	0.029	0.009	0.179	0.029	-0.002
	(4.09)	(0.47)	(0.21)	(4.16)	(0.40)	(0.03)	(3.89)	(0.38)	(0.06)	(3.94)	(0.38)	(0.01)
Third quarter	0.009	0.134	0.776	0.045	0.120	0.713	0.011	0.117	0.739	0.015	0.112	0.736
	(0.18)	(1.62)	(5.14)	(0.90)	(1.52)	(5.02)	(0.21)	(1.45)	(5.08)	(0.30)	(1.38)	(5.08)
Fourth quarter	-0.057	0.102	0.451	-0.012	0.115	0.420	-0.027	0.114	0.429	-0.022	0.109	0.427
	(1.13)	(1.26)	(2.93)	(0.24)	(1.49)	(2.92)	(0.56)	(1.47)	(2.97)	(0.46)	(1.41)	(2.96)
Number of spells	26,359	23,375	22,319	26,359	23,375	22,319	26,359	23,375	22,319	28,307		
Log likelihood	-11,576	-5,270	-1,859	-11,592	-5,281	-1,857	-11,582	-5,280	-1,856	-19,051		

Notes:
1. t-ratios in parentheses.
2. In all the specifications we include monthly duration dummies.

Figure 1.1

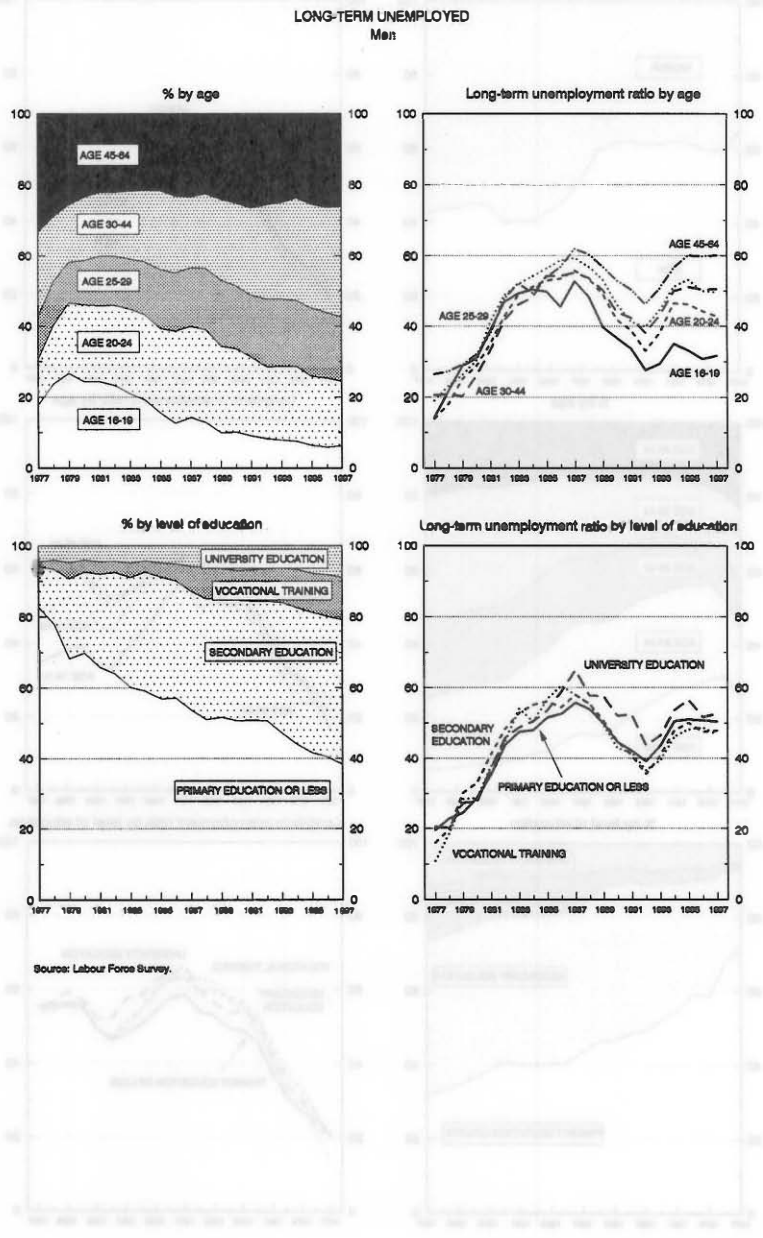
LONG-TERM UNEMPLOYED [1]



1. Unemployed for one year or more.

Labour Survey.

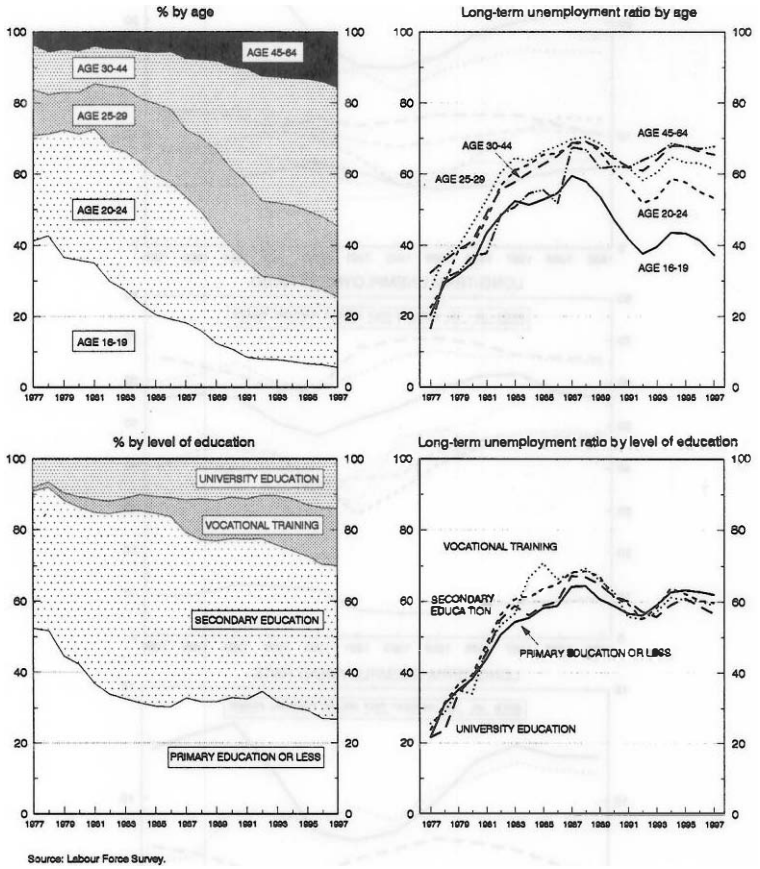
Figure 1.2



Source: Labour Force Survey.

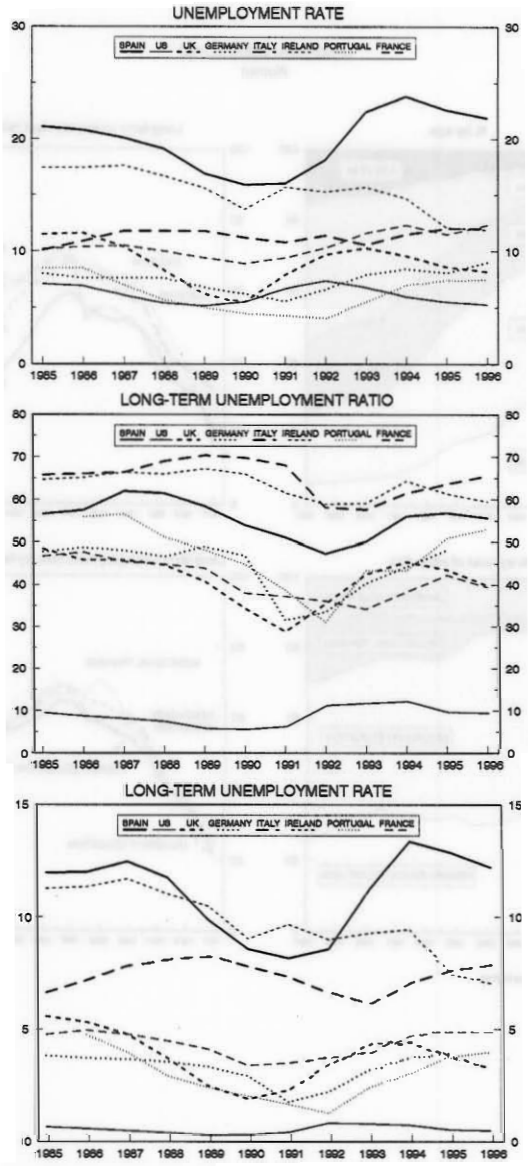
Figure 1.3

LONG-TERM UNEMPLOYED
Women



Source: Labour Force Survey.

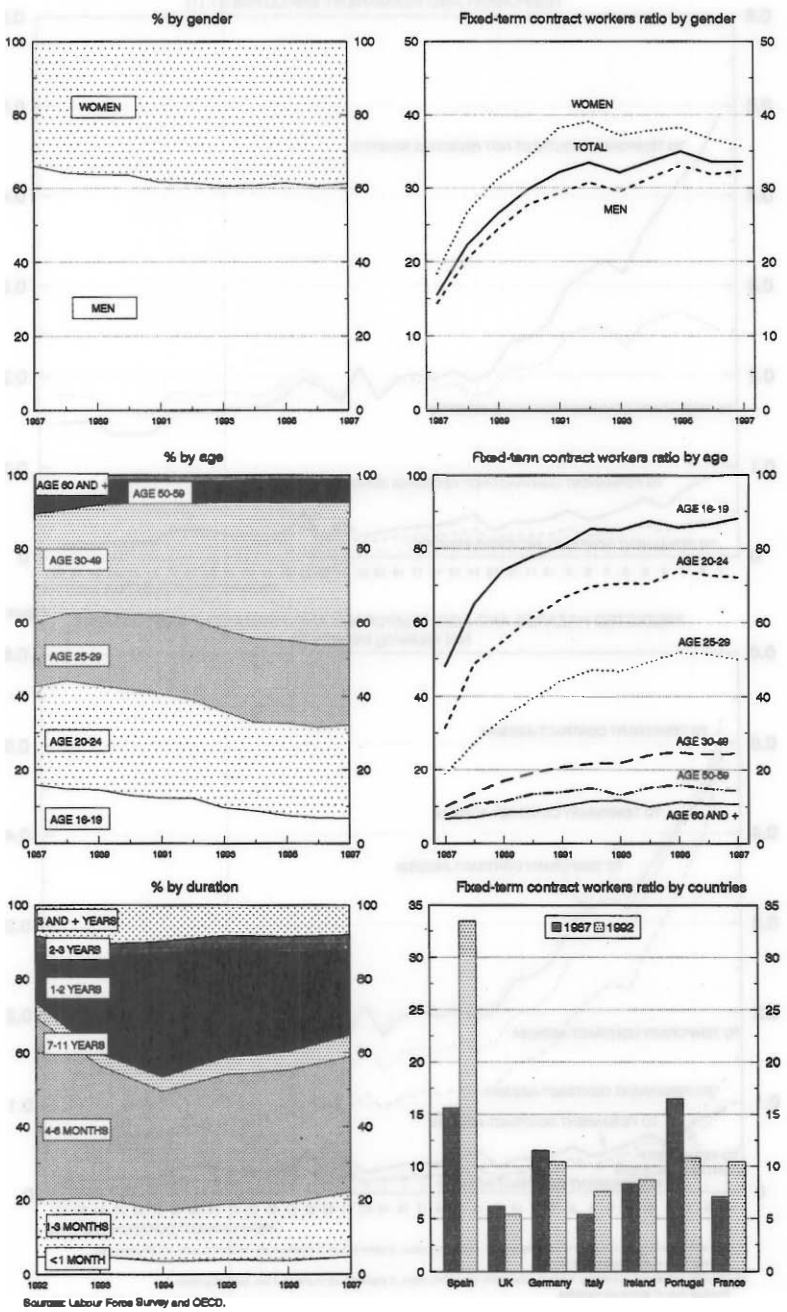
Figure 1.4



Sources: Labour Force Survey and OECD.

Figure 2

FIXED-TERM CONTRACT WORKERS



Sources: Labour Force Survey and OECD.

Figure 3.1

PREDICTED HAZARDS AND BENEFITS:
TEMPORARY AND PERMANENT EMPLOYMENT (1)

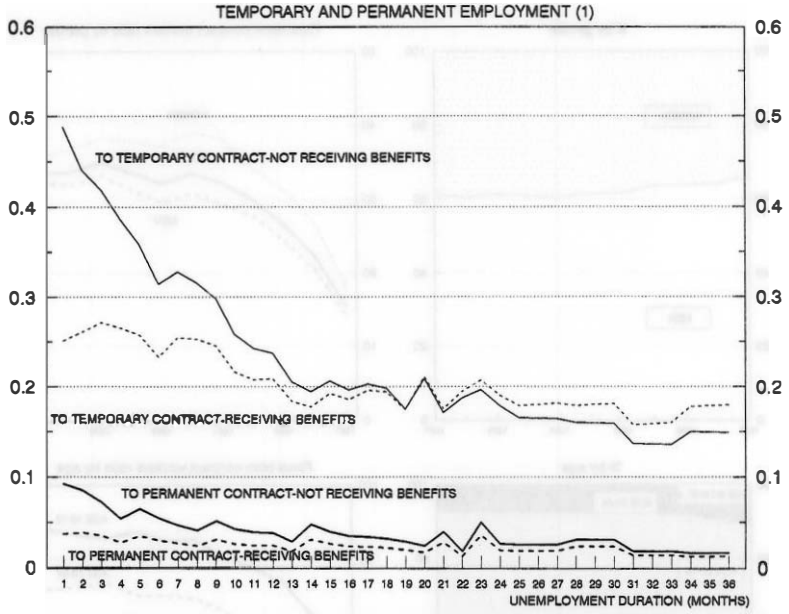
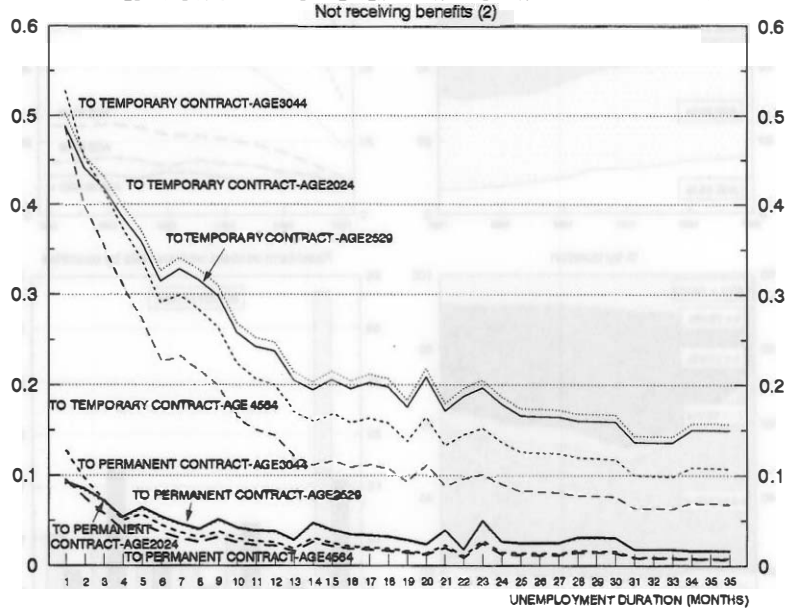


Figure 3.2

PREDICTED HAZARDS AND AGE: TEMPORARY AND PERMANENT EMPLOYMENT
Not receiving benefits (2)



(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old. Average level of economic variables.

(2) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter. Average level of economic variables.

Figure 3.3

PREDICTED HAZARDS AND TENURE IN PREVIOUS JOB: TEMPORARY AND PERMANENT EMPLOYMENT
Not receiving benefits (1)

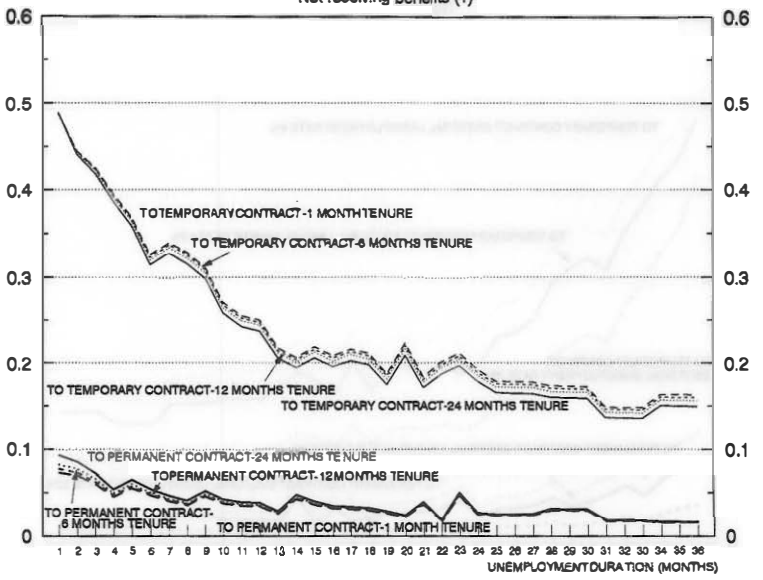
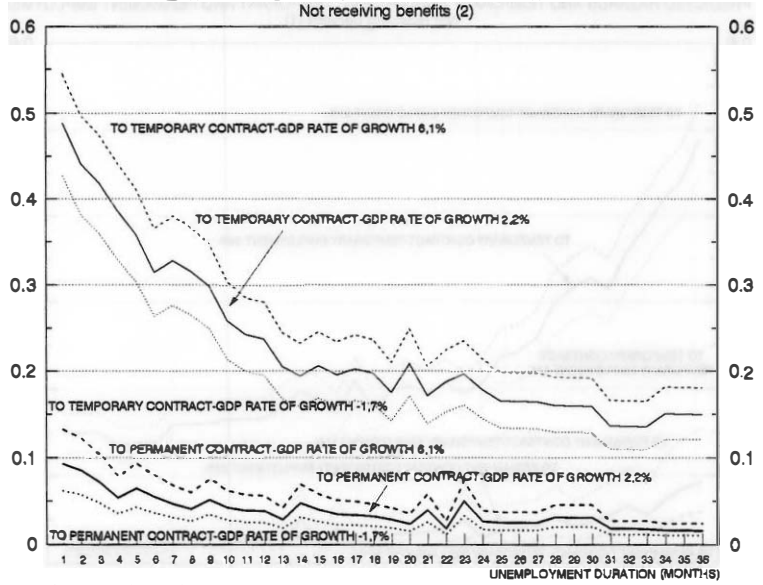


Figure 3.4

PREDICTED HAZARDS AND GDP GROWTH: TEMPORARY AND PERMANENT EMPLOYMENT
Not receiving benefits (2)



(1) Men with experience in industry, head of household, secondary educ., second quarter, 25-29 years old.
Average level of economic variables.

(2) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old.
Average level of economic variables.

Figure 3.5

PREDICTED HAZARDS AND SECTORAL UNEMPLOYMENT: TEMPORARY AND PERMANENT EMPLOYMENT
Not receiving benefits (1)

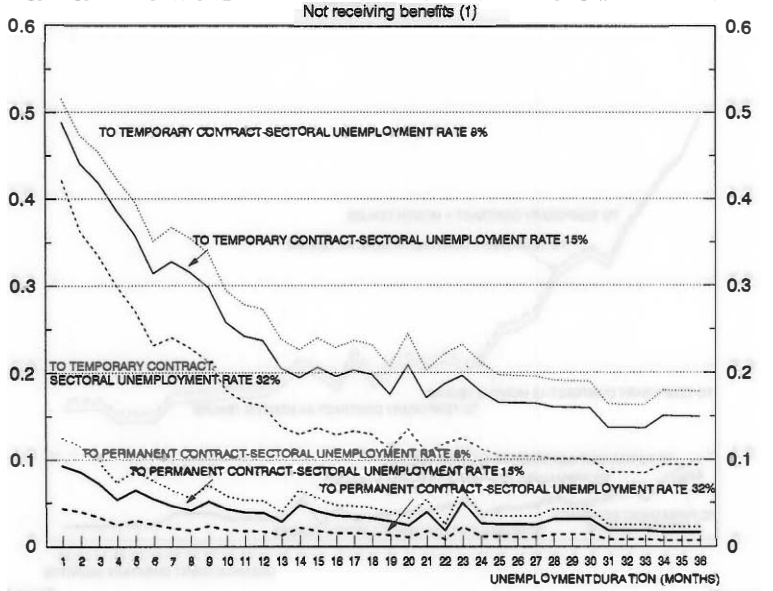
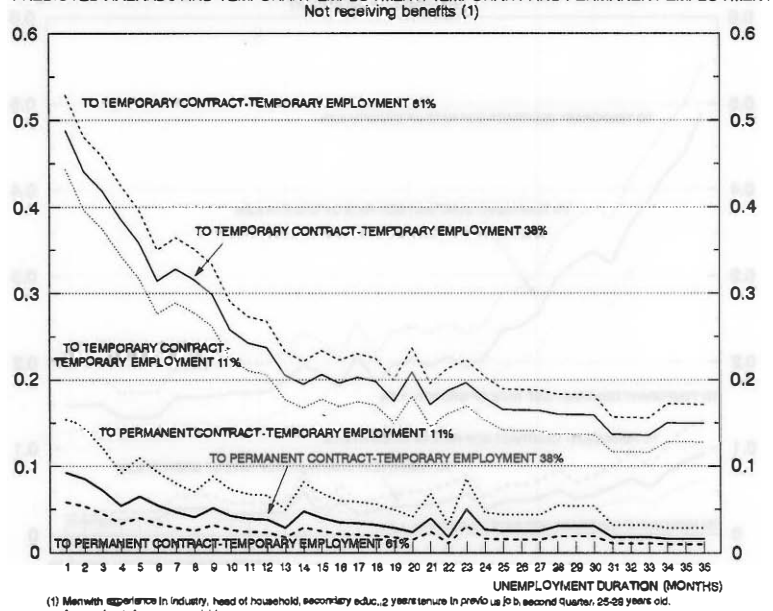


Figure 3.6

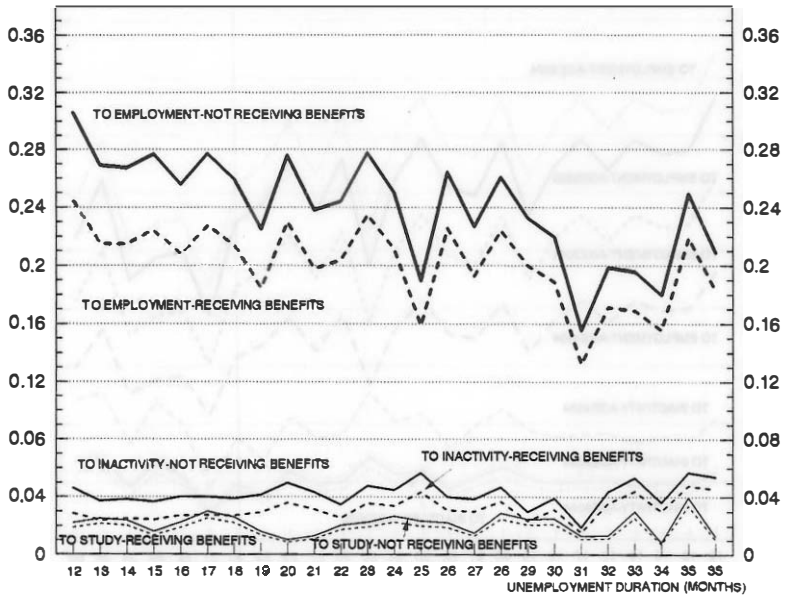
PREDICTED HAZARDS AND TEMPORARY EMPLOYMENT: TEMPORARY AND PERMANENT EMPLOYMENT
Not receiving benefits (1)



(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-28 years old. Average level of economic variables.

Figure 4.1

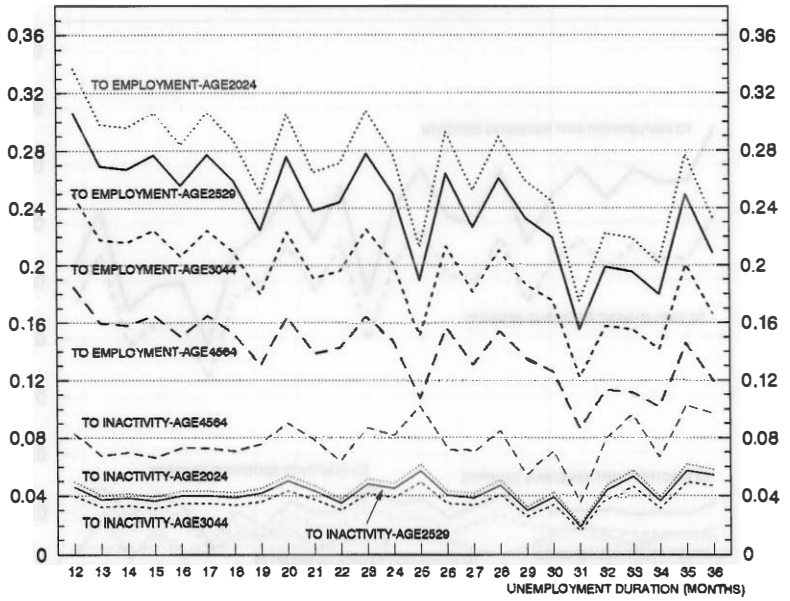
LONG-TERM UNEMPLOYED PREDICTED HAZARDS AND BENEFITS:
EMPLOYMENT, INACTIVITY AND STUDY (1)

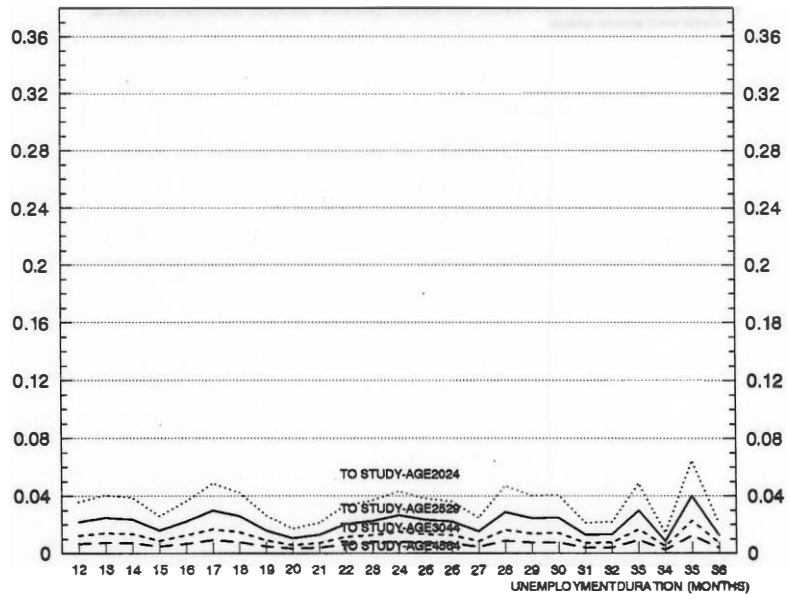


(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old. A vector level of economic variables.

Figure 4.2

LONG-TERM UNEMPLOYED PREDICTED HAZARDS AND AGE:
EMPLOYMENT, INACTIVITY AND STUDY
Not receiving benefits (1)





(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter.
Average level of economic variables.

Figure 4.3

LONG-TERM UNEMPLOYED PREDICTED HAZARDS AND TENURE IN PREVIOUS JOB: EMPLOYMENT, INACTIVITY AND STUDY
Not receiving benefits (1)

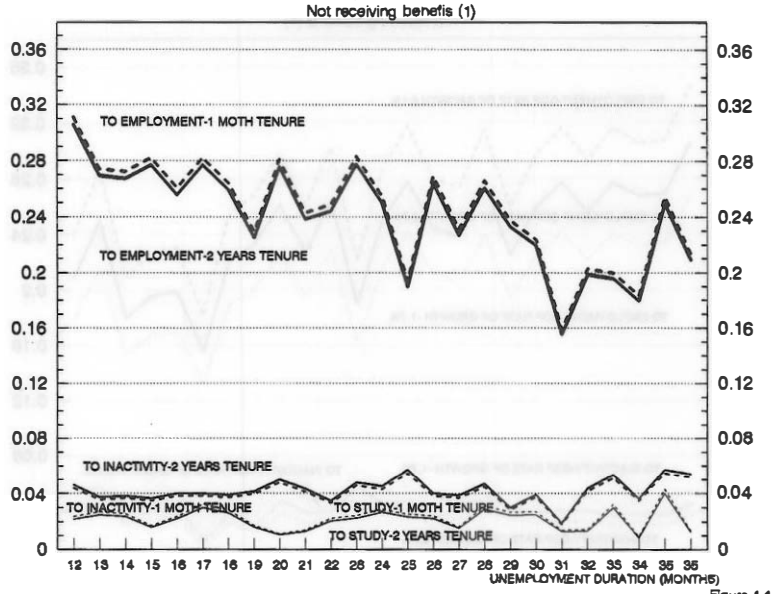
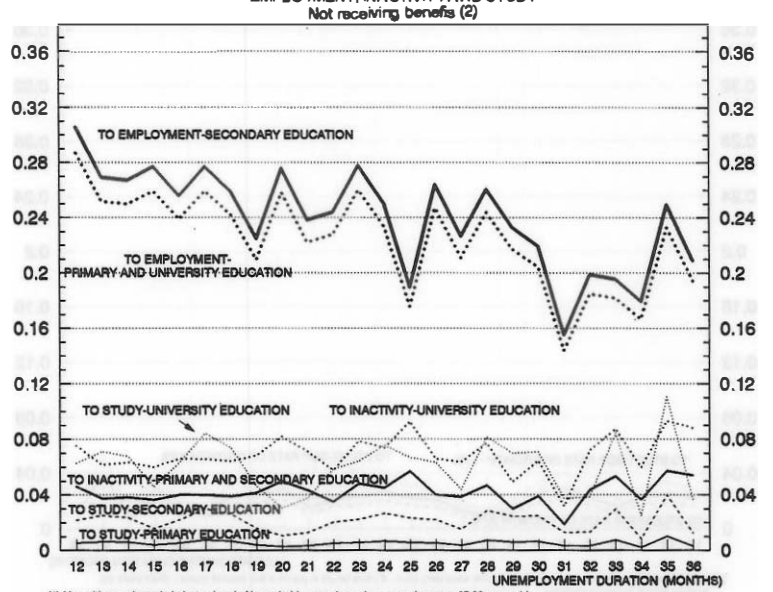


Figure 4.4

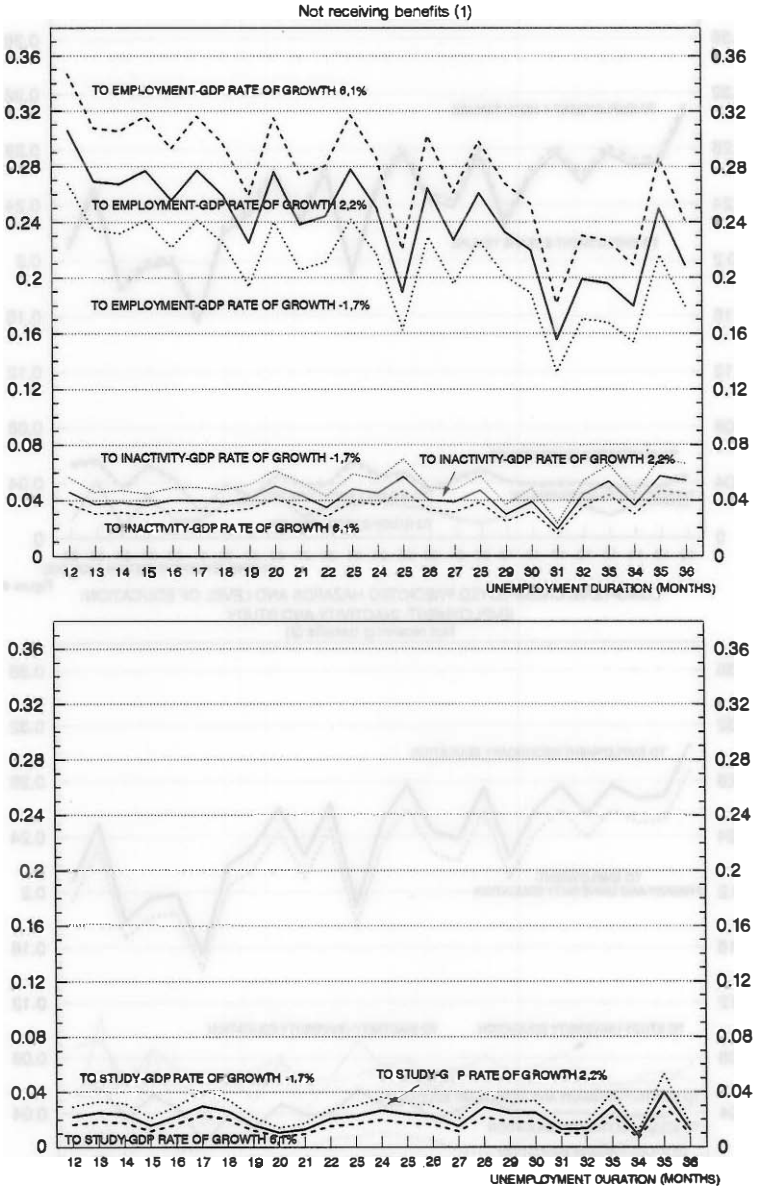
LONG-TERM UNEMPLOYED PREDICTED HAZARDS AND LEVEL OF EDUCATION: EMPLOYMENT, INACTIVITY AND STUDY
Not receiving benefits (2)



(1) Men with experience in industry, head of household, secondary educ.,second quarter, 25-29 years old.
Average level of economic variables.
(2) Men with experience in industry, head of household,2 years tenure in previous job, second quarter, 25-29 years old.
Average level of economic variables.

Figure 4.5

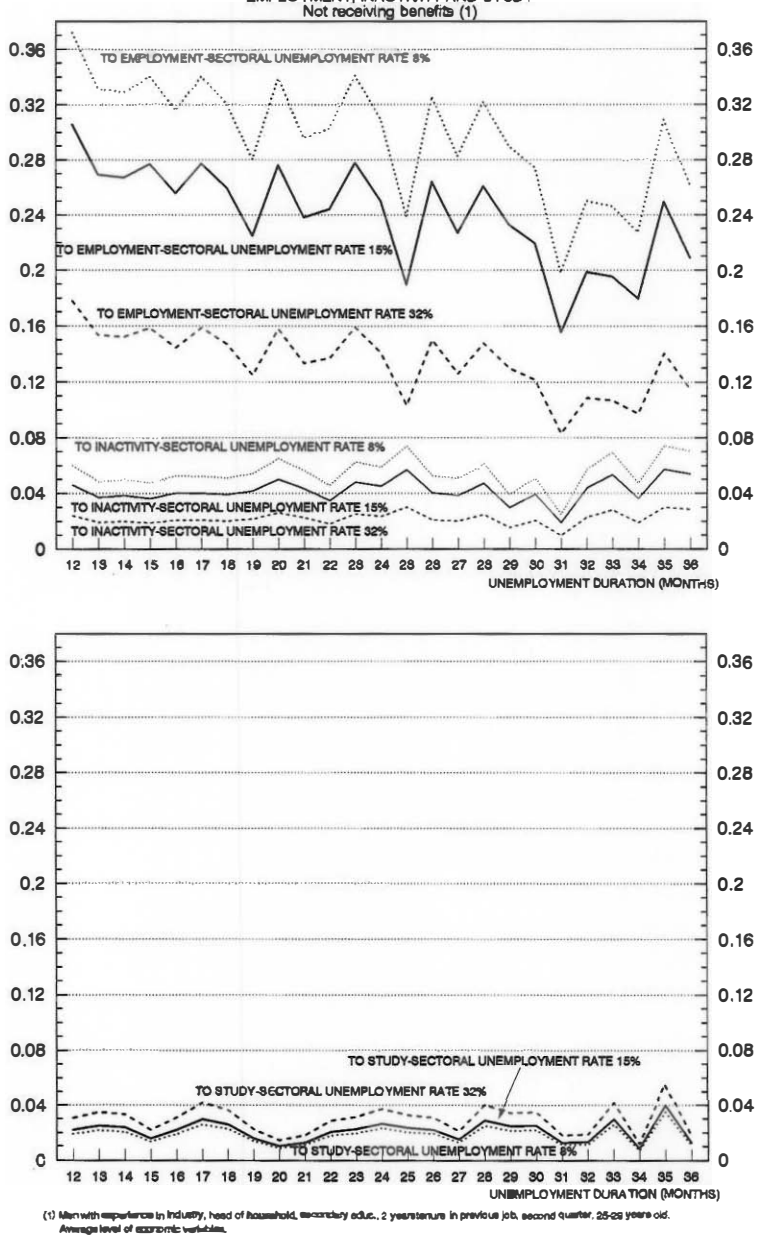
LONG-TERM UNEMPLOYED PREDICTED HAZARDS AND GDP GROWTH:
EMPLOYMENT, INACTIVITY AND STUDY
Not receiving benefits (1)



(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old.
Average level of economic variables.

Figure 4.6

LONG-TERM UNEMPLOYED PREDICTED HAZARDS AND SECTORAL UNEMPLOYMENT: EMPLOYMENT, INACTIVITY AND STUDY
Not receiving benefits (1)



(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old. Average level of economic variables.

APPENDIX I

DESCRIPTION OF THE DATA

A) Individual data

Source: Rotating panel of the Labour Force Survey: Flow Statistics; from the second quarter of 1987 to the third quarter of 1994. National Statistical Office (INE).

Sample: Two samples are used: one of long-term unemployed and one of all the unemployed, both consisting of men aged between 20 and 64, excluding those

doing military service or the alternative social work
employed throughout the observation period
outside the labour force throughout the observation period
interviewed only once
unemployed who fail to declare how long they have been seeking employment or when they left their last job
unemployed who fail to declare their relationship with the national employment office (INEM)
unemployed for more than three years.

The second sample also excludes:

those employed who fail to declare whether the job found is permanent or temporary

duration: The duration of unemployment is measured in months and determined using the quarterly information on the labour situation of individuals. Specifically, the information comes from the answer given to the question "On what date did you leave your last job?" by the unemployed with work experience, being those who make up the final sample. The individual may appear

up to six times, with different durations, that being the maximum number of interviews.

Variables used in the estimation:

Benefit. When the individual declares to be registered at the government employment office and to receive unemployment benefit.

Age. Four age groups are considered: 20-24, 24-29, 30-44 and 45-64.

Tenure. Tenure in the previous job is expressed in months, multiplying by 12 the number of years they declare having worked and adding to this the number of months declared.

Level of education. There are three categories: those with primary education at most (primary education, the illiterate and those without any schooling), those with secondary education, intermediate qualifications or technical or vocational training, and those with a university education.

Head of household. The variable takes the value of 1 for heads of households and 0 otherwise.

Branch of activity of previous job. Four groups are considered: agriculture, which includes agriculture, forestry and fisheries; industry, including both energy and manufacturing; construction; and services. Agriculture is the reference sector.

Time dummy variables. Both annual and quarterly dummy variables are constructed, with 1987 and the 1st quarter being taken as the references, respectively.

Tables A.I.1 and A.I.2 give the frequencies of these variables.

B) National and sectoral variables

Sectoral ratio of temporary to total employment: Percentage of wage-earners with temporary contracts. Labour Force Survey, INE.

Sectoral unemployment rate. Labour Force Survey, INE.

Gross domestic product. At constant prices. Quarterly National Accounts, INE.

Table A.I.3 provides the statistics describing these variables.

Table A.I.1: FREQUENCIES OF INDIVIDUAL VARIABLES (All unemployed)

	Spells	%
Total number of spells	**110,233**	**100.00**
Censored	23,573	21.38
Not-censored	86,660	78.62
HEAD-OF-HOUSEHOLD STATUS		
Head of household	54,344	49.30
Not head of household	55,889	50.70
AGE		
20-24	24,956	22.64
25-29	22,079	20.03
30-44	35,319	32.04
45-64	27,879	25.29
EDUCATION		
Primary education or less	63,967	58.03
Secondary education	41,988	38.09
University education	4,278	3.88
ECONOMIC SECTOR AT PREVIOUS JOB		
Primary	16,367	14.85
Industry	22,468	20.38
Construction	32,969	29.91
Services	38,429	34.86
BENEFITS		
Receiving	54,345	49.30
Not receiving	55,888	50.70
YEARS		
1987	13,575	12.31
1988	12,300	11.16
1989	12,037	10.92
1990	11,602	10.52
1991	12,529	11.37
1992	15,809	14.34
1993	21,168	19.20
1994	11,213	10.17

Table A.I.1: FREQUENCIES OF INDIVIDUAL VARIABLES (All unemployed) (contd.)

	Spells	%
TENURE IN PREVIOUS JOB (MONTHS)		
Up to 12 months	77,398	70.21
Between 12 and 48 months	16,889	15.32
More than 48 months	15,946	14.47
UNEMPLOYMENT DURATIONS (MONTHS)		
1	12,898	11.70
2	11,931	10.82
3	8,885	8.06
4	7,429	6.74
5	6,489	5.89
6	7,139	6.48
7	4,712	4.27
8	4,288	3.89
9	4,423	4.01
10	3,350	3.04
11	2,612	2.37
12	5,507	5.00
13	2,287	2.07
14	2,162	1.96
15	2,853	2.59
16	1,920	1.74
17	1,445	1.31
18	2,603	2.36
19	1,247	1.13
20	1,284	1.16
21	1,379	1.25
22	978	0.89
23	779	0.71
24	3,526	3.20
25	726	0.66
26	693	0.63
27	1,325	1.20
28	795	0.72
29	478	0.43
30	1,174	1.07
31	456	0.41
32	393	0.36
33	610	0.55
34	425	0.39
35	309	0.28
36	723	0.66

Table A.I.2: FREQUENCIES OF INDIVIDUAL VARIABLES (Long-term unemployed)

	Spells	%
Total number of spells	**36,736**	**100.00**
Censored	8,429	22.94
Not-censored	28,307	77.06
HEAD-OF-HOUSEHOLD STATUS		
Head of household	18,508	50.38
Not head of household	18,228	49.62
AGE		
20-24	7,463	20.32
25-29	6,899	18.78
30-44	11,843	32.24
45-64	10,531	28.67
EDUCATION		
Primary education or less	21,237	57.81
Secondary education	13,945	37.96
University education	1,554	4.23
ECONOMIC SECTOR AT PREVIOUS JOB		
Primary	2,560	6.97
Industry	8,980	24.44
Construction	10,885	29.63
Services	14,311	38.96
BENEFITS		
Receiving	18,018	49.05
Not receiving	18,718	50.95
YEARS		
1987	5,036	13.71
1988	3,749	10.21
1989	3,609	9.82
1990	3,243	8.83
1991	3,634	9.89
1992	4,761	12.96
1993	7,895	21.49
1994	4,809	13.09

Table A.I.2: FREQUENCIES OF INDIVIDUAL VARIABLES (Long-term unemployed) (contd.)

	Spells	%
TENURE IN PREVIOUS JOB (MONTHS)		
Up to 12 months	21,213	57.74
Between 12 and 48 months	7,428	20.22
More than 48 months	8,095	22.04
UNEMPLOYMENT DURATIONS (MONTHS)		
12	5,641	15.36
13	2,329	6.34
14	2,196	5.98
15	2,914	7.93
16	1,942	5.29
17	1,470	4.00
18	2,642	7.19
19	1,257	3.42
20	1,306	3.56
21	1,396	3.80
22	991	2.70
23	790	2.15
24	3,620	9.85
25	733	2.00
26	704	1.92
27	1,352	3.68
28	811	2.21
29	489	1.33
30	1,196	3.26
31	459	1.25
32	398	1.08
33	618	1.68
34	435	1.18
35	314	0.85
36	733	2.00

Table A.I.3: SAMPLE STATISTICS OF ECONOMIC VARIABLES

	Mean	St.dev.	Min.	Max.
SECTORAL VARIABLES				
Temporary employment ratio (%)	35.26	14.59	11.20	60.49
Unemployment rate (level)	14.93	6.45	7.99	31.50
Unemployment rate (change)	1.05	3.40	-9.79	8.13
NATIONAL VARIABLES				
GDP (rate of change)	2.24	2.52	-1.66	6.11

Table A.I.4: EMPLOYMENT DEVELOPMENTS
Rates of growth

	TOTAL	FIXED-TERM	PERMANENT
1987	4.26		
1988	3.98	34.09	-2.62
1989	5.77	23.10	1.22
1990	4.06	17.28	-0.31
1991	1.54	7.74	-1.83
1992	-1.34	0.40	-4.86
1993	-4.26	-7.66	-2.62
1994	-0.57	3.84	-2.84

APPENDIX II

HAZARD RATE ESTIMATION FROM UNEMPLOYMENT TO EMPLOYMENT (Binary model):

1. For all unemployed (not distinguishig between permanent and temporary)
2. For long-term unemployed

Table A.II: ESTIMATES OF LOGISTIC HAZARDS OF LEAVING UNEMPLOYMENT[1]: EXIT TO EMPLOYMENT

Individual Characteristics	Maximum Likelihood Estimation	
	1. All unemployed	2. Long-term unemployed
Benefits	-0.791	-0.558
	(13.77)	(1.82)
Benefits x log Dur	0.266	0.108
	(9.44)	(1.03)
Benefits x Tenure in previous job	-0.128	--
	(6.44)	
Benefits x Tenure in previous job x log Dur	0.035	--
	(3.47)	
Benefits x Tenure in previous job^2	0.003	--
	(4.48)	
Benefits x Tenure in previous job^2 x log Dur	-0.001	--
	(2.09)	
Benefits x Age 20-24	0.017	--
	(0.33)	
Benefits x Age 30-44	-0.280	0.195
	(3.56)	(2.66)
Benefits x Age 30-44 x log Dur	0.177	--
	(4.39)	
Benefits x Age 45-64	-0.502	--
	(5.51)	
Benefits x Age 45-64 x log Dur	0.173	--
	(3.56)	
Age 20-24	0.046	0.123
	(1.42)	(2.44)
Age 30-44	0.009	-0.460
	(0.12)	(4.29)
Age 30-44 x log Dur	-0.167	--
	(5.74)	
Age 45-64	-0.266	-0.974
	(2.84)	(7.32)
Age 45-64 x log Dur	-0.235	--
	(5.94)	
Tenure in previous job	0.035	-0.001
	(2.31)	(2.83)
Tenure in previous job x log Dur	-0.022	--
	(2.78)	
Tenure in previous job^2	-0.001	--
	(1.90)	
Tenure in previous job^2 x log Dur	0.0002	--
	(0.74)	
Tenure in previous job x Age 45-64	--	-0.002
		(2.79)
Secondary Education	0.001	0.068
	(0.03)	(1.71)
Secondary Education x log Dur	--	--
University Education	-0.073	-0.012
	(1.53)	(0.13)
University Education x log Dur	--	--
Head of household	0.447	0.355
	(10.73)	(7.68)
Head of household x log Dur	-0.072	--
	(3.18)	

Table A.II: ESTIMATES OF LOGISTIC HAZARDS OF LEAVING UNEMPLOYMENT: EXIT TO EMPLOYMENT (contd.)

Sectoral and Time Dummies, and Economic Variables	Maximum Likelihood Estimation	
	1. All unemployed	2. Long-term unemployed
GDP growth	0.069 (9.94)	0.054 (3.90)
GDP growth x log Dur	--	--
Sectoral unemployment rate	-0.018 (3.95)	-0.040 (5.75)
Sectoral unemployment rate x log Dur	-0.004 (3.00)	--
Sectoral unemployment rate x Age 30-44	0.012 (3.59)	0.013 (2.11)
Sectoral unemployment rate x Age 45-64	0.018 (4.59)	0.020 (2.75)
Change in the sectoral unemployment rate	0.004 (0.80)	0.012 (1.22)
Sectoral temporary employment ratio	0.002 (0.96)	-0.003 (0.72)
Industry	-0.329 (4.20)	-0.472 (3.04)
Construction	-0.157 (4.67)	0.029 (0.38)
Services	-0.483 (6.57)	-0.577 (3.95)
Second quarter	0.108 (4.73)	0.177 (3.93)
Third quarter	-0.007 (0.27)	-0.009 (0.18)
Fourth quarter	-0.115 (4.66)	-0.038 (0.77)
Number of spells	86,660	28,307
Log likelihood	-43,255	-11,899

[1] Notes:

1. t-ratios in parentheses.
2. The first specification reported includes monthly duration dummies for spells up to 24 months and quarterly duration dummies for 25 to 36 month spells; the second includes 24 monthly duration dummies (durations between months 12 and 36).

Figure A.II.1

PREDICTED HAZARDS AND BENEFITS (1):

EXIT TO EMPLOYMENT (BINARY MODEL FOR ALL UNEMPLOYMENT DURATIONS)

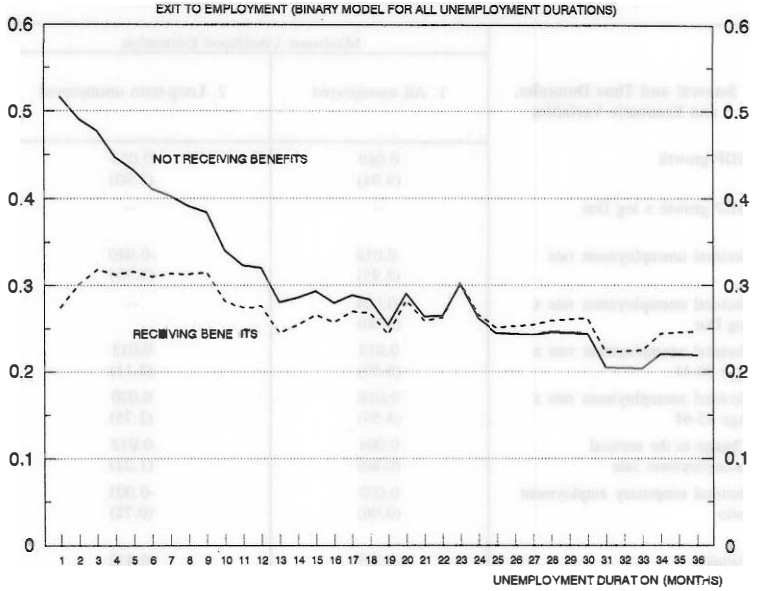
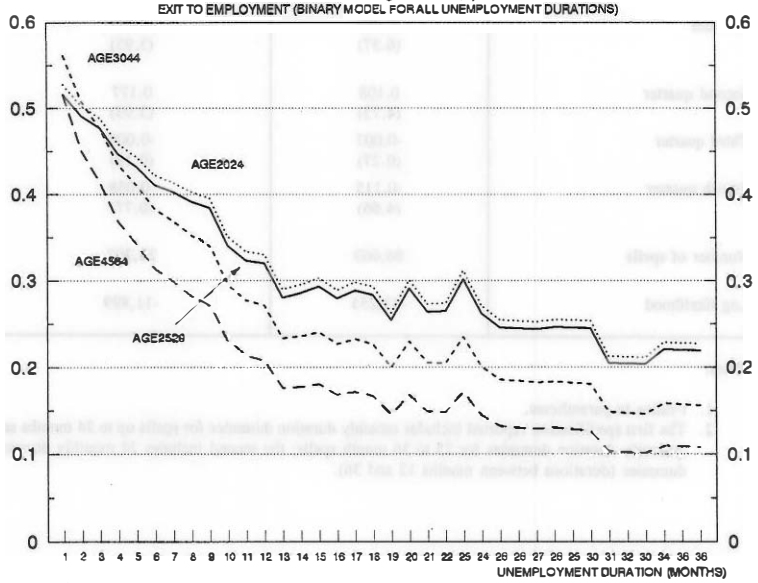


Figure A.II.2

PREDICTED HAZARDS AND AGE

Not receiving benefits (2)

EXIT TO EMPLOYMENT (BINARY MODEL FOR ALL UNEMPLOYMENT DURATIONS)



(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old. Average level of economic variables.

(2) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter. Average level of economic variables.

Figure A.II.3

PREDICTED HAZARD AND TENURE IN PREVIOUS JOB
Not receiving benefits (1)
EXIT TO EM LOYMENT (BINARY MODEL FOR ALL UNEM LOYMENT DURATIONS)

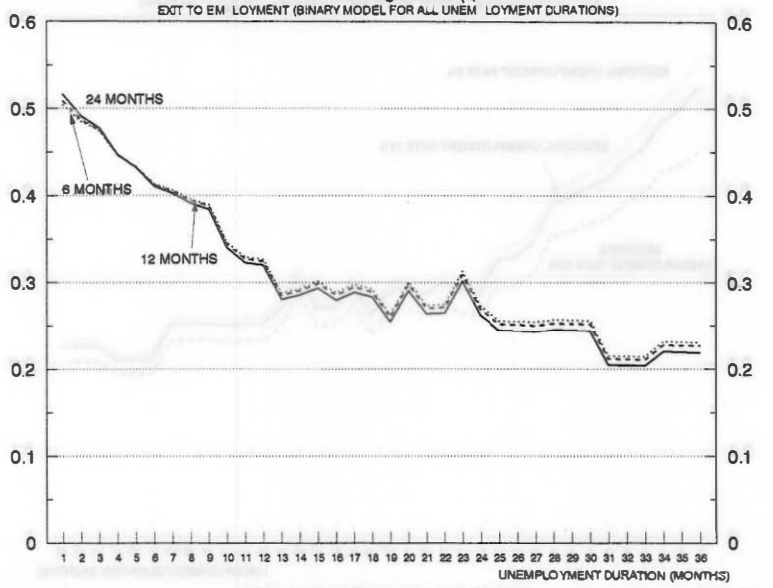
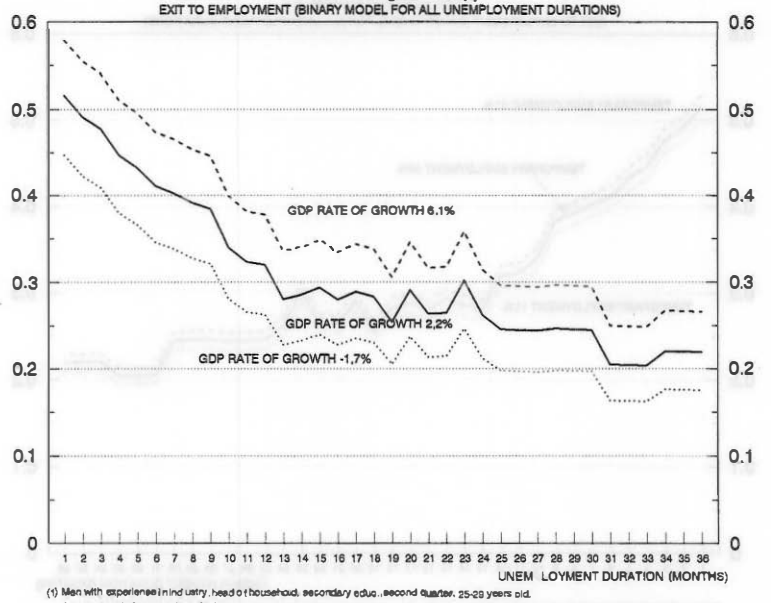


Figure A.II.4

PREDICTED HAZARD AND GDP GROWTH
Not receiving benefits (1)
EXIT TO EMPLOYMENT (BINARY MODEL FOR ALL UNEMPLOYMENT DURATIONS)



(1) Men with experience in ind ustry, head o f household, secondary educ., second quarter, 25-29 years old.
Average level of economic variables.
(2) Men with experience in industry, head o f household, secondary educ., 2 years tenure in previous job, second quarter, 25-29 years old.
Average level of economic variables.

Figure A.II.5

PREDICTED HAZARD RATES AND SECTORAL UNEMPLOYMENT
Not receiving benefits (1)
EXIT TO EMPLOYMENT (BINARY MODEL FOR ALL UNEMPLOYMENT DURATIONS)

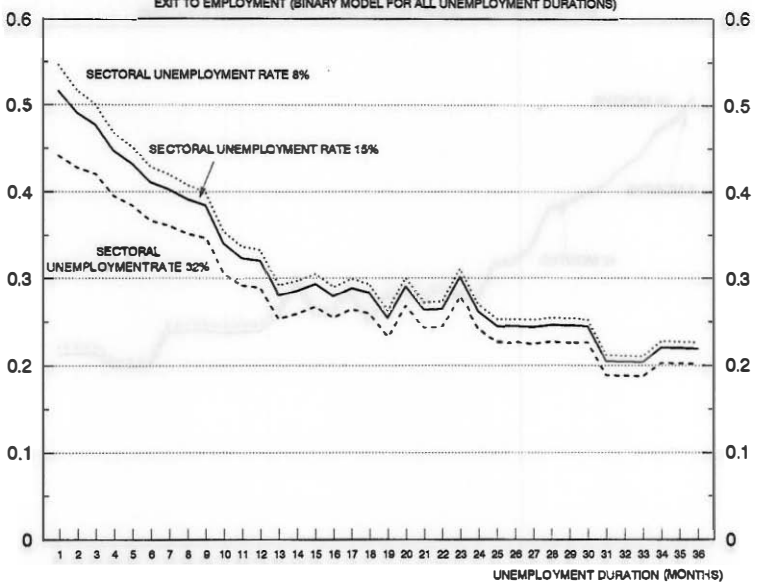
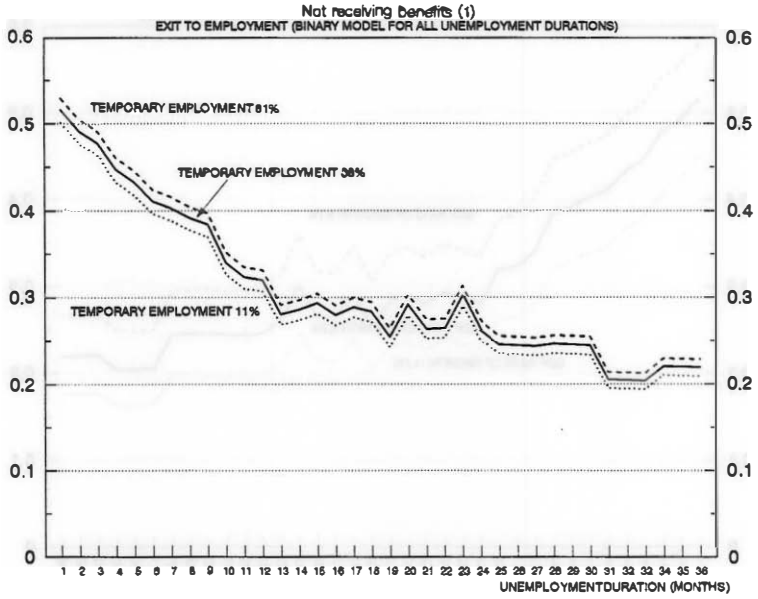


Figure A.II.6

PREDICTED HAZARD RATES AND TEMPORARY EMPLOYMENT
Not receiving benefits (1)
EXIT TO EMPLOYMENT (BINARY MODEL FOR ALL UNEMPLOYMENT DURATIONS)



(1) Men with experience in industry, head of household, secondary educ., 2 years tenure in previous job, second quarter, 26-29 years old. Average level of economic variables.

APPENDIX III
ADDITIONAL RESULTS

Table A.III.1: PREDICTED HAZARDS OF LEAVING UNEMPLOYMENT: EXITS TO A PERMANENT AND A FIXED-TERM JOB (a)

Exit	Variable	Group	Unemployment duration				
			1	3	7	12	24
To a permanent job	Tenure in previous job	6 months	0.034	0.034	0.026	0.024	0.020
	(receiv. benefits)	2 years	0.037	0.035	0.026	0.024	0.019
	Tenure in previous job	6 months	0.077	0.062	0.042	0.035	0.025
	(not rec. benefits)	2 years	0.093	0.072	0.046	0.038	0.026
To a fixed-term job	Tenure in previous job	6 months	0.288	0.303	0.278	0.225	0.202
	(receiv. benefits)	2 years	0.251	0.272	0.254	0.208	0.190
	Tenure in previous job	6 months	0.488	0.424	0.337	0.247	0.189
	(not rec. benefits)	2 years	0.488	0.419	0.328	0.237	0.178
To a permanent job	Age	20-24	0.039	0.037	0.028	0.025	0.020
	(receiv. benefits)	25-29	0.037	0.035	0.026	0.024	0.019
		30-44	0.036	0.034	0.026	0.024	0.019
		45-64	0.020	0.020	0.015	0.014	0.011
To a fixed-term job	Age	20-24	0.263	0.284	0.267	0.219	0.200
	(receiv. benefits)	25-29	0.251	0.272	0.254	0.208	0.190
		30-44	0.230	0.252	0.237	0.194	0.178
		45-64	0.169	0.173	0.152	0.117	0.101
To a permanent job	Education	Primary	0.094	0.073	0.047	0.039	0.027
	(not rec. benefits)	Secondary	0.093	0.072	0.046	0.038	0.026
		University	0.111	0.086	0.056	0.046	0.032
To a fixed-term job	Education	Primary	0.488	0.418	0.328	0.237	0.178
	(not rec. benefits)	Secondary	0.488	0.419	0.328	0.237	0.178
		University	0.455	0.387	0.300	0.214	0.160
To a permanent job	Head of household	Yes	0.093	0.072	0.046	0.038	0.026
	(not rec. benefits)	No	0.061	0.047	0.030	0.025	0.017
To a fixed-term job	Head of household	Yes	0.488	0.419	0.328	0.237	0.178
	(not rec. benefits)	No	0.380	0.335	0.267	0.195	0.151
To a permanent job	Not receiving benefits		0.093	0.072	0.046	0.038	0.026
	Receiving benefits		0.037	0.035	0.026	0.024	0.019
	Low GDP growth		0.062	0.048	0.030	0.025	0.017
	High s.unemployment rate		0.043	0.023	0.021	0.017	0.012
	Low GDP growth-high s.unemployment rate		0.032	0.025	0.016	0.013	0.009
To a fixed-term job	Not receiving benefits		0.488	0.419	0.328	0.237	0.178
	Receiving benefits		0.251	0.272	0.254	0.207	0.190
	Low GDP growth		0.427	0.360	0.276	0.195	0.145
	High s.unemployment rate		0.422	0.334	0.241	0.162	0.113
	Low GDP growth-high s.unemployment rate		0.374	0.294	0.210	0.140	0.098

(a) Source: Based on specifications in table 1, column 3.

Table A.III.2: PREDICTED HAZARDS OF LEAVING LONG-TERM UNEMPLOYMENT: EXITS TO EMPLOYMENT, INACTIVITY AND STUDY (a)

Exit	Variable	Group	Unemployment duration				
			12	15	18	24	36
To employment	Age	20-24	0.066	0.056	0.050	0.042	0.029
	(Difference between	25-29	0.062	0.053	0.046	0.039	0.026
	not receiving and	30-44	0.023	0.016	0.012	0.006	-0.002
	receiving benefits)	45-64	0.042	0.035	0.030	0.025	0.017
To employment	Head of household	Yes	0.306	0.277	0.259	0.250	0.209
	(not rec. benefits)	No	0.237	0.212	0.197	0.190	0.157
To inactivity	Age	20-24	0.019	0.013	0.013	0.012	0.009
	(Difference between	25-29	0.017	0.012	0.012	0.011	0.009
	not receiving and	30-44	0.018	0.013	0.013	0.013	0.012
	receiving benefits)	45-64	0.004	-0.000	-0.004	-0.011	-0.025
To employment	Age 45-64		0.142	0.129	0.122	0.121	0.103
	(receiving benefits)						
To inactivity	Age 45-64		0.079	0.067	0.075	0.092	0.122
	(receiving benefits)						
To employment	Age 20-24		0.339	0.309	0.289	0.280	0.235
	(university education)						
To study	Age 20-24		0.100	0.074	0.117	0.120	0.059
	(university education)						

(a) Source: Based on specifications in table 3, column 3.

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