



WP

Iben Bolvig

Low wage after unemployment - the effect of changes in the UI system

Department of Economics

ISBN 9788778823441 (print)

ISBN 9788778823458 (online)

Low wage after unemployment

- the effect of changes in the UI system

Iben Bolvig
Aarhus School of Business
University of Aarhus

Abstract

Low-wage jobs in Denmark are characterized by short durations and a relatively high mobility to higher wage positions, but also to unemployment. This fact might to some extent be attributed to the generous Danish UI system. The theoretical prediction for this relation is twofold. First, a generous UI system will increase reservation wages and thereby increase the effective minimum wage. This will exclude the least productive individuals from employment and thereby increase the lowest skill level among employed individuals. Hence, the Danish low-wage earners will tend to be better qualified and their duration as low-wage earners will therefore tend to be shorter. Second, the generous benefit system will allow the unemployed person to wait for better jobs, and likewise, force the employing firms to provide jobs with better prospects. By exploiting several tightening of the Danish UI system during the late nineties, these hypotheses are tested by analysing low-wage durations following an unemployment-spell using hazard models allowing for correlation between low wage duration and previous unemployment spells. Results show that being eligible for UIB does indeed increase the transition out of low wage, both to higher wage jobs and returning to unemployment. At the same time approaching passive benefit exhaustion initially increases the likelihood of moving to low-wage employment and subsequently increases the likelihood of returning to unemployment after a spell of low wage. Moreover it decreases mobility to subsequent higher wage employment. Hence, decreasing the passive period seems to have a positive effect on the employment rate, but the jobs accepted seem to be of lower quality, i.e. with higher return rates and lower upward wage mobility.

JEL codes: J31, J64, J65.

1. Introduction

Compared to other countries, especially the US, the prevalence of dead-end low-wage jobs is very low in Denmark. In general, low-wage jobs in Denmark are characterized by short durations and a relatively high mobility to higher wage positions, but also the mobility out of employment is quite significant. Contrary to findings in the US (Andersson et al. (2005)), the escape from low-wage jobs in Danish firms is more prevalent within the firm, than between firms, although firm-specific differences exist (see Bolvig (2005)). The Danish low-wage jobs are to a large extent occupied by students or other transitory workers, for whom these jobs are never meant as permanent positions or even as a start of a career path. Moreover, some of the low-wage jobs often considered as dead-end jobs (shop assistants, call-centre employees, cleaning personnel etc.) are characterised by the availability of a visibly career paths and managers are often seeking to create variety in these kind of occupations (see Westergård-Nielsen (2008)). This is mainly done to attract better employees, and previous research show that different firms apply different strategies, either a constant low-wage - low ability strategy, or a career path – high ability strategy (see Sørensen (2008), or Bolvig (2006) for an empirical analysis of the entire economy).

Now, one of the reasons for these important differences between the Danish and the US low-wage labour market might be attributed to the generous Danish UI system (see next section for detailed description). The fact that low-wage jobs in Denmark have to “compete” with a fairly high and rather long-lasting outside compensation, as the UI benefit, has at least two implications. First, the outside option of a high UI benefit (or a decent welfare benefit) is likely to prevent the least productive and least motivated individuals from getting or taking up any jobs, hence increasing the minimum productivity level among the pool of applicants. Then, in order to attract enough employees from this more able pool of applicants, firms are forced to (and able to) make these low-wage jobs more attractive by e.g. providing sensible career paths, attractive work schemes, more variation in work tasks and even formal training.

Second, from the individual’s point of view, a generous benefit system will allow the unemployed person to spend more time searching for jobs, and hence increase the quality demanded of the jobs considered. The search theory predicts that the closer the

unemployed person is to benefit exhaustion the lower will his reservation wage be, and also the lower the demand for other non-wage compensations.

Even though the Danish UI system still is rather generous, it has in fact gone through a series of tightening during the 1990ies. The purpose of this study is to analyse if and how these tightening have influenced the low-wage labour market. Referring to the above mentioned predictions of the Danish UI system, the tightening of the benefit system is expected to have a positive effect on the duration of low-wage; partly due to a decreased mobility to unemployment because the benefit system is less attractive, and partly due to less upward wage mobility, due to less pressure for career opportunities in low-wage jobs.

The model applied is a refinement of a duration model presented in Belzil (2001). This model is particularly suitable for the purpose of this paper because it builds on the notion that UI benefit durations have an effect on the match quality of subsequent employment, after accounting for the adverse selection of the UI benefit system. Changes to the UI system will be exploited to identify effects of a variety of UI system measures. Whereas Belzil estimates the effect on the duration of subsequent employment, I focus on subsequent low wage duration and allow for competing exit destinations. Compared to previous analyses on year-to-year transitions between low wage and unemployment (see e.g. Steward (2005)), the duration model applied here is able to utilize the excellent longitudinal data available for the present paper. Besides a variety of variables covering individual, as well as firm-specific characteristics, this data consist of information on each individual's weekly labour market state and it allows me to follow the same person in different labour market states over a period of considerable length.

In the following section I describe the Danish UI benefit system and the main changes applied to it during the 1990ies. Then in section 3 the econometric model used to evaluate the hypothesis of the paper is presented. In section 4 I present the results and finally conclusion and summary is given in section 5.

2. The UI system in Denmark¹

The Danish unemployment benefit system is organized in two parallel systems; one providing unemployment insurance benefit (UIB) for insured unemployed and the other providing social assistance (SA) for the non-insured unemployed. Social assistance is in principle available for everyone, but since it is a means tested benefit depending on household income and assets, only a minor part of the Danish labour force is eligible for it in case of unemployment. SA recipients are divided into two groups; those with unemployment as their only problem, and those who have social problems in addition to unemployment. Eligibility of UIB, on the other hand, relies on 1) membership of a UI fund, 2) employment requirements, and 3) maximum benefit duration. Moreover, members who become self-induced unemployed are exposed to a three-weeks quarantine. Until the late 1980s, the Danish unemployment benefit system could be described as a passive system with fairly easy access, high compensation and unemployment benefit eligibility for long periods. However, with the cyclical upturn in 1982-1986 and the following wage pressure dominating a number of sectors, major changes in the labour market policy was needed, see e.g. Jensen (1999). In 1994 the first reform directed toward the structural labour market problems was introduced and during the next years a number of reforms were put into force. In general, the reforms have been based on two strategies; shorter duration of the UIB-period (mainly the passive period) and more focus on activation and test of availability for the labour market; while the fairly high compensation rates for low skilled workers (up to 90%) has not been reformed. Before the labour market reform in 1994 an unemployed person was in reality able to receive UIB for 9 years without unsupported employment. This was possible because the right to UIB could be regained after half a year of subsidised activation. The eligibility to benefit required 12 months of membership as well as 26 weeks of employment during the last 3 years.

¹ This section draws to a large extent on Bolvig et. al. (2007)

With the reform in 1994 the UIB period was divided into a passive (no ALMP) and an active (ALMP) period. Further, the possibility of re-earning eligibility to UIB through ALMP was now removed. In 1995 activation was made compulsory and used as a criterion for receiving UIB. During the late nineties the passive period of the UIB period was reduced from 48 months in 1994 to 24 months in July 1996 and finally to 12 months in 1999. However, transition rules implied that the real passive periods might have been longer for individuals with previous unemployment spells. In Table 1, below, the development since 1995 in the maximum passive duration is shown. It can be seen that for individuals with previous unemployment spells (old reference period) the passive duration is decreasing at a slower pace.

Table 1 also presents the development in the employment requirement, which was increased in 1997 from 24 to 52 weeks within a reference period of 3 years.

Table 1.

<i>Fresh unemployment spell started:</i>	Fresh reference		Old reference	
	Max passive duration/ reference period	Employment requirement/ reference period	Max passive duration/ reference period	Employment requirement/ reference period
01.01.95 - 30.06.96	48 m / 60 m	26 w / 3 y	48 m / 60 m	26 w / 3 y
01.07.96 - 31.12.96	24 m / 36 m	26 w / 3 y	36 m / 48 m ^a	26 w / 3 y
01.01.97 - 31.12.97	24 m / 36 m	52 w / 3 y	36 m / 48 m ^a	52 w / 3 y
01.01.98 - 31.12.98	24 m / 36 m	52 w / 3 y	24 m / 36 m	52 w / 3 y
01.01.99 - 31.12.99	12 m / 24 m	52 w / 3 y	21 m / 33 m	52 w / 3 y
01.01.00 - 31.12.00	12 m / 24 m	52 w / 3 y	15 m / 27 m	52 w / 3 y

Note: w=weeks, m=months, y=years. a) Reference periods started before July 1st 1996.

Throughout the entire period and still today the unemployment benefit amounts to 90 % of previous earnings until a maximum amount, which in 2006 is DKK 667 per day. Because of the relative low ceiling most UIB recipients, except low-skilled in the lower part of the wage distribution, have a real replacement rate well below 90 %. In 2006, the condition for receiving UI benefit requires membership of an unemployment insurance fund and 52 weeks of full employment during the last 3 years. The maximum duration of UIB is now 4 years; 1 year on passive UIB (no compulsory activation) and 3 years on active UIB (with compulsory activation).

3. Data

The comprehensive Danish employer-employee linked data available for this study is extremely suitable for the purpose of this paper, since it allows me to follow the same person in different labour market states over a period of considerable length.

The main sources are the Integrated Database for Labour Market Research (IDA), which contains employer and employee information on a yearly basis together with a spell database containing information on each person's labour market state on a weekly basis. The spell database includes the period 1986-2002, but this analysis is restricted to the period 1995-2002 in order to avoid the large reform of the UI system implemented in 1994.

3.1 IDA

The Integrated Database for Labour Market Research (IDA) is the most used administrative database for labour market studies in Denmark. It is an employer-employee linked database, and it covers the entire Danish population (about 5.3 million) as well as all firms with at least one employee (about 250,000). About 250 different variables are available from IDA. For each employment spell, information on the employer is available and it is linked to the employee via a unique employer id. Both individuals and firms can be followed over time.

IDA also provides information on the annual amount of UI benefit paid to each person. Even though these data only are available on an annual basis, they can still be used to estimate the amount of UIB spent within the reference period, and thereby enable the calculation of time until benefit exhaustion (see below).

Moreover, for the present study, I use IDA to collect information on individual characteristics such as age, gender, level of education and marital status, and on firm characteristics such as industry and firm size.

3.1 *Spell data*

The spell data come from a data set constructed from various administrative registers from Statistics Denmark. It defines each person's labour market state on a weekly basis within the following states: employment, unemployment, temporary unemployment, active labour market program, in formal education and out of the labour force including different welfare programs such as rehabilitation and social assistance. In case a person is observed in more than one register at the same time, the following order of preference between the different labour market states has been made: 1) unemployment, 2) education, 3) welfare programs and pension schemes, 4) employment and 5) otherwise out of the labour force. Hence, registration in the unemployment register (CRAM) dominates registration in any other register, whereas individuals not registered in any of the applied registers are defined as out of the labour force.²

The labour market states defined for this paper are low-wage employment, higher-wage employment³, unemployment, ALMP and out of the labour force. Higher-wage employment spells and out of the labour force spells are merely used for identifying destination states from low-wage spells, whereas unemployment spells are used to identify individual-specific adverse selection effects (see the model description, below).

A key variable calculated in the spell data is the firm-specific weekly wage rate. This wage rate, which is individual specific, is based on the individual's annual wage within each employing firm and number of weeks worked within each firm within that year. The weekly wage can be used to calculate the hourly wage. For this purpose, the number of hours worked per week is estimated using the annual additional employment pension contribution (ATP) paid for each employee based on the number of hours worked per week. Since this ATP-payment is stepwise increasing, the number of hours worked per week can only be estimated within certain intervals. The quality of the hourly wage is hence related to the number of working hours, and the fewer weekly working hours, the less reliable is the measure. Consequently, I only include full-time workers, but since

² See Larsen (2002) for further description of the spell data.

³ I.e. non-low-wage employment.

part-time jobs only play a minor role in the Danish labour market⁴ the exclusion of these workers is not expected to alter the result considerably.

Low-wage workers are defined as those employees who have an hourly wage below 60% of the median annual hourly wage rate for the entire economy.

3.1 Sampling frame

I concentrate the analysis to the period 1995-2000. This gives us two changes to the benefit duration, specifically to the passive period, in 1996 and 1999, and one change to the employment requirement in 1997. Moreover various transition rules imply that unemployed individuals will face different rules throughout the period as illustrated in Table 1. To simplify, we concentrate the analysis to individuals aged 25-49 since special rules apply to those below 25 and those 50 years or older.

From a 10 per cent sample of the above mentioned data set, I create a flow sample consisting of all individuals who have been employed in a low-wage job during the period 1996-2000. This enables me to gather information on previous unemployment spells going up to six years back (considering both pre and post 1994-reform unemployment spells). From these spells I collect all low-wage spells preceding an unemployment spell. To correct for adverse selection I also include all unemployment spell starting during the period 1995-1999.

Next, I present the econometric model, which analyses the effects of the variables presented above.

4. The Model

As mentioned in the introduction, this paper aims to analyse whether the tightening of the UI system will affect the subsequent low-pay employments. Hence, are these low-wage jobs stepping stones to better paid jobs or do they merely serve as transitory states before returning to unemployment. The main question is if the mobility out of low wage has

⁴ Including all types of part-time jobs (student jobs included), the percentage of part-time jobs varies around 15 per cent during the period of interest, but when excluding all students the fraction decreases to less than 5 per cent.

changed for the group of previously unemployed individuals as a result of the changes in the UI benefit system.

Similar for the labour market reforms implemented in Denmark during the 1990'ies is the variety of the incentive tools which have been implemented. I.e., for most reforms several components of the UI benefit systems have been changed. In addition, some of the reforms are implemented using transition rules, which might be dynamic or rely on individuals' previous experiences. This means that rules and changes to rules differ between different individuals, and between different UI periods for the same individual. These discrepancies allow us to identify specific effects of incentives in the UI benefit system. I choose to focus on one comparable rule, the *maximum benefit duration*. I have chosen to neglect the compensation rate, which has otherwise often been used in analysing the incentives of the UI system, of two reasons. First, the compensation rate has been constant during the observation period. Second, this measure is less suitable for the objective to analyse the subsequent low-wage employment.

Low-pay employment is defined as employment in jobs with hourly wages below the low-pay threshold (60 % of the median of the annual hourly wage distribution). Transition to higher pay will happen whenever we observe wages above the threshold for the low-wage worker. I.e. upward wage mobility might happen within the same firm, or by moving to another firm, and we do not distinguish between the two. Likewise, the duration of the low-pay spell might contain several low-pay jobs at different firms, since we do not account for mobility between firms, per se.

4.1 *UI system measures*

Before introducing the econometric model applied for the analysis, I shortly present the variables of interest.

Clearly, the effect of a change in the system might go through both the previous unemployment spell as well as the current low-pay spell. Hence, the duration and destination state of a low-wage spell is not only depending on the rules of the UI benefit system during the current spell, but also during the previous unemployment spell. Imaging e.g. that a reform in the UI benefit system “forces” an unemployed person to enter a low-wage job, then it is likely that this motivation for entering the low wage job

will affect the duration of it, through the match quality (see Belzil (2001)). The notion is that the closer a person is to benefit termination the more likely he is to accept jobs of lower quality, and hence we will expect the hazard from low wage to unemployment to be negative affected by the remaining benefit duration, whereas the hazard to higher wage will be positive affected by the remaining benefit duration.

First of all, a dummy variable indicating if a person is eligible for UI benefit, $eligible_{it}$, should be defined for each person at each point in time. This variable will vary between individuals who are exposed to different rules at the same time, and between times as the rules changes. For individuals who are not members of an insurance fond or for otherwise ineligible individuals, $eligible_{it}$ will equal zero. $eligible_{it}$ is a semi-macro level variables that describes the rules individual i is exposed to at time t , but it does not vary with the current maximum benefit duration of person i . Hence, for unemployed individuals who are eligible for UI benefit it is interesting to know when the benefit will expire. Therefore I introduce, bex_{it} , which essentially is the maximum benefit duration minus the elapsed duration in unemployment, and it measures how close to benefit exhaustion the person is at time t . This variable will clearly be zero if the person is ineligible. Activation is an important factor in the Danish labour market policy and since 1994 the UI benefit period has been divided into a passive and an active period, but only the length of the passive period has been subject to changes during the late 1990's. Therefore, I base time until benefit exhaustion merely on the passive period, i.e. $pbex_{it}$ measures the *time until passive benefit exhaustion*. The notion behind this variable is that unemployment with compulsory ALMP is less attractive and as such unemployed individuals will react by lowering their reservation wage when approaching the time where the passive period ends. Previous studies have identified a positive motivation/threat effect of compulsory ALMP on the hazard out of unemployment (see Geerdsen (2006) and Rosholm and Svarer (2004)). By including $pbex_{it}$ in the model we will be able to estimate if the threat effect will influence the duration of subsequent low wage. $Pbex$ will be measured at the end of the previous unemployment spell, hence if individual i 's previous unemployment spell was ended at time τ , then $pbex_{i\tau}$ measures the length of the benefit period left when unemployment ended.

Finally, lagged duration of the previous unemployment spell, $lagdur_{it}$, is included in the model. This variable, which is also measured at the end of the previous unemployment spell, measures the degree by which the low-wage worker has been marginalised.

4.1 Hazard Model

Now, let the duration of low-pay spell i be defined by the time at which the spell ends. Since I have weekly information on individual labour market states the continuous time specification of the duration model will be suitable for this application (see e.g. Lancaster (1990) for a comprehensive introduction to duration models). I apply a competing risk hazard specification, i.e. three different destination states are specified: hw : higher wage, u : unemployment, and out : other. Then the destination-specific hazard rate out of low pay for destinations to state l is defined as:

$$h_l(t | \mathbf{X}, \mathbf{U}(\tau), eligible(t)) = \lambda_l(t) \cdot \exp\left(\mathbf{X}'\boldsymbol{\beta}_{1l} + pbex(\tau)' \boldsymbol{\beta}_{2l} + lagdur(\tau)' \boldsymbol{\beta}_{3l} + eligible(t)' \boldsymbol{\beta}_{4l}\right), \quad l = hw, u, out \quad (0.1)$$

where $m(t) = 1, 2, \dots, M$ denotes the steps in the stepwise constant baseline hazard, \mathbf{X}_i is a vector of individual specific characteristics and $\mathbf{U}(\tau)$ is a vector of variables concerning the previous passive unemployment period measured at time τ which is at the end of the period.

The model is estimated using maximum likelihood, and the contribution to the likelihood function for each low-pay spell ending in destination state l is therefore given by:

$$L_l = h_l(t | \mathbf{X}, \mathbf{U}(\tau), eligible(t))^{d_l} \cdot \exp\left[-\int_0^t h_l(s | \mathbf{X}, \mathbf{U}(\tau), eligible(s)) ds\right] \quad (0.2)$$

where d_l is an indicator for leaving a low pay to state $l = hw, u, out$.

4.1 Unobserved heterogeneity and adverse selection

As mentioned above UI benefit duration might affect subsequent employment duration through match quality. However, this correlation might also be explained by another hypothesis, i.e. adverse selection. Adverse selection arises from unobserved heterogeneity, and in this context it means that some individuals might possess

characteristics unobserved to the researchers that make them less attractive at the labour market. These individuals will both tend to have long unemployment spells, short employment spells, and if employed: a higher probability of low wage, hence we will observe a negative correlation between unemployment duration and subsequent employment, or a low pay-unemployment cycle. If we do not take this adverse selection into account, we might mistakenly interpreted a positive correlation between remaining benefit duration and the duration of the subsequent employment spell as solely due to match quality, even though unobserved heterogeneity might be the main reason.

The right way to account for unobserved heterogeneity in a duration model is to allow for an individual specific error term. Since the unobserved heterogeneity will affect both the unemployment duration and the subsequent employment (low pay) duration, we need to estimate the hazard out of unemployment simultaneously with the hazard out of low pay, and allow the individual specific error terms to be correlated. This resembles the empirical model applied by Belzil (2001). Let's define $\mathbf{v}_i = \{v_{i1}, v_{i2}, v_{i3}\}$ as the vector of individual specific factors affecting the hazard from low pay to destination 1: higher wage, 2: unemployment and 3: other, and v_i as the individuals specific factor affecting the hazard out of unemployment. By allowing \mathbf{v}_i to be correlated with v_i we are able to account for the adverse selection. Now, the hazard function out of subsequent low wage can be written in terms of the destination-specific hazard functions.

$$h_{lw,l}(t | \mathbf{X}, \mathbf{U}(\tau), \text{elig}(t), v_{lw,l}) \\ = \lambda_{lw,l}(t) \cdot \exp\left(\mathbf{X}'\boldsymbol{\beta}_{1lw,l} + \mathbf{U}(\tau)' \boldsymbol{\beta}_{2lw,l} + \text{elig}(t)' \boldsymbol{\beta}_{3lw,l}\right) \cdot \exp(v_{lw,l}), \quad l = hw, u, out$$

$$h_{lw}(t | \mathbf{X}, \mathbf{U}(\tau), \text{elig}(t), v_{lw}) \\ = h_{lw,hw}(t | \mathbf{X}, \mathbf{U}(\tau), \text{elig}(t), v_{lw,hw}) + h_{lw,u}(t | \mathbf{X}, \mathbf{U}(\tau), \text{elig}(t), v_{lw,u}) + h_{lw,out}(t | \mathbf{X}, \mathbf{U}(\tau), \text{elig}(t), v_{lw,out})$$

The likelihood contribution is

$$L_{lw} = h_{lw,hw}(t | \mathbf{X}_{lw}, v_{lw,hw})^{d_{hw}} \cdot h_{lw,u}(t | \mathbf{X}_{lw}, v_{lw,u})^{d_u} \cdot h_{lw,out}(t | \mathbf{X}_{lw}, v_{lw,out})^{d_{out}} \\ \cdot \exp\left[-\int_0^t h_{lw}(s | \mathbf{X}_{lw}, v_{lw}) ds\right]$$

Likewise the unemployment hazard function can be defined as:

$$\begin{aligned}
h_u(t | \mathbf{X}_u, \mathbf{U}_u(t), \nu) \\
= \lambda_u(t) \cdot \exp\left(\mathbf{X}_u' \boldsymbol{\beta}_{1u} + \mathbf{U}_u(t)' \boldsymbol{\beta}_{2u}\right) \cdot \exp(\nu),
\end{aligned} \tag{0.3}$$

Where $\mathbf{U}_u(t)$ is a vector of the two UI incentive variables $pbex(t)$ and $elig(t)$, which are time varying during the unemployment spell. $pbex(t)$ is changing as the unemployment spell evolves and hence the benefit and passive period exhaustion approaches, whereas $elig(t)$ only changes as the rules changes or as.

The likelihood contribution of the unemployment spells is

$$L_u = h_u(t | \mathbf{X}_u, \nu)^d \cdot \exp\left[-\int_0^t h_u(s | \mathbf{X}_u, \nu) ds\right]$$

Each individual's contribution to the likelihood function will now be:

$$L = \int_{\nu} \int_{\mathbf{v}} L_{hw}(t_{hw} | \mathbf{X}_{hw}, \mathbf{v}) L_u(t_u | \mathbf{X}_u, \nu) dG(\mathbf{v}, \nu)$$

4.1 Identification

In order to identify the true effect of approaching the passive benefit exhaustion, we need to make sure that there is some kind of random variation in the variable, $pbex_{it}$, besides the direct reform variation. Since the reform rules apply differently to different individuals and since we observe it at the end of the previous passive UI benefit period we do observe large enough variation to identify the effects of a shift in $pbex_{it}$. In Table 2 we present the variation in time until passive benefit exhaustion $pbex_{it}$ by year. We do see a clear relation between calendar time and the mean value of $pbex_{it}$, but the standard deviation within each year indicate that there is no significant year-to-year difference.

Table 2. Mean and std. dev. of and $pbex_{it}$

	<i>pbex</i>	
	Mean	Std. dev.
1996	103.3	34.5
1997	70.2	42.1
1998	71.1	41.3
1999	68.3	33.1
2000	45.8	28.6
2001	35.3	27.8
2002	34.6	24.2

In Table 3 the rate of individuals eligible for UI benefit is presented. Two tendencies can be seen. First, the rate of eligible individuals clearly decreases during the period of interest, both among unemployed as well as employed individuals. Looking behind these numbers it can be seen that this decrease is driven by a decrease in the number of members of an UI fund. Second, the rate of eligible individuals differs considerably between the different groups. The highest eligibility rate is found among employed individuals, especially those in a non-low-wage job, and the lowest rate is found among individuals outside the labour force. Interestingly the eligibility rate has decreased the most for low-wage workers, hence with 10 percentage points compared to a decrease of 5 percentage points for non-low-wage workers.

Table 3. Rate of eligible individuals and UI fund members by labour market state and year

	Unemployed	Low wage	Higher wage	Out of labour force
1996	0.73	0.88	0.89	0.44
1997	0.69	0.86	0.89	0.45
1998	0.68	0.84	0.88	0.51
1999	0.68	0.83	0.88	0.50
2000	0.66	0.82	0.87	0.49
2001	0.66	0.82	0.86	0.49
2002	0.65	0.78	0.84	0.46

5. Low-wage spells

We now turn to the empirical evidence for the low-wage spells. Table 4 presents the position on the labour market for the observed individuals, i.e. individuals who have previously been unemployed, one year after they entered their low-wage spell. The table is divided by UIB eligibility at the beginning of the low-wage spell. The risk of returning to unemployment is fairly high; 20% of the UIB eligible and 27% of the UIB ineligible have returned to unemployment one year after they entered their low-wage job. In general it can be seen that those individuals who were eligible for UIB at the beginning of the low-wage spell are more likely to be in a higher-wage job one year later, whereas the ineligible individuals are more likely still to be in a low-wage position; hence whereas more than 50% of the eligible individuals are employed in a higher-wage job one year later, only 30% of the ineligible are. These pure descriptive figures give the clear

impression that those individuals eligible for UIB have an easier time overcoming a spell of unemployment by entering low wage, both because they are less likely to return to unemployment, and because they are more likely to move on to higher-wage employment. These figures do however not take account of any selection into either of the two groups, and it is hence impossible from these figures to say if the difference is due to a match quality effect, or merely is a selection effect. The duration analyses in the next section will attempt to account for this.

Table 4. Distribution of labour market states one year after entering a low-wage spell preceded by a spell of unemployment..

	Eligible		Not eligible	
	%	Obs.	%	Obs.
Active	2.2	278	7.1	112
Passive	17.8	2290	20.3	320
Low wage	17.3	2223	30.3	477
High wage	52.3	6719	30.5	480
Out	10.2	994	11.8	102

5.1 Hazard rate out of low wage

Next, we take a look at the estimates of the duration analysis. Recall that the three variables of interest are: 1) *pbex*: time until passive benefit exhaustion (weeks) measured at time for exit from previous unemployment. In order to allow for different effects as the passive benefit exhaustion approaches I divide *pbex* into three variables, *pbex* 0-12 months, *pbex* 12-24 months and *pbex* >24 months, each accounting for the effect within their interval; 2) *lagdur*, the duration of the past unemployment spell (months), and 3) *eligible*, a dummy for whether or not a person is eligible for UI benefit measured at each observed point in time.

I start out by estimating the simple single risk hazard rate out of low wage for individuals who have entered low wage immediately after an unemployment spell (column 1 in Table 5). We can see that the coefficients to *pbex* differ between the size of *pbex*. Hence, the further away from passive benefit exhaustion and at least 24 months when entering low wage the less likely the low-wage employment is to end. On the other hand, the closer to benefit exhaustion and less than 12 months the less likely the low-wage employment also is to end. This finding covers the findings from the competing risk model, where the

effect of *pbex* differs between returning to unemployment and moving to higher wage employment (column 2 and 3). This result indicates that closeness to benefit exhaustion decreases the quality of the job taken, both as to the probability of returning to unemployment and to the chance of moving up the wage ladder. On the other hand, being eligible clearly decreases the duration of subsequent low wage, both by increased return to unemployment as well as increased mobility to higher wage employment; only the mobility out of the labour force is decreased by eligibility. That is, whereas eligibility might be discouraging for subsequent employment by making unemployment more attractive, it might also be encouraging for upward wage mobility, by allowing the unemployed person to wait for a job with stepping stone capability. This result is however likely to be affected by the adverse selection problem inherent in the UI system. That is, those individuals who were close to benefit exhaustion at the time of exit from unemployment and those individuals who were not eligible for UIB at all are likely to be a selected group, who per se have long unemployment durations and low probabilities of staying employed. By accounting for the duration of previous unemployment, this adverse selection can be accounted for.

Table 5. Hazard out of low wage – single risk and competing risk.

	<i>Single risk</i>		<i>Return to unemployment</i>		<i>Mobility to higher wage</i>		<i>Leave the labour force</i>	
	<i>Coef.</i>	<i>Std. Err.</i>	<i>Coef.</i>	<i>Std. Err.</i>	<i>Coef.</i>	<i>Std. Err.</i>	<i>Coef.</i>	<i>Std. Err.</i>
<i>pbex</i> 0-12 mths.	0.028 **	0.004	-0.009	0.007	0.044 **	0.005	-0.007	0.021
<i>pbex</i> 12-24 mths.	-0.003	0.002	-0.008 *	0.003	0.018 **	0.002	-0.010	0.009
<i>pbex</i> >24 mths.	-0.013 **	0.001	-0.008 **	0.002	0.001	0.001	-0.004	0.004
<i>Eligible</i>	0.557 **	0.047	0.704 **	0.080	0.441 **	0.059	-0.783 **	0.165
<i>Lag duration</i>	-0.004 **	0.000	-0.003 **	0.001	-0.004 **	0.001	0.001	0.001
Female	-0.511 **	0.024	-0.381 **	0.043	-0.597 **	0.029	-0.048	0.119
Under30	0.043	0.028	-0.164 **	0.054	0.147 **	0.034	0.052	0.127
Spouse	-0.024	0.025	-0.107 *	0.045	-0.015	0.031	0.091	0.118
Young child	-0.024	0.032	-0.123 *	0.059	0.009	0.040	0.164	0.147
# of children	0.000	0.015	-0.014	0.026	0.004	0.019	-0.019	0.068
Not native	-0.126 **	0.040	0.063	0.066	-0.224 **	0.052	-0.144	0.178
Low edu	0.045	0.034	0.458 **	0.065	-0.138 **	0.041	0.514 **	0.185
Medium edu	0.024	0.032	0.205 **	0.064	-0.046	0.038	0.289	0.182

In the estimations of Table 5 the duration of previous unemployment is also included as an explanatory variable. It can be seen that the longer the previous unemployment spell,

the less likely the low-wage worker is to end the low-wage employment, both by moving to higher wage and by returning to unemployment. Only the effect of leaving the labour force is unaffected by the duration of previous unemployment.

In Table 6 I present the result for the competing risk model where the hazard rate out of previous unemployment is accounted for. Column 1-3 show results of a model where v_{i1} , v_{i2} and v_{i3} each are correlated with v_i , but not with each other. Hence this represents a model with no unobserved correlation between the three destination states of the low wage hazard, but with correction for adverse selection. The effect of *pbex* is in this model allowed to differ between destinations of respectively 0-12 months and more than 12 months.

The direction of the effect of time left with passive UIB, *pbex*, is not changing after accounting for adverse selection. If anything, the size of the effect has decreased a little bit. Hence, the likelihood of returning to unemployment is still increasing and the mobility to higher wage is still decreasing the closer to benefit exhaustion the person was when entering the low-wage job. The effect on return to unemployment is only significant for residual benefit duration above 12 months, which indicate that the lower likelihood of returning to unemployment only takes effect for individuals who had a large amount of passive benefit leftover when entering low wage. The effect on mobility to higher wage, on the other hand, is only significant for *pbex* values below 12 months, hence only if the unemployed person takes up a low-wage job very close to the passive benefit exhaustion the possibility of moving on to higher wage is decreased. This fact indicates that the low-wage jobs taken just before the passive benefit terminates are more likely to be dead-end jobs. I find no significant effects of *pbex* on the likelihood of leaving the labour force.

If a person not is eligible at all his probability of returning to unemployment as well as his mobility to higher wage is significantly decreased. On the other hand, eligibility decreases the hazard from low wage out of the labour force, most likely because for individuals eligible for UIB staying in the labour force is more attractive than it is for the ineligible individuals.

Table 6. Hazard out of low wage – competing risk accounted for adverse selection.

Low wage spell	Return to unemployment		Mobility to higher wage		Leave the labour force	
	Estimates	Std. err.	Estimates	Std. Err.	Estimates	Std. err.
Parameters						
<i>Pbex</i> (years)	-0.01	0.01	0.30 **	0.05	0.01	0.02
	-0.01 **	0.00	0.01	0.02	0.00	0.01
<i>Eligible</i>	0.73 **	0.08	0.77 **	0.07	-0.80 **	0.18
Unempl. dur. (months)	0.00	0.00	-1.54 **	0.15	0.00	0.00
Female	-0.42 **	0.05	-0.62 **	0.03	-0.02	0.14
Under30	-0.18 **	0.06	0.11 **	0.04	0.00	0.15
Spouse	-0.07	0.05	0.06	0.03	0.11	0.14
Young child	-0.11	0.06	0.00	0.04	0.16	0.17
# of children	-0.01	0.03	-0.02	0.02	0.01	0.08
Not native	0.04	0.07	-0.14 **	0.05	-0.18	0.21
Low edu	0.40 **	0.07	-0.07	0.04	0.50 *	0.21
Medium edu	0.17 *	0.07	-0.05	0.04	0.34	0.21
<hr/>						
Previous unemployment spell						
<i>Eligible</i>	0.67 **	0.03	0.23 **	0.03	0.68 **	0.03
	0.00 **	0.00	0.12 **	0.01	0.00 **	0.00
Female	-0.04 *	0.02	0.01	0.01	-0.04 *	0.02
Under30	0.11 **	0.02	0.08 **	0.02	0.10 **	0.02
Spouse	0.11 **	0.02	0.12 **	0.02	0.11 **	0.02
Young child	-0.04	0.02	-0.06 **	0.02	-0.04	0.02
# of children	0.02 *	0.01	0.01	0.01	0.02 *	0.01
Not native	-0.22 **	0.03	-0.14 **	0.03	-0.21 **	0.03
Low edu	-0.20 **	0.02	-0.09 **	0.02	-0.21 **	0.03
Medium edu	-0.06 **	0.02	0.04 *	0.02	-0.07 **	0.02
<hr/>						
$v_1 / v_2 / v_3$	1.08 **	0.09	0.51	121.31	-0.55	0.46
ν	0.56 **	0.03	0.24	34.19	0.65 **	0.04
$P(v_1/v_2/v_3=1, \nu=1)$	0.79		0.33		0.96	
Log Likelihood	-74606		-98875.4		-80715.3	

The selection part of the model, i.e. the hazard rate out of previous unemployment, is informing us on another perspective of the effect of eligibility and residual passive benefit. Here it can be seen that eligibility increases the mobility from unemployment to low wage. Hence, there is no indication of UIB eligibility working as locking the unemployed into unemployment, at least not as opposed to low-wage employment. However, this effect most likely indicates that those being eligible are a selected group. The coefficient of $pbex_t$, which here is a time varying variable, is positive in all three equations. Hence the mobility from unemployment to low wage decreases as the time for passive benefit exhaustion approaches. This is exactly the opposite effect than predicted

by the matching theory, which says that as benefit termination approaches the reservation wage will fall and consequently the likelihood of taking up a low-wage job will increase. The individual specific unobserved correlation between the unemployment and the low wage hazards informs us on the selection process. I find that among those individuals who eventually return to unemployment 79% have a combination of a high mobility from unemployment to low wage and a high mobility returning to unemployment; the other 21% have low mobility in both hazards. This seems to indicate that for a large amount of individuals there seem to be a fast low-wage – unemployment cycle. Among those ultimately leaving the labour force, I find that 96% have a combination of high mobility from unemployment to low wage and then a low mobility from low wage moving out the labour force. Hence low-wage employment does not seem to be a short transitory state between unemployment and non-participation in the labour market. Finally, I do find a positive correlation between those with a high hazard from unemployment to low wage and those with a high hazard from unemployment to higher wage, but the estimated coefficients are not significant. In stead, I find a negative significant effect of the duration of the previous unemployment spell on the subsequent low wage hazard into higher wage. Hence, there is clear indication that the longer the previous unemployment spell, the less likely it is that the low-wage employee will move on to higher wage employment.

6. Summary and Conclusion

The purpose of this paper has been to investigate the relationship between the Danish unemployment insurance system and the low wage labour market. The paper explores several decreases in the maximum passive benefit duration which have been applied during the late 1990'ies to investigate the effect of being eligible for UI benefit on low-wage durations for individuals who escape unemployment by taking up a low wage job. The hypothesis behind the paper is that UI benefit will have a positive effect on subsequent employment through decreasing searching costs and thereby enable an increase in the match quality. By investigating low-wage employment durations the paper aims to find out if the relative high mobility out of low wage previously found on Danish data to some extent can be attributed to the generous Danish UI system.

I use two different measures for UIB eligibility: a zero/one indicator for being eligible (*eligible*), and a measure for time left until exhaustion of passive UI benefit, measured at the time for unemployment exit (*pbex*).

It is well known that long unemployment duration might be correlated with subsequent employment spells through unobserved heterogeneity. By including the duration of the previous unemployment spell the paper accounts for this adverse selection.

The estimation results show that as the benefit exhaustion approaches, the mobility back to unemployment is increased, whereas the mobility into higher wage employment is decreased. The matching model predicts that as benefit exhaustion approaches the match quality of the subsequent employment spell decreases. This prediction is in accordance with the increased return to unemployment and the decreased mobility to higher wage employment.

I find a clear correlation between being eligible for UI benefit and the duration of subsequent low wage; eligible individuals have a significant higher likelihood of returning to unemployment, but also a higher likelihood of moving to higher wage employment; only the mobility out of the labour force is lower for this group. This might be an indication of the short durations of Danish low wage jobs being attributed to the UI benefit system.

7. References

Andersson, Fredrik, Harry Holzer and Julia Lane (2005). *Moving Up or Moving On. Who Advances in the Low-Wage Labor Market?* Russel Sage Foundation. New York.

Belzil, Christian (2001). Unemployment Insurance and Subsequent Job Duration: Job Matching Versus Unobserved Heterogeneity. *Journal of Applied Econometrics*. Vol. 16, pp 619-636.

Bolvig, Iben (2005). Within- and Between-Firm Mobility in the Low-wage Labour Market. In “*Job Quality and Employer Behavior*”, ed. Stephen Bazen, Claudio Lucifora and Wiemer Salverda, Palgrave, August 2005.

Bolvig, Iben (2006). Starting wages and the return to seniority: firm strategies towards unskilled labour market entrants. Chapter 2 in “*Empirical Analyses of Employers and Employees: The Case of Workers at the Low End of the Labour Market*”, PhD thesis, Aarhus School of Business, 2006:7.

Bolvig, Iben, Inés Hardoy, Merja Kauhanen, Reija Lilja, Marianne Røed and Nina Smith (2007). The labour supply of low-skilled – incentives in the unemployment insurance systems. A comparative description based on Nordic countries. *TemaNord* 2007:577.

Geerdsen, L. P. (2006), Is there a threat effect of labour market programmes? A study of ALMP in the Danish UI system. *The Economic Journal*. vol. 116, issue 513, pp. 738.

Jensen P. H. (1999), *Activation of the Unemployed in Denmark since the early 1990s. elfare or Workfare?*, Centre for Comparative Welfare State Studies, Aalborg University.

Lancaster, Tony (1990). *The Econometric Analysis of Transition Data*, Cambridge University Press, Cambridge.

Larsen, Jonas Møller (2002). Konstruktion af Individuelle Forløbshistorier på Baggrund af Data fra CRAM, CON, IDA og Amfora. Aarhus School of Business, Mimeo, December 2002.

Rosholm M. and M. Svarer. (2004), Estimating the Threat Effect of Active Labour Market Programmes. *IZA Discussion Paper No. 1300*, Institute for the Study of Labor, Bonn.

Stewart, Mark B. (2005). The Inter-related Dynamics of Unemployment and Low-wage Employment. Warwick Economic Research Papers. No 741, The University of Warwick.

Sørensen, Ole Henning (2008). RSF industry chapter: Pay and Job Quality in Danish Call Centers. In Niels Westergård-Nielsen (Ed.) *Low-wage work in Denmark*. Russel Sage Foundation.

Westegård-Nielsen, Niels (Ed.) (2008). *Low-wage work in Denmark*.. Russel Sage Foundation.

Department of Economics:

Skriftserie/Working Paper:

2003:

- WP 03-1 Søren Harck: Er der nu en strukturelt bestemt langsigts-ledighed i SMEC?: Phillipskurven i SMEC 99 vis-à-vis SMEC 94. ISSN 1397-4831.
- WP 03-2 Beatrice Schindler Rangvid: Evaluating Private School Quality in Denmark. ISSN 1397-4831.
- WP 03-3 Tor Eriksson: Managerial Pay and Executive Turnover in the Czech and Slovak Republics. ISSN 1397-4831.
- WP 03-4 Michael Svarer and Mette Verner: Do Children Stabilize Marriages? ISSN 1397-4831.
- WP 03-5 Christian Bjørnskov and Gert Tinggaard Svendsen: Measuring social capital – Is there a single underlying explanation? ISSN 1397-4831.
- WP 03-6 Vibeke Jakobsen and Nina Smith: The educational attainment of the children of the Danish ‘guest worker’ immigrants. ISSN 1397-4831.
- WP 03-7 Anders Poulsen: The Survival and Welfare Implications of Altruism When Preferences are Endogenous. ISSN 1397-4831.
- WP 03-8 Helena Skyt Nielsen and Mette Verner: Why are Well-educated Women not Full-timers? ISSN 1397-4831.
- WP 03-9 Anders Poulsen: On Efficiency, Tie-Breaking Rules and Role Assignment Procedures in Evolutionary Bargaining. ISSN 1397-4831.
- WP 03-10 Anders Poulsen and Gert Tinggaard Svendsen: Rise and Decline of Social Capital
– Excess Co-operation in the One-Shot Prisoner’s Dilemma Game. ISSN 1397-4831.

- WP 03-11 Nabanita Datta Gupta and Amaresh Dubey: Poverty and Fertility: An Instrumental Variables Analysis on Indian Micro Data. ISSN 1397-4831.
- WP 03-12 Tor Eriksson: The Managerial Power Impact on Compensation – Some Further Evidence. ISSN 1397-4831.
- WP 03-13 Christian Bjørnskov: Corruption and Social Capital. ISSN 1397-4831.
- WP 03-14 Debashish Bhattacharjee: The Effects of Group Incentives in an Indian Firm
– Evidence from Payroll Data. ISSN 1397-4831.
- WP 03-15 Tor Eriksson och Peter Jensen: Tidsbegränsade anställningar – danska erfarenheter. ISSN 1397-4831.
- WP 03-16 Tom Coupé, Valérie Smeets and Frédéric Warzynski: Incentives, Sorting and Productivity along the Career: Evidence from a Sample of Top Economists. ISSN 1397-4831.
- WP 03-17 Jozef Koning, Patrick Van Cayseele and Frédéric Warzynski: The Effects of Privatization and Competitive Pressure on Firms' Price-Cost Margins: Micro Evidence from Emerging Economies. ISSN 1397-4831.
- WP 03-18 Urs Steiner Brandt and Gert Tinggaard Svendsen: The coalition of industrialists and environmentalists in the climate change issue. ISSN 1397-4831.
- WP 03-19 Jan Bentzen: An empirical analysis of gasoline price convergence for 20 OECD countries. ISSN 1397-4831.
- WP 03-20 Jan Bentzen and Valdemar Smith: Regional income convergence in the Scandinavian countries. ISSN 1397-4831.
- WP 03-21 Gert Tinggaard Svendsen: Social Capital, Corruption and Economic Growth: Eastern and Western Europe. ISSN 1397-4831.
- WP 03-22 Jan Bentzen and Valdemar Smith: A Comparative Study of Wine Auction Prices: Mouton Rothschild Premier Cru Classé. ISSN 1397-4831.

- WP 03-23 Peter Guldager: Folkepensionisternes incitamenter til at arbejde. ISSN 1397-4831.
- WP 03-24 Valérie Smeets and Frédéric Warzynski: Job Creation, Job Destruction and Voting Behavior in Poland. ISSN 1397-4831.
- WP 03-25 Tom Coupé, Valérie Smeets and Frédéric Warzynski: Incentives in Economic Departments: Testing Tournaments? ISSN 1397-4831.
- WP 03-26 Erik Strøjer Madsen, Valdemar Smith and Mogens Dilling-Hansen: Industrial clusters, firm location and productivity – Some empirical evidence for Danish firms. ISSN 1397-4831.
- WP 03-27 Aycan Çelikaksoy, Helena Skyt Nielsen and Mette Verner: Marriage Migration: Just another case of positive assortative matching? ISSN 1397-4831.

2004:

- WP 04-1 Elina Pylkkänen and Nina Smith: Career Interruptions due to Parental Leave – A Comparative Study of Denmark and Sweden. ISSN 1397-4831.
- WP 04-2 Urs Steiner Brandt and Gert Tinggaard Svendsen: Switch Point and First-Mover Advantage: The Case of the Wind Turbine Industry. ISSN 1397-4831.
- WP 04-3 Tor Eriksson and Jaime Ortega: The Adoption of Job Rotation: Testing the Theories. ISSN 1397-4831.
- WP 04-4 Valérie Smeets: Are There Fast Tracks in Economic Departments? Evidence from a Sample of Top Economists. ISSN 1397-4831.
- WP 04-5 Karsten Bjerring Olsen, Rikke Ibsen and Niels Westergaard-Nielsen: Does Outsourcing Create Unemployment? The Case of the Danish Textile and Clothing Industry. ISSN 1397-4831.
- WP 04-6 Tor Eriksson and Johan Moritz Kuhn: Firm Spin-offs in Denmark 1981-2000 – Patterns of Entry and Exit. ISSN 1397-4831.

- WP 04-7 Mona Larsen and Nabanita Datta Gupta: The Impact of Health on Individual Retirement Plans: a Panel Analysis comparing Self-reported versus Diagnostic Measures. ISSN 1397-4831.
- WP 04-8 Christian Bjørnskov: Inequality, Tolerance, and Growth. ISSN 1397-4831.
- WP 04-9 Christian Bjørnskov: Legal Quality, Inequality, and Tolerance. ISSN 1397-4831.
- WP 04-10 Karsten Bjerring Olsen: Economic Cooperation and Social Identity: Towards a Model of Economic Cross-Cultural Integration. ISSN 1397-4831.
- WP 04-11 Iben Bolvig: Within- and between-firm mobility in the low-wage labour market. ISSN 1397-4831.
- WP 04-12 Odile Poulsen and Gert Tinggaard Svendsen: Social Capital and Market Centralisation: A Two-Sector Model. ISSN 1397-4831.
- WP 04-13 Aditya Goenka and Odile Poulsen: Factor Intensity Reversal and Ergodic Chaos. ISSN 1397-4831.
- WP 04-14 Jan Bentzen and Valdemar Smith: Short-run and long-run relationships in the consumption of alcohol in the Scandinavian countries.
ISBN 87-7882-010-3 (print); ISBN 87-7882-011-1 (online).
- WP 04-15 Jan Bentzen, Erik Strøjer Madsen, Valdemar Smith and Mogens Dilling-Hansen: Persistence in Corporate Performance? Empirical Evidence from Panel Unit Root Tests.
ISBN 87-7882-012-X (print); ISBN 87-7882-013-8 (online).
- WP 04-16 Anders U. Poulsen and Jonathan H.W. Tan: Can Information Backfire? Experimental Evidence from the Ultimatum Game.
ISBN 87-7882-014-6 (print); ISBN 87-7882-015-4 (online).
- WP 04-17 Werner Roeger and Frédéric Warzynski: A Joint Estimation of Price-Cost Margins and Sunk Capital: Theory and Evidence from the European Electricity Industry.
ISBN 87-7882-016-2 (print); ISBN 87-7882-017-0 (online).

WP 04-18 Nabanita Datta Gupta and Tor Eriksson: New workplace practices and the gender wage gap.
ISBN 87-7882-018-9 (print); ISBN 87-7882-019-7 (online).

WP 04-19 Tor Eriksson and Axel Werwatz: The Prevalence of Internal Labour Markets – New Evidence from Panel Data.
ISBN 87-7882-020-0 (print); ISBN 87-7882-021-9 (online).

WP 04-20 Anna Piil Damm and Michael Rosholm: Employment Effects of Dispersal Policies on Refugee Immigrants: Empirical Evidence.
ISBN 87-7882-022-7 (print); ISBN 87-7882-023-5 (online).

2005:

WP 05-1 Anna Piil Damm and Michael Rosholm: Employment Effects of Dispersal Policies on Refugee Immigrants: Theory.
ISBN 87-7882-024-3 (print); ISBN 87-7882-025-1 (online).

WP 05-2 Anna Piil Damm: Immigrants' Location Preferences: Exploiting a Natural Experiment.
ISBN 87-7882-036-7 (print); ISBN 87-7882-037-5 (online).

WP 05-3 Anna Piil Damm: The Danish Dispersal Policy on Refugee Immigrants 1986-1998: A Natural Experiment?
ISBN 87-7882-038-3 (print); ISBN 87-7882-039-1 (online).

WP 05-4 Rikke Ibsen and Niels Westergaard-Nielsen: Job Creation and Destruction over the Business Cycles and the Impact on Individual Job Flows in Denmark 1980-2001.
ISBN 87-7882-040-5 (print); ISBN 87-7882-041-3 (online).

WP 05-5 Anna Maria Kossowska, Nina Smith, Valdemar Smith and Mette Verner: Til gavn for bundlinjen – Forbedrer kvinder i topledelse og bestyrelse danske virksomheders bundlinje?
ISBN 87-7882-042-1 (print); ISBN 87-7882-043-X (online).

WP 05-6 Odile Poulsen and Gert Tinggaard Svendsen: The Long and Winding Road: Social Capital and Commuting.
ISBN 87-7882-044-8 (print); ISBN 87-7882-045-6 (online).

WP 05-7 Odile Poulsen and Gert Tinggaard Svendsen: Love Thy Neighbor: Bonding versus Bridging Trust.
ISBN 87-7882-062-6 (print); ISBN 87-7882-063-4 (online).

- WP 05-8 Christian Bjørnskov: Political Ideology and Economic Freedom.
ISBN 87-7882-064-2 (print); ISBN 87-7882-065-0 (online).
- WP 05-9 Sebastian Buhai and Coen Teulings: Tenure Profiles and Efficient Separation in a Stochastic Productivity Model.
ISBN 87-7882-066-9 (print); ISBN 87-7882-067-7 (online).
- WP 05-10 Christian Grund and Niels Westergård-Nielsen: Age Structure of the Workforce and Firm Performance.
ISBN 87-7882-068-5 (print); ISBN 87-7882-069-3 (online).
- WP 05-11 Søren Harck: AD-AS på dansk.
ISBN 87-7882-070-7 (print); ISBN 87-7882-071-5 (online).
- WP 05-12 Søren Harck: Hviler Dansk Økonomi på en Cobb-Douglas teknologi?
ISBN 87-7882-092-8 (print); ISBN 87-7882-093-6 (online).
- 2006:
- WP 06-1 Nicolai Kristensen and Edvard Johansson: New Evidence on Cross-Country Differences in Job Satisfaction Using Anchoring Vignettes.
ISBN 87-7882-094-4 (print); ISBN 87-7882-095-2 (online).
- WP 06-2 Christian Bjørnskov: How Does Social Trust Affect Economic Growth?
ISBN 87-7882-096-0 (print); ISBN 87-7882-097-9 (online).
- WP 06-3 Jan Bentzen, Erik Strøjer Madsen and Valdemar Smith: The Growth Opportunities for SMEs?
ISBN 87-7882-098-7 (print); ISBN 87-7882-099-5 (online).
- WP 06-4 Anna Piil Damm: Ethnic Enclaves and Immigrant Labour Market Outcomes: Quasi-Experimental Evidence.
ISBN 87-7882-100-2 (print); ISBN 87-7882-101-0 (online).
- WP 06-5 Svend Jespersen, Nicolai Kristensen og Lars Skipper: En kritik af VEU-udvalgets arbejde.
ISBN 87-7882-159-2 (print); ISBN 87-7882-160-6 (online).
- WP 06-6 Kræn Blume and Mette Verner: Welfare Dependency among Danish Immigrants.
ISBN 87-7882-161-4 (print); ISBN 87-7882-162-2 (online).

- WP 06-7 Jürgen Bitzer, Wolfram Schrettl and Philipp J.H. Schröder: Intrinsic Motivation versus Signaling in Open Source Software Development.
ISBN 87-7882-163-0 (print); ISBN 87-7882-164-9 (online).
- WP 06-8 Valérie Smeets, Kathryn Ierulli and Michael Gibbs: Mergers of Equals & Unequals.
ISBN 87-7882-165-7 (print); ISBN 87-7882-166-5 (online).
- WP 06-9 Valérie Smeets: Job Mobility and Wage Dynamics.
ISBN 87-7882-167-3 (print); ISBN 87-7882-168-1 (online).
- WP 06-10 Valérie Smeets and Frédéric Warzynski: Testing Models of Hierarchy: Span of Control, Compensation and Career Dynamics.
ISBN 87-7882-187-8 (print); ISBN 87-7882-188-6 (online).
- WP 06-11 Sebastian Buhai and Marco van der Leij: A Social Network Analysis of Occupational Segregation.
ISBN 87-7882-189-4 (print); ISBN 87-7882-190-8 (online).
- 2007:
- WP 07-1 Christina Bjerg, Christian Bjørnskov and Anne Holm: Growth, Debt Burdens and Alleviating Effects of Foreign Aid in Least Developed Countries.
ISBN 87-7882-191-6 (print); ISBN 87-7882-192-4 (online).
- WP 07-2 Jeremy T. Fox and Valérie Smeets: Do Input Quality and Structural Productivity Estimates Drive Measured Differences in Firm Productivity?
ISBN 87-7882-193-2 (print); ISBN 87-7882-194-0 (online).
- WP 07-3 Elisabetta Trevisan: Job Security and New Restrictive Permanent Contracts. Are Spanish Workers More Worried of Losing Their Job?
ISBN 87-7882-195-9 (print); ISBN 87-7882-196-7 (online).
- WP 07-4 Tor Eriksson and Jaime Ortega: Performance Pay and the “Time Squeeze”.
ISBN 9788778822079 (print); ISBN 9788778822086 (online).

- WP 07-5 Johan Moritz Kuhn: My Pay is Too Bad (I Quit). Your Pay is Too Good (You're Fired).
ISBN 9788778822093 (print); ISBN 9788778822109 (online).
- WP 07-6 Christian Bjørnskov: Social trust and the growth of schooling.
ISBN 9788778822116 (print); ISBN 9788778822123 (online).
- WP 07-7 Jan Bentzen and Valdemar Smith: Explaining champagne prices in Scandinavia – what is the best predictor?
ISBN 9788778822130 (print); ISBN 9788778822147 (online).
- WP 07-8 Sandra Cavaco, Jean-Michel Etienne and Ali Skalli: Identifying causal paths between health and socio-economic status: Evidence from European older workforce surveys
ISBN 9788778822154 (print); ISBN 9788778822161 (online).
- WP 07-9 Søren Harck: Long-run properties of some Danish macro-econometric models: an analytical approach.
ISBN 9788778822390 (print); ISBN 9788778822406 (online).
- WP 07-10 Takao Kato and Hideo Owan: Market Characteristics, Intra-Firm Coordination, and the Choice of Human Resource Management Systems: Evidence from New Japanese Data.
ISBN 9788778822413 (print); ISBN 9788778822420 (online).
- WP 07-11 Astrid Würtz: The Long-Term Effect on Children of Increasing the Length of Parents' Birth-Related Leave.
ISBN 9788778822437 (print); ISBN 9788778822444 (online).
- WP 07-12 Tor Eriksson and Marie-Claire Villeval: Performance Pay, Sorting and Social Motivation.
ISBN 9788778822451 (print); ISBN 9788778822468 (online).
- WP 07-13 Jane Greve: Obesity and Labor Market Outcomes: New Danish Evidence.
ISBN 9788778822475 (print); ISBN 9788778822482 (online).
- 2008:
- WP 08-1 Sebastian Buhai, Miguel Portela, Coen Teulings and Aico van Vuuren: Returns to Tenure or Seniority
ISBN 9788778822826 (print); ISBN 9788778822833 (online).

- WP 08-2 Flora Bellone, Patrick Musso, Lionel Nesta et Frédéric Warzynski: L'effet pro-concurrentiel de l'intégration européenne : une analyse de l'évolution des taux de marge dans les industries manufacturières françaises
ISBN 9788778822857 (print); ISBN 9788778822864 (online).
- WP 08-3 Erdal Yalcin: The Proximity-Concentration Trade-Off under Goods Price and Exchange Rate Uncertainty
ISBN 9788778822871 (print); ISBN 9788778822888 (online)
- WP 08-4 Elke J. Jahn and Herbert Brücker: Migration and the Wage Curve: A Structural Approach to Measure the Wage and Employment Effects of Migration
ISBN 9788778822895 (print); ISBN 9788778822901 (online)
- WP 08-5 Søren Harck: A Phillips curve interpretation of error-correction models of the wage and price dynamics
ISBN 9788778822918 (print); ISBN 9788778822925 (online)
- WP 08-6 Elke J. Jahn and Thomas Wagner: Job Security as an Endogenous Job Characteristic
ISBN 9788778823182 (print); ISBN 9788778823199 (online)
- WP 08-7 Jørgen Drud Hansen, Virmantas Kvedaras and Jørgen Ulff-Møller Nielsen: Monopolistic Competition, International Trade and Firm Heterogeneity - a Life Cycle Perspective -
ISBN 9788778823212 (print); ISBN 9788778823229 (online)
- WP 08-8 Dario Pozzoli: The Transition to Work for Italian University Graduates
ISBN 9788778823236 (print); ISBN 9788778823243 (online)
- WP 08-9 Annalisa Cristini and Dario Pozzoli: New Workplace Practices and Firm Performance: a Comparative Study of Italy and Britain
ISBN 9788778823250 (print); ISBN 9788778823267 (online)
- WP 08-10 Paolo Buonanno and Dario Pozzoli: Early Labour Market Returns to College Subjects
ISBN 9788778823274 (print); ISBN 9788778823281 (online)
- WP 08-11 Iben Bolvig: Low wage after unemployment - the effect of changes in the UI system