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The incentive
effects of tightened
UIB entitlement
rules - Empirical
evidence from three
Nordic countries*

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* We are grateful to NOS-HS for granting financial support for this study. We also thank for useful comments from Knut Røed and session participants at the 2007 EALE and CAPE Conferences.

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ISBN 978-952-209-056-0
ISSN 1795-1801

Abstract

In this paper we analyse the impact of reforms that tightened the entitlement rules for UIB in a similar fashion in three Nordic countries Denmark, Finland and Norway in 1997. We identify the effect of the reforms in UIB entitlement conditions by exploiting the quasi-experimental feature of the reforms. Our results show that after the reform, only in Denmark the unemployed job seekers, who were affected by the reform, had a higher overall likelihood to exit to open employment. In Finland, positive reform effects were only found among those subgroups of unemployed job seekers who had relatively high demand in the labour market. In Norway, we found positive employment effects for males but not for females. Moreover, the overall pattern is an increased likelihood of exiting from the labour market.

Key words: job search, unemployment duration, unemployment insurance

JEL classification: J64, J65

1. Introduction

In empirical labour market research new types of data have allowed more rigorous analyses of the effects of unemployment insurance benefits (UIB) on unemployment duration and job search. However, even though it is well recognised that the effect of UI benefits on job search among those unemployed job seekers *who are entitled* to benefits and among those *who are not* differs, surprisingly little attention has been devoted to the impact of entitlement criteria for UI benefits on job-search behaviour.¹ How effective would it be to combat unemployment by tightening entitlement rules for UI benefits rather than reducing UI benefits, is a question that the present empirical analyses have not yet provided answers for.² In fact, a full understanding of the

¹ A lot of empirical research based on micro data on individual unemployment spells has been carried out to investigate how changes in the benefit parameters such as replacement rate and benefit duration affect job findings (see e.g. Atkinson and Micklewright 1991, Holmlund 1998) and how UIB reforms in these areas have affected financial incentives (e.g. Meyer 1995 (a review); Carling, Holmlund and Vejsiu 2001; Røed and Zhang 2003; Benmarker, Carling and Holmlund 2005; Heyman and van Ours 2005; Lalive et al. 2006, Røed et al. 2006).

² Katz and Meyer (1990) is an attempt in this direction by focusing on the effects potential duration of unemployment benefits on the duration of unemployment. See Geerdsen (2002:1) on Danish data.

incentive effects of existing UI benefit systems would require better knowledge on how the entrance requirement for UIB influence employment and unemployment durations, and on how workers and job seekers adjust their labour market behaviour to changes in these requirements.³

Potentially the entitlement criteria may have a larger impact on individual behaviour than UI benefits – as such – because implications for the individual are larger: when a person is not entitled to UI benefits, his or her replacement rate can fall considerably, even to zero, if no other social welfare benefits are available.⁴ This effect of unemployment should raise the escape rate from unemployment for workers who do not currently qualify for benefits because the potential for receiving benefits on a future job makes work more attractive (Meyer, 2002).

The purpose of this paper is to examine how the changes in the unemployment insurance benefits (UIB) entitlement rules, which took place in three Nordic countries, Denmark, Finland and Norway in the latter half of the 1990s, affected job finding among unemployed job seekers. Our paper adds new insights into the previous literature on the causal effects of UIB reforms, in particular on the effects of tightened entitlement rules on unemployed job seekers' behaviour and unemployment duration.⁵

A cross-country comparison of three relatively similar, yet different, countries gives a more reliable picture of the incentive effects of UIB entitlement rules than a single country study would do. In all three countries, the reforms had the same goal of increasing job search intensity among the unemployed job seekers. However, at the time of the reform the economic situation between the three countries differed; there were still quite high unemployment rates in Finland, while in Denmark and Norway the employment situation was quite good. Therefore, our country comparison gives useful insights into the question of how sensitive the impact of UIB reforms can be to different economic circumstances and to labour demand, in particular.

In all three countries register-based panel data sets are used in the analyses. We identify the effect of reforms in UIB entitlement conditions by exploiting the quasi-experimental feature of the reforms, i.e. that the reforms did not affect all unemployed job seekers in the same way. It

³ Green and Riddell (1997).

⁴ See Grubb (2000). "Entitlement" conditions (sometimes called "monetary" conditions) restrict benefits to people who either have sufficient record of contributions from work or an assimilated status and have been unemployed for a limited duration or have low total income.

⁵ Much of the earlier work on entrance requirements has focused on the impact of increases in the entrance requirement on the average duration of employment spells. For example, Green and Riddell (1997) and Baker and Rea (1998) examine the increase in the UI entrance requirement on employment durations in Canada in 1990. Their findings suggest that there were behavioural responses to the reform: the average durations of employment increased as a response to increase in the employment requirement to establish UI eligibility. As far as we know there are no earlier studies that focus on the impact of entrance requirement on unemployment duration or job finding rates.

should be expected that tightening of the entrance requirement would lead to changes in job search behaviour among those unemployed job seekers who due to the reform lost their eligibility to unemployment benefits. As predicted by economic theory, the reform should induce shorter unemployment spells and faster rates of job finding and lower reservation wages among this group whereas there should be no changes in the job search behaviour among those unemployed whose eligibility to unemployment benefits did not change with the reform.

Our paper is organised as follows. The next section describes the reforms in the UIB entitlement rules that were implemented in the three Nordic countries in 1997. Section 3 describes data sources, sampling frames, and the definition of unemployment spell to be analysed in subsequent empirical analyses. Section 4 describes the selection of treatment and control groups. Section 5 reports the empirical model specification and discusses results from the empirical analyses. Section 6 concludes.

2. UIB reforms in the three Nordic countries

In many countries, including the Nordic welfare states, one of the responses to risen unemployment rates in the 1990s was to introduce new initiatives to reform UI benefit systems in order to mitigate potential disincentive effects for job search within these systems. The reforms addressed both the entitlement and eligibility rules for benefits as well as the level of benefits.

Our focus is on the UIB reforms that were implemented simultaneously in Denmark, Finland and Norway in 1997. In Denmark and Finland the reforms focused solely on the entitlement rules for the UI benefits. In Norway both entitlement requirements were tightened and maximum duration shortened. The main intention for shortening the benefit duration was to increase the job search incentives of the unemployed and thereby reduce the length of their unemployment periods (Report of the Storting 9:2006-2007).

In Denmark and Finland unemployed job seekers had to increase working weeks and in Norway unemployed had to increase earnings⁶ in order to meet the new entitlement requirements for UI benefits (Table 1).

⁶ In Norway eligibility to UIB is calculated on the basis of wage income during the last calendar year directly preceding the start spell (R1) or as an average of the previous three calendar years (R2), whichever is highest. Work related transfers like sickness benefits and maternity leave benefits count as wage income. In the present UI system income from self employment, income/allowance on ALMP (UIB), UA or SA are not included in the calculation of R1 and R2. The values of these minimum income

In *Denmark*, the employment requirement was increased from 24 to 52 weeks within the last 3 years. In *Finland* the required minimum period of employment was extended from 26 weeks to 43 weeks during the last 24 months⁷. In addition, for the earnings related UI benefits, the length of a membership in the unemployment fund was lengthened from 6 months to ten months.

In *Norway* the reform entailed an increase in income requirement R1 from 0.75G to 1.25G while R2 was increased from 0.75G to 1G. This implied an increase of 67 per cent if last year's income (R1) was used as the basis to calculate UI benefits and an increase of 33 per cent if the average of all three previous years (R2) were used instead.

In addition, in Norway the maximum duration of unemployment of 186 weeks (previously made up of two periods of 80 weeks followed by 13 additional weeks) was replaced with one uninterrupted period of 156 weeks. Furthermore, maximum duration was reduced to 78 weeks if R1 was in the interval between 1.25G and 2G, and R2 was in the interval between 1G and 2G. Thus, as of January 1997 the very lowest income groups eligible for UIB were granted a lower maximum duration compared to those with income above the 2G threshold mentioned above. In addition, as of January 1st 1997 income from labour market programmes could no longer be included in the calculation of eligibility entitlements.

Table 1. Basic minimum entitlement requirements for an earnings-related unemployment allowance before and after the reform of 1997.

Country	Before	After	Increase in requirement
Denmark	24 weeks of employment within last 3 years	52 weeks of employment within 3 last years	28 weeks (116.7%)
Finland	26 weeks of employment within last 2 years 6 months as a member in an unemployment insurance fund	43 weeks of employment within 2 last years 10 months as a member in an unemployment insurance fund	17 weeks (65.4%) 4 months (66.7%)
Norway	wage income from previous calendar year R1: 0.75*G average of the wage income of the previous 3 calendar years R2: 0.75*G	wage income from previous calendar year R1: 1.25*G average of the wage income of the previous 3 calendar years R2: 1.0*G	R1: 0.50*G (66.7%) R2: 0.25*G (33.3%)

G= a basic quantity in the Norwegian social security system.

requirements are defined by a basic quantity (G) in the Norwegian social security system. This basic quantity is index regulated annually and changed May 1. In 2007 G was equal to approx. 8,000 €.

⁷ Re-eligibility requirement was extended from 26 weeks within last six months to 43 weeks within the last 24 months.

In all three countries, in addition to the employment or income requirements, the unemployed must fulfil certain demands with regard to his or her behaviour as a job seeker to become eligible for the UI benefits. In practice this implies that job seekers must register at the local employment office, meet for consultations when called in and to some extent document that are active job seekers.

3. Data sources, sampling frames and the definition of unemployment spell

Data sources

In Denmark, the main sources of the data, to be used in subsequent empirical analyses, are the Integrated Database for Labour Market Research (IDA), which contains individual information on a yearly basis and a spell database containing information on each person's labour market state on a weekly basis. Each person's labour market state is defined (on a weekly basis) within the following states: employment, 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.⁸ For the present paper a 10 per cent random sample is drawn from a merge between the spell data and IDA data.

In Finland, a data set from Statistics of Finland that consists of information on 350,000 individuals (a 7% sample of population) from various separate registers is used as a basic data source. The unemployment spell data is collected from the Ministry of Labour Statistics on the unemployed job seekers and gives day by day account on all unemployment spells as well as participation in different kinds of ALMP measures. The spell data was gathered for and merged with the 7 per cent random sample of Finnish population by Statistics Finland.

In Norway, the data is based on a panel database covering the entire Norwegian population. FD-Trygd, as it is called, is compiled by Statistics Norway. The unemployment spell data comprises

⁸ See Larsen (2005) for further description of the spell data.

all new records of open unemployment, part-time unemployment and participation in active labour market measures labour (ALMP). The open unemployed must report to the local labour market office every two weeks (the second and fourth Tuesday in the month), while the data base is updated once a month. This implies that very short spells of open unemployment within the same month are likely to be underreported and/or inaccurate.

Definition of unemployment spell

For our subsequent analyses we use a *broad definition* of unemployment, where periods of active labour market measures (ALMP) are included in the overall duration of unemployment. Furthermore, to make data from different countries more comparable, unemployment spells of the same individual that are 4 days apart from each another are merged, and spells of 5 days or less are deleted. Fresh/new spells are those who are not preceded by a spells that ended less 4 days before the next spell started.⁹

The main reason for focusing on broad unemployment is that in all three countries ALMP are an integrated part of labour market policies and it is likely that the unemployed participate in ALMP at some stage of their unemployment spell¹⁰. We use the broad unemployment spell including periods of ALMP because it is likely that some of the reform effects run through these labour market programs. Using a broad measure allows us to include the effects of the labour market programs on the transition to open employment. Effects may be such that the active labour market policy contributed positively to this transition. However, it is also possible that labour market programs in fact distorted the incentive structures created by the reform by intervening in the markets so that the incentive effects became weaker. As entry into active measures is also dependent on labour market authorities' assessment and priorities in all three countries, there is a possibility that this administrative selection can also have an impact on the reform effect running through ALMP.

Sampling frames

In all countries we focus *on the new unemployment spells* of unemployed job seekers who were at the beginning of the spell 25-49 years old. We have chosen to focus on this age group of job seekers because special rules (different from country to country) apply to those below 25 and

⁹ Due to reporting procedures in Norway we were forced to rely on monthly data. Hence fresh spells are those not preceded by a spells that ended the previous month.

¹⁰ In the case of Finland we only include labour market training spells in the measure of broad unemployment since subsidised employment spells can also help to fulfil the unemployment insurance entitlement condition.

those 50 years or older, which can influence their job search behaviour considerably and are difficult to account for in empirical analyses.

In Denmark, the policy change in the eligibility rules was implemented 1 January 1997. From the above mentioned data set, we create two flow samples, a before- and an after-sample for the above mentioned age group of unemployed job seekers. Hence the before- and after-periods are placed in 1996 and 1997, respectively. However, in order to avoid the effect of a policy change in the duration of passive UIB effectuated for some groups of unemployed by 1 July 1996, the before- and after-periods are drawn from the second half of 1996 and 1997, respectively. Hence, the before-sample consists of all individuals entering a fresh unemployment spell between 1 July and 31 December 1996, and the after-sample consists of all individuals entering a fresh unemployment spell between 1 July and 31 December 1997.¹¹

Due to the Danish UIB system with long reference periods of UIB payments prior to 1996 and 1997, some unemployed individuals might have been entitled to UIB at the start of a new unemployment spell even though they did not fulfil the work requirement just before. This is the case if they are still within the reference period of an old UIB period. These individuals are deleted from the analysis.

In Finland and in Norway the focus is also on new unemployment spells before (about 1 year before) and after the introduction of the reform (taking into account the possibility of earlier adjustment to the reform after decisions were published about it). In Finland the UI-reform was proposed by the Government in May 1996 and was passed as a law by the Parliament in September 1996, and implemented as of 1 January 1997. In Norway the reform was passed by law on the 26th of June 1996 and became effective on the 1st of January 1997. This means that for both Finland and Norway we can be confident that those people, whose unemployment spell started in January-April 1996 had no information of the coming reform (it became certain only in June in Norway and in September in Finland). Thus, our before-reform data includes all new unemployment spells between 1 January 1996 and 30 April 1996 and the after-reform data all new unemployment spells between 1 January 1997 and 30 April 1997.

¹¹ The reform was already suggested and decided in December 1995, but we have chosen not to draw the before-sample prior to this date, because too many other changes in the UI system have taken place during the time from decision to implementation.

4. Selection of treatment and control groups

Incentives and selected groups of unemployed job seekers

For the analysis of how the changes in the unemployment insurance benefits (UIB) entitlement rules affect job finding among unemployed job seekers, the useful feature in the Nordic reforms was that they did not affect all unemployed job seekers in the same way. Some unemployed job seekers lost their earlier eligibility to unemployment benefits (in subsequent empirical analyses to be defined as a *treatment group*), while some were more or less unaffected by the reforms (to be defined as *control groups*). Next we'll discuss these groups in a more detailed manner.

The *treatment group (no longer entitled to UIB)* comprises job seekers who entered unemployment, between January-April 1996 and January-April 1997 in Finland and Norway and between July-December 1996 and July-December 1997 in Denmark, and fulfilled the *old* UIB entitlement requirement but *not the new* one. Hence, individuals in the treatment group drawn in 1996 were entitled to UI benefits whereas individuals in the 1997 treatment group were not entitled. The change in the entitlement rules can be expected to affect the behaviour of the treatment group in such a way that it should lead to shorter unemployment spells and faster job finding rates for this group.

The *control group 1 (still entitled to UIB)* includes job seekers, who entered unemployment during these intervals and were entitled to UIB according to *both old and new* entitlement requirements. This group should not be affected by the entitlement criteria and should not change their job search behaviour as a result of the reform.¹² It is regarded as the *basic comparison group* in subsequent estimations when reform-effects are evaluated.

The *control group 2 (still not entitled to UIB)* constitutes job seekers, who entered unemployment and were not entitled to unemployment benefits, *neither* according to the *old nor the new* rules. The overall entitlement effect plays a role for this group of unemployed job seekers. In this group incentives to accept employment were not affected by the change in entitlement rules as such but were very much related to the subsequent levels of UI benefits that the unemployed job seeker will be able to 'earn' after becoming employed. The Nordic UIB reforms should only have an effect in this group, if at the same time as the entitlement requirements were tightened, the reform also lead to higher levels of future UI benefits among

¹² In Norway control group 1 is also affected by the shortening of the maximum UIB duration introduced in January, 1997.

those who will be entitled to them.¹³ Stricter work requirement for future UI benefits, on the other hand, may discourage this group of unemployed job seekers from job search and make them more likely to exit from the labour force.

To get a full picture of the incentive structure applied by the above explained UIB reform we need to take into consideration that UI benefit is not the only benefit available for unemployed job seekers. Alternative benefits may not only affect the duration of unemployment spells for those no longer eligible for the earnings-related unemployment benefits, but may also affect their incentives to register as unemployed job seekers in the first place. In all three countries those unemployed who are not eligible for UIB have the right to alternative benefits, which in Denmark and Norway are called social assistance (SA) and in Finland labour market subsidy. Common to these alternative benefits is that they are means tested against own savings and spouse's income. Moreover, in order to be entitled to these alternative benefits an unemployed person must all the same register as an unemployed job seeker.

In Finland and Norway it is also possible to get a supplementary means tested 'last-resort' social assistance if one does not have income or income one gets is so low that it is not enough for coping in everyday life. In both countries the entitlement to this supplementary 'last-resort' means tested social assistance requires that the applicant is registered as an unemployed job seeker if he/she is without work, is not studying and there are no health-related reasons that prevents work. So in general there are strong incentives for an unemployed person to register as an unemployed job seeker also in order to get alternative benefits. On the contrary, those individuals who are not eligible for alternative benefits because of the means testing rules might have weak incentives to register as unemployed job seekers unless they are interested in the services provided by the public employment service such as e.g. labour market training.

In the Danish case the alternative benefit might have another effect on incentives. For individuals with the right to the highest level of SA (responsibility of children and no spouse/low income) and the lowest level of UI benefit (low previous wages) the difference between the two benefits is very low. Hence, for these individuals there is no big difference between before and after the reform even though they belong to the treatment group.

¹³ This might be the case in Norway, where both eligibility and duration of benefits were altered at the same time.

Descriptive statistics

Descriptive statistics on the basic features of the unemployed job seekers¹⁴ belonging to one of the three groups (specified above) before and after the UIB reform are reported for each Nordic country in the Appendix, Table A1.¹⁵

From Table A1 it is apparent that there are many similarities, but also differences, between the selected groups in the three countries. The *treatment group* represents relatively established job seekers in Denmark and Finland. In Norway, on the other hand, young people are more likely to be in this group. In all three countries, this group is more likely to have been previously unemployed and has somewhat higher than average risk to experience *multiple unemployment spells* than the other groups. This reflects the specific nature of the treatment groups. They are attached to the labour market but find it difficult to find permanent employment.

Control group 1 is the most established group among the comparison groups, since it represents unemployed job seekers who have long enough employment history or high enough earlier earnings to entitle them to UI benefits. In this group one is more likely to find a male, native job seeker with a spouse, children, medium level education and earlier unemployment experience than in other groups.

Control group 2 comprises unemployed job seekers who were not entitled to unemployment benefits neither before nor after the reform. In this group one is more likely to find a female, non-native unemployed job seeker with low level of education and relatively high likelihood to have participated in active labour market measures earlier.

Ideally we would like to have a treatment group with the same characteristics before and after the introduction of the reform, as well as we would like the treatment and comparison groups to be relatively similar. Since our data sets show that we do not quite reach this ideal situation, we will account for the differences in the observed (and in some cases also unobserved) background variables of the job seekers in subsequent empirical analyses.

In Table 2 the average duration of the broad unemployment spells calculated from our data are presented. The different background characteristics of our three groups are reflected in these figures. The pattern in Denmark and Finland is that control group 1 has the shortest average durations, control group 2 has the longest and the treatment group is somewhere in between.

¹⁴ The statistics refer to unemployment spells rather than individuals (in the case of multiple spells the same individual is calculated as an observation more than once).

¹⁵ The statistics refer to mean values of the variables and in the case of indicator variables correspond to percentage shares.

This is not the case for Norway, where the treatment group in the before period has the longest duration of the broad unemployment spell and the treatment group in the after period has the shortest duration.

Table 2. Average durations of the broad unemployment spells (weeks)

	Treatment (no longer entitled to UIB)		Control group 1 (still entitled to UIB)		Control group 2 (still not entitled to UIB)	
	Before	After	Before	After	Before	After
Denmark	26.4	24.2	17.3	16.9	41.2	44.4
Finland	32.4	26.7	29.9	25.2	45.0	42.2
Norway	22.3	15.4	18.3	16.3	21.8	18.8

Note: Right-censored spells are included with the number of weeks observed in unemployment until end of observation period. Observation period is restricted to maximum 3 years for all spells.

There are also differences between the three groups as regards exits from broad unemployment by destination state (Table 3).

Table 3. Exits from broad unemployment by destination state, in percent

Denmark

	Treatment		Control group 1		Control group 2	
	Before	After	Before	After	Before	After
To employment	67.1	67.0	77.4	76.2	47.6	45.9
To non-participation	23.3	23.6	14.0	15.6	38.4	39.8
Right-censored	9.6	9.4	8.6	8.2	14.0	14.3

Finland

	Treatment		Control group 1		Control group 2	
	Before	After	Before	After	Before	After
To employment	41.1	42.6	47.8	50.7	27.3	25.9
To non-participation	7.9	6.2	7.4	6.4	9.9	10.7
Right-censored	51.1	51.2	44.8	42.8	62.8	63.3

Norway

	Treatment		Control group 1		Control group 2	
	Before	After	Before	After	Before	After
To employment	66.1	51.8	84.6	81.7	32.0	34.3
To non-participation	33.7	47.7	15.2	18.1	67.7	65.5
Right-censored	0.2	0.5	0.2	0.2	0.4	0.3

Finland has the lowest share with a transition to open employment and the highest share that remains unemployed through the whole observation period. Norway has the highest share with a transition to non-participation. For all three countries the control 1 group has the highest share of unemployed persons moving into employment, whereas the share moving into non-participation is highest for the control group 2.

5. Model specification and results

Empirical model specification

In order to identify the effects of the UIB eligibility reforms on the duration of unemployment and job finding, we compare the hazard rates for the treatment and comparison groups before and after the reforms applying the so called difference-in-difference approach. If the hazard rate for the treatment group increases more (declines less) between the before-reform and the after-reform period than the hazard rate for the comparison group then we conclude that the reform increased the hazard rate. We apply the following Cox proportional hazards competing risks model:

$$(1) \quad h(t) = h_0(t) \exp(\alpha \text{treat} + \beta \text{after} + \gamma \text{treat} * \text{after} + \eta \text{control2} + \kappa \text{control2} * \text{after} + m(x, y(t); \Omega)),$$

in which

$h_0(t)$ = baseline hazard

treat = 1 if in treatment group; =0 if in comparison group (=our control groups 1 and 2)

control2 = 1 if in control group 2; 0 otherwise

after = 1, if after treatment (i.e. 1997 spell); =0 if before treatment (i.e. 1996 spell)

γ = the coefficient of the interaction term, which gives the difference-in-differences estimate of the effect of the UIB reform on the treatment group

κ = the coefficient of the interaction term, which gives the difference-in-differences estimate of the effect of UIB reform on the control group 2

$m(\cdot)$ = function of time-varying ($y(t)$) and fixed (x) variables (fixed variables x describe the situation at the beginning of the unemployment spell)

$\alpha, \beta, \eta, \Omega$ represent other parameters to be estimated

We focus on the coefficients of the *interaction terms*, γ and κ , (specified above). They give the *impact of the reform* for the treatment group and control group 2 *compared to control group 1*.

For instance, in the case of exit to employment, the reform has had an overall positive employment effect for the treatment group if we find that $\gamma > 0$ (and $\gamma > \kappa$).

In subsequent estimations two failure types are identified; 1) exits to open employment and 2) exits to non-participation. Both failure types are estimated separately treating other failures as censored observations.

Main results

In Table 4 estimated proportional hazard ratios for the *exit to open employment* are reported. The results show that the overall behaviour of unemployed job seekers in the three Nordic countries appears to be remarkably similar with respect to the most common background variables, whereas the response of the unemployed job seekers to the UIB reform did differ in these countries .

It appears from Table 4 that in Denmark, Finland and Norway unemployed job seekers in the *treatment group* are clearly less likely to get a job in the open labour market than otherwise similar job seekers in *control group 1*. The likelihood of finding a job in the treatment group is only 64-71 per cent of that in control group 1. This reflects the strong attachment to the labour market that the control group 1 has. The difference is even more apparent when one compares control groups 1 and 2 with one another. In Denmark, Finland and Norway job seekers in *control group 2* are about half

(37-47 per cent) as likely to find a job in the open labour market as those in control group 1.

The *UIB reform effects* differ between the three countries. In Denmark, the reform seemed to have worked in the expected direction. After the reform, a job seeker in the treatment group, who no longer is entitled to benefits, has a 9 per cent higher likelihood of finding a job in the open labour market compared to a similar job seeker in control group 1, who still is entitled to benefits. Furthermore, the treatment group had 13 per cent higher likelihood than control group 2 to find employment after the reform.¹⁶ Thus, in Denmark the reform seems to have created a strong incentive to find a job among those job seekers who no longer were entitled to unemployment benefits.

In Finland, in the treatment group the likelihood of finding a job in the open labour market rose somewhat compared to that in control group 1 after the reform, but the effect was not statistically significant. Compared to the control group 2, the treatment group's likelihood to

¹⁶ This figure is obtained from the following ratio of the coefficients of the interaction terms $1.093*(1/0.970)$. Control group 2 experienced 22 per cent decrease in their likelihood to find employment compared with a similar unemployed control group 1 person.

find employment increased slightly. These relatively modest results for the treatment group could be explained by still quite high rates of unemployment, which put limits on how the economic incentives could improve employment in Finland. Incentives for increasing labour supply and accepting a job are effective only if there is sufficient demand for labour. Finland was still recovering from the early 1990s recession in 1996 and 1997. The average local unemployment rates were very high, around 20 per cent, which might have influenced the treatment group's ability to find a job no matter how hard they were searching for it.

Table 4. Exits to open employment

	Denmark		Finland		Norway	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	0.638	0.014	0.709	0.000	0.687	0.000
After reform	0.966	0.016	1.067	0.071	1.078	0.000
Treatment*after	1.093	0.035	1.023	0.713	1.027	0.565
Control2 group	0.458	0.008	0.473	0.000	0.371	0.000
Control2*after	0.970	0.025	0.942	0.218	1.159	0.000
Female	0.927	0.011	0.892	0.000	0.796	0.000
Under 30	1.111	0.016	1.149	0.000	1.132	0.000
Spouse	1.216	0.017	1.412	0.000	1.174	0.000
Young child	0.909	0.016	0.939	0.051	0.825	0.000
Dependent child	1.032	0.024	1.068	0.090	1.120	0.000
Number of children	0.979	0.010	1.034	0.034	1.029	0.000
Non-native	0.561	0.012	0.416	0.000	0.656	0.000
Low education	0.865	0.011	0.748	0.000	0.860	0.000
High education	1.188	0.018	1.342	0.000	0.927	0.000
Local U-rate	0.977	0.003	0.986	0.000	1.007	0.000
Earlier U-spells	1.029	0.015	1.572	0.000	0.981	0.183
Number of earlier U-spells	1.114	0.003	1.016	0.000	1.012	0.008
Number of earlier ALMP spells	0.896	0.007	0.938	0.026	0.825	0.000
Log likelihood	-299,837.63		-77,057.297		-627,870.1	
LR chi2 (df)	9514.10 (18)		2609.25 (18)		9366.21	
Prob > chi2	0.0000		0.0000		0.0000	
Number of spells	48,744		18,375		110,119	
Number of failures	30,384		8558		60,760	

In Norway, as in Finland, the reform does not seem to have had the desired effect either. According to our estimation results, the reform had a small positive, but not statistically significant effect on the likelihood of obtaining a job among those affected by the reform. At the time Norway was experiencing a period of increasing economic activity so the lack of labour

demand cannot be an explanation for this weak impact. Instead, results may reflect changes in maximum duration of unemployment being implemented at the same time as the eligibility reform. Alternatively, the group being affected by the reform is so at the margin of the labour market that withdrawal from the labour market is more feasible than getting a job.

Next, we take a look at the effects of the reform on the likelihood of leaving the labour force. Table 5 shows statistically non-significant effects for Finland. Instead, for both Denmark and Norway the estimations suggest an increased likelihood to move out of the labour force after the reform for those affected by the reform (i.e. treatment group). For Denmark this increase is rather small (1 percent), whereas for Norway it is as large as 48 percent for those who were no longer entitled to unemployment benefits relative to those who were entitled to them both before and after the reform.

Table 5. Exits to non-participation

	Denmark		Finland		Norway	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	1.069	0.045	0.987	0.905	1.846	0.000
After reform	1.090	0.041	0.975	0.799	1.275	0.000
Treatment*after	1.010	0.060	0.844	0.284	1.482	0.000
Control2 group	1.366	0.044	0.949	0.497	3.848	0.000
Control2*after	0.860	0.037	1.184	0.125	0.839	0.000
Female	1.233	0.024	1.666	0.000	1.021	0.181
Under 30	1.018	0.022	1.237	0.000	1.113	0.000
Spouse	0.987	0.020	1.027	0.577	0.840	0.000
Young child	1.054	0.028	1.544	0.000	1.223	0.000
Dependent child	1.019	0.013	1.061	0.462	0.870	0.000
Number of children	0.973	0.033	0.914	0.007	0.995	0.000
Non-native	1.209	0.026	1.244	0.013	0.864	0.657
Low education	0.963	0.019	0.916	0.080	1.111	0.000
High education	0.926	0.024	1.271	0.000	0.908	0.000
Local U-rate	0.966	0.004	1.001	0.740	0.966	0.000
Earlier U-spells	1.194	0.028	1.084	0.111	0.955	0.051
Number of U-spells	1.002	0.006	1.006	0.176	1.028	0.000
Number of earlier ALMP spells	0.839	0.009	0.977	0.696	0.930	0.000
Log likelihood	-123,781.65		-18,458.712		-219,141.69	
LR chi2 (df)	903.37 (18)		299.73 (18)		8534.34	
Prob > chi2	0.0000		0.0000		0.0000	
Number of spells	48,744		18,375		110,119	
Number of failures	12,973		2,130		21,907	

It seems that in Norway the more restrictive benefit entitlement for the treatment group leads to a greater withdrawal from the labour market rather than to higher open employment. It seems that for some job seekers, who have low expectations regarding current and future income from work, the relative utility of alternatives such as entering education or some sort of welfare support may have increased more than the utility related to employment as a result of a tightening in the UI system. Our descriptive statistics showed that the treatment group had a greater share of females and of young people compared to control group 1. When faced with tighter demands for UI benefits, these groups, with a not so stable attachment to the labour market, might be more likely to withdraw from the labour market than to increase search activity.¹⁷

Sensitivity analyses

An important underlying assumption in the difference-in-difference approach is that the treatment groups and comparison groups share the same mean values of the macro or time effects. For example, if the labour market opportunities develop differently for the groups we wish to compare, this might cause bias in the estimated treatment effects. In order to investigate how robust our results are we undertake different types of sensitivity analyses. First, we want to find out whether the results are robust to changes in the composition of the treatment and control groups. We repeat the estimations for a number of different subgroups that are more similar to each other than the ones used in the last section.

Employment effects from the separate estimations for women, for the young and for the high-skilled are presented in Table 6. The results for the exits to non-participation are given in the Appendix (Table A2). It appears from Table 6 that for Denmark the statistically significant positive employment effect in the treatment group remains when focusing on women, but does not remain for the youth between 25 and 29 and those with high education. As for the reform impact on leaving the labour market, we find no significant effects for any of the subgroups, neither (Table A2).

For Finland the employment effects change quite drastically. In particular, the reform seems to have worked in the expected way among the *young unemployed* job seekers and those with *high education*. In the age group 25-29-year-olds the likelihood of finding a job in the open labour market increased by as much as 38 per cent in the treatment group compared to the similar job seekers in control group 1 after the reform. Among the high-skilled, the treatment group had 29

¹⁷ Related to this, it can be mentioned that Røed and Westlie (2006) find that approximately 25 percent of completed unemployment spells in Norway ends in transition to other types of benefits, such as social assistance and temporary and permanent disability pensions.

percent higher likelihood of finding a job compared to control group 1 after the reform. These results are interesting and emphasise the importance of taking into account the current labour market situation of job seekers when assessing treatment effects. Incentives to increase labour supply appear to be effective for those subgroups of job seekers for which there is sufficient demand for labour at the time of the reform. Among women, the likelihood of the treatment group exiting to open employment did not increase after the reform compared to comparison group 1. One reason for this might be that at the time of the reform women's employment situation was not improving as well as that of men's. As regards the non-participation effects we did not find significant effects for Finland for these subgroups either (Table A2).

Table 6. Exits to open employment, among women, 25-29-year-olds, and highly educated.

Denmark

	Women		Under30		High education	
	Hazard ratio	P > z 	Hazard ratio	P > z 	Hazard ratio	P > z
Treatment group	0.655	0.000	0.760	0.000	0.809	0.000
After reform	0.974	0.259	0.986	0.671	1.022	0.530
Treatment*after	1.102	0.021	1.072	0.287	1.006	0.935
Control2 group	0.473	0.000	0.586	0.000	0.625	0.000
Control2*after	0.967	0.346	0.928	0.118	0.953	0.392

Finland

	Women		Under30		High education	
	Hazard ratio	P > z 	Hazard ratio	P > z 	Hazard ratio	P > z
Treatment group	0.796	0.001	0.688	0.000	0.658	0.000
After reform	1.127	0.030	1.055	0.496	1.276	0.006
Treatment*after	0.957	0.629	1.388	0.010	1.291	0.097
Control2 group	0.610	0.000	0.553	0.000	0.771	0.002
Control2*after	0.839	0.012	1.054	0.602	0.808	0.074

Norway

	Women		Under30		High education	
	Hazard ratio	P > z 	Hazard ratio	P > z 	Hazard ratio	P > z
Treatment group	0.772	0.000	0.693	0.000	0.815	0.000
After reform	1.111	0.000	1.088	0.000	1.083	0.002
Treatment*after	0.894	0.087	1.003	0.969	0.871	0.172
Control2 group	0.372	0.000	0.403	0.000	0.476	0.000
Control2*after	1.161	0.000	1.197	0.000	1.170	0.021

For Norway there seems to be a statistically significant *negative* employment effect of the reform of 10 percent for *females* (and positive employment effect of 12 percent for males). One possible explanation is that these are women with a marginal attachment to the labour market such that when pressure is put on them they choose to withdraw rather than increase search intensity. At the same time the reform is estimated to increase the probability of leaving the labour force with 46 percent for women (and 50 percent for men) in the treatment group compared to control group 1. Hence the reform seems to have had a clearly *adverse effect for women*. Youth between 25 and 29 years of age do not behave differently from adult population, and unemployed with high education do not seem to increase their likelihood of finding a job any more than low educated. However, while low educated increase their likelihood of leaving the labour force in the treatment group compared to control group 1, high educated do not change their behaviour in this respect either (Table A2).

As a second type of sensitivity analysis, in the spirit of regression discontinuity analysis, we adjust our control groups in such a way that they are closer to the treatment group as regards the unemployment insurance entitlement threshold. For Denmark we include in control group 1 those individuals whose working weeks within the last three years were between 53-78 weeks and in control group 2 those individuals whose working weeks were between 1-25 weeks. For Finland we only include those individuals in the control group 1 whose number of working months during the previous 24 months was slightly above the threshold, i.e. between 10-15 months. The treatment group and control group 2 remain the same. For Norway we include those individuals in the control group 1 with income between 1.25G and 2G. This because, at the same time as the eligibility rules were changed, those with income below 2G got their maximum duration reduced from 186 to 78 weeks¹⁸. Hence, those entitled to UIB with previous income between roughly 8,000 € and 16,000 € were affected by the reform which reduced maximum duration of benefits to the half, but not by the change in eligibility rules.

Results for exits to open employment are given in Table 7 and to non-participation in Appendix Table A3. Table 7 shows that in Denmark the after-reform effects are still positive but no longer statistically significant when thresholds are used such that controls and treated are more alike. The Finnish and the Norwegian results of this sensitivity analysis are very close to the results received from our baseline estimations as far as exits to open employment are concerned. In short, in all three countries, there is no statistically significant increase in the likelihood of finding a job in the treatment group after the reform compared to control group 1.

¹⁸ Note, however, that before the introduction of the reform there existed a threshold at the 80th week when UIB could be stopped, which was followed by a period of 13 weeks without automatic UIB, after which a second period of 80 weeks with UIB commenced. Studies show that this threshold has been effective in increasing job search and employment probability.

Table 7. The effects of focusing on the unemployed closer to the unemployment insurance eligibility threshold, exits to open employment

	Denmark		Finland		Norway	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	0.757	0.000	0.722	0.000	0.855	0.000
After reform	1.022	0.350	1.013	0.850	1.096	0.000
Treatment*after	1.047	0.202	1.072	0.411	1.007	0.882
Control2 group	0.718	0.000	0.479	0.000	0.454	0.000
Control2*after	0.930	0.062	0.990	0.900	1.149	0.000

Denmark: For control group 1 we only include those individuals who fulfil the work requirement of 53-78 weeks, control group 2 only consist of individuals fulfilling the work requirement of 1-25 weeks, whereas the treatment group remains the same, i.e. 26-52 weeks of work within the last three years.

Finland: We only include those individuals in the control group 1 whose working months from previous 24 months are slightly above the threshold, i.e. between 10-15 months. Treatment group and control group 2 remain the same.

Norway: Control group 2 and treatment group are unchanged. Control group 1 is restricted to those with income between 1.25 G and 2G.

To find out how much the inclusion of ALMP spells into unemployment spells change our results, we have also done the basic analyses using a more narrow definition of unemployment, i.e. including only open unemployment spells and excluding ALMP spells. The results from these estimations are very similar to the results obtained from using the broad unemployment definition. In Denmark the treatment effect is still positive and significant. In Finland and Norway there are no significant reform effects on the treatment group.¹⁹

Furthermore, as an additional sensitivity analysis we have also explored whether taking into account unobserved heterogeneity matters by estimating proportional hazards models where the latent heterogeneity term, so call frailty term, enters multiplicatively on the hazard function (see Gutierrez 2001). For Denmark the treatment effect on exit to open employment becomes a bit stronger by the inclusion of frailty term²⁰, whereas the treatment effect on exit to non-participation become insignificant. In Finland the treatment effect does not change, i.e. the employment effect was still not significant. In Norway the estimated shared frailty models did not converge.

¹⁹ These (and the following frailty estimation results) will be provided upon request from the authors.

²⁰ Here we estimated shared gamma frailty models where we impose constraint that the frailties are shared across different unemployment spells of the same individual. So we assume that the frailty is characteristic of the unemployed person, not the unemployment spell.

6. Conclusions

This paper addresses the issue of how the changes in the unemployment insurance benefits (UIB) entitlement rules that took place in three Nordic countries, Denmark, Finland and Norway in the latter half of the 1990s affected job finding among unemployed workers. A common feature of these reforms was that they implied a tightening of the UIB entitlement requirements. In Denmark and Finland unemployed job seekers had to increase working weeks and in Norway they had to increase earnings in order to meet the new eligibility requirements for UI benefits. In Norway, the maximum duration of UIB benefits was also reduced at the same time. Although it is well recognised that the effect of UI benefits on job search among those unemployed job seekers *who are entitled* to benefits and among those *who are not* differs, very little attention has been devoted to the impact of entitlement criteria for UI benefits on job-search behaviour in otherwise so rich literature on unemployment insurance. This paper adds new insights into the previous literature in this respect.

A comparison of these three relatively similar, but yet different, countries gives a more reliable picture of the incentive effects of UIB entitlement rules than a single country study would give. We identify the effect of reforms in UIB entitlement conditions by exploiting the quasi-experimental feature of the reforms, i.e. that the reforms did not affect *all* the unemployed in the same way, as shows in the selection of the treatment and control groups.

In order to identify the effects of the change in the UIB entitlement rules on the duration of unemployment and job finding, we compare the hazard rates into open employment for the treatment and comparison groups before and after the reforms applying the so called difference-in-difference approach. In each country, we use representative unemployment spell data to estimate Cox proportional hazards competing risks model on unemployment duration.

Our results show that the tightening of entrance requirements had a positive impact on the job search behaviour of those unemployed job seekers who due to the reform lost their eligibility to unemployment benefits although the size and significance of the reform effects differ between the three countries. In Denmark, the reform seem to have increased the likelihood of finding a job in the open labour market by 9 per cent for the treatment group, who lost eligibility to UI benefit compared to similar job seekers in a control group that were eligible both before and after the reform. Furthermore, the treatment group had 13 per cent higher likelihood than a group of job seekers who were not eligible to UI benefits, either before or after the reform. Thus, in Denmark the reform seems to have created a quite strong incentive to find a job among those job seekers who no longer were entitled to unemployment benefits.

In Finland, the likelihood of finding a job in the open labour market did not change significantly for the treatment group after the reform compared to that in a control group that was not affected by the reform. One reason for these relatively modest results for the treatment group can be the still quite high rates of unemployment in 1997, which puts limits on how the economic incentives can improve employment. Incentives for increasing labour supply and accepting a job are effective only if there is sufficient demand for labour. In fact, we find that reform effects become indeed quite strong when focusing on the young unemployed (aged between 25 and 29 years) and those with high education. In the age group 25-29-year-olds the likelihood of finding a job in the open labour market increased by 38 per cent in the treatment group compared to the similar job seekers in control group after the reform. Among the high-skilled, the treatment group had 29 percent higher likelihood of finding a job compared to control group after the reform. These results are interesting and imply that incentives for increasing labour supply can be effective for those groups for which there was sufficient demand for labour at the time of the reform.

For Norway, no statistically significant overall increase in the likelihood of finding a job was found for the treatment group. However, splitting up this group by gender gave a statistically significant positive employment effect of the reform for males of 12 percent and a significant negative effect for women of 10 percent suggesting that the reform seems to have succeeded in increasing job finding rate among men but has had quite adverse effects for women. Moreover for all groups the likelihood of exiting the labour force is quite strong, irrespective of gender, education and age group.

This paper also deals with the non-participation effects of the reform; hence the effects leading to increased (or decreased) transitions to non-participation. Again, we do not find any significant effects for Finland. For Denmark and Norway, however, the estimations indicate an increased likelihood to move out of the labour force after the reform for those affected by the reform. For Denmark this increase is fairly small (1 per cent) whereas in Norway the effect is quite excessive (48 per cent).

In short, whereas the change in UIB eligibility rules did not seem to have any overall effect in Finland, similar reform in Denmark and in Norway seems to have increased the mobility from unemployment to employment among those affected by the reform. In Norway the reform of 1997 also triggered behavioural responses that were perhaps the intended as it also pushed some of the affected to withdraw from the labour force rather than to get a job. Norwegian case emphasises the importance of the impact of the whole benefit structure on the job search behaviour of unemployed job seekers.

The differences between the Danish, Norwegian and Finnish results suggest that the constraints from the demand-side of the labour market may also put limits on how increasing economic incentives can improve employment and the labour supply responses and how successful supply side policies can be in combating unemployment.

Appendix

Table A1. Descriptive statistics of treatment and control groups (at the beginning of the unemployment spell).

Denmark

	Treatment (no longer entitled to UIB)		Control group 1 (still entitled to UIB)		Control group 2 (still not entitled to UIB)	
	Before	After	Before	After	Before	After
Female	0.61	0.61	0.49	0.52	0.57	0.57
Under 30	0.24	0.23	0.27	0.27	0.30	0.30
Spouse	0.63	0.64	0.65	0.65	0.58	0.56
Young child	0.33	0.34	0.27	0.28	0.39	0.39
Dependent child	0.53	0.55	0.48	0.49	0.55	0.54
Number of children	0.94	0.97	0.83	0.85	1.05	1.07
Non-native	0.11	0.10	0.06	0.07	0.23	0.25
Low education	0.40	0.41	0.35	0.34	0.47	0.46
Medium education	0.42	0.42	0.43	0.43	0.37	0.38
High education	0.18	0.17	0.22	0.23	0.16	0.16
Local U-rate	9.47	8.50	9.21	8.30	9.59	8.52
Earlier U-spells	0.82	0.84	0.63	0.63	0.70	0.71
Number of U-spells	3.80	4.07	2.72	2.78	2.66	2.72
ALMP	0.25	0.27	0.14	0.18	0.30	0.42
N	4,143	3,636	9,747	9,652	10,730	9,587

Finland

	Treatment (no longer entitled to UIB)		Control group 1 (still entitled to UIB)		Control group 2 (still not entitled to UIB)	
	Before	After	Before	After	Before	After
Female	0.50	0.53	0.47	0.50	0.57	0.56
Under 30	0.25	0.22	0.22	0.21	0.23	0.22
Spouse	0.65	0.65	0.68	0.69	0.61	0.60
Young child	0.24	0.24	0.24	0.25	0.31	0.29
Dependent child	0.49	0.52	0.49	0.50	0.53	0.52
Number of children	0.90	0.96	0.85	0.91	1.03	1.02
Non-native	0.02	0.03	0.02	0.01	0.07	0.09
Low education	0.22	0.23	0.22	0.21	0.29	0.32
Medium education	0.62	0.63	0.62	0.62	0.59	0.55
High education	0.16	0.14	0.16	0.17	0.11	0.11
Local U-rate	20.98	18.01	19.87	17.61	20.33	17.32
Earlier U-spells	0.80	0.80	0.49	0.55	0.61	0.59
Number of U-spells	3.65	3.58	2.61	2.81	2.63	2.33
ALMP	0.27	0.28	0.13	0.14	0.24	0.27
N	1,941	2,075	3,576	3,325	7,812	7,021

Norway

	Treatment(no longer entitled to UIB)		Control group 1(still entitled to UIB)		Control group 2 (still not entitled to UIB)	
	Before	After	Before	After	Before	After
Female	0.51	0.48	0.41	0.44	0.50	0.52
Under 30	0.41	0.44	0.34	0.33	0.36	0.35
Spouse	0.38	0.30	0.44	0.42	0.34	0.32
Young child	0.27	0.25	0.32	0.31	0.29	0.30
Dependent child	0.47	0.43	0.50	0.50	0.48	0.49
Number of children	0.89	0.80	0.90	0.89	0.91	0.96
Non-native	0.11	0.15	0.08	0.09	0.24	0.26
Low education	0.61	0.61	0.59	0.59	0.69	0.69
Medium education	0.22	0.21	0.29	0.28	0.17	0.17
High education	0.17	0.18	0.12	0.13	0.14	0.13
Local U-rate	5.53	4.30	5.63	4.50	5.23	4.21
Earlier U-spells	0.53	0.55	0.46	0.46	0.46	0.47
Number of U-spells	1.99	1.99	1.67	1.67	1.79	1.80
ALMP	0.37	0.37	0.27	0.28	0.31	0.31
N	3,185	1,244	34,810	28,582	7,697	6,826

Table A2. Exits to non-participation, among women, 25-29-year-olds and highly educated.

Denmark

	Women		Under30		High education	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	1.014	0.788	1.074	0.438	1.094	0.390
After reform	1.061	0.221	1.038	0.674	0.999	0.992
Treatment*after	1.050	0.513	0.920	0.521	1.052	0.729
Control2 group	1.257	0.000	1.180	0.065	1.493	0.000
Control2*after	0.937	0.246	1.114	0.382	0.875	0.187

Finland

	Women		Under30		High education	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	0.937	0.617	1.047	0.832	1.168	0.542
After reform	0.960	0.732	1.328	0.154	0.956	0.853
Treatment*after	0.831	0.702	0.330	0.272	1.098	0.796
Control2 group	0.753	0.003	1.030	0.856	0.956	0.821
Control2*after	1.209	0.160	0.963	0.869	1.064	0.831

Norway

	Women		Under30		High education	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	1.778	0.000	1.807	0.000	1.637	0.000
After reform	1.28	0.000	1.299	0.000	1.202	0.001
Treatment*after	1.462	0.000	1.463	0.000	1.076	0.625
Control2 group	3.633	0.000	3.760	0.000	2.267	0.000
Control2*after	0.826	0.000	0.812	0.000	1.034	0.683

Table A3. The effects of focusing on the unemployed closer to the unemployment insurance eligibility threshold, exits to non-participation.

	Denmark		Finland		Norway	
	Hazard ratio	P > z	Hazard ratio	P > z	Hazard ratio	P > z
Treatment group	0.971	0.552	1.047	0.721	1.351	0.000
After reform	1.071	0.170	1.401	0.048	1.277	0.000
Treatment*after	1.041	0.552	0.588	0.012	1.471	0.000
Control2 group	1.079	0.112	1.014	0.896	2.814	0.000
Control2*after	1.241	0.001	0.827	0.287	0.831	0.000

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