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**THREAT EFFECT
OF THE LABOUR MARKET
PROGRAMS IN DENMARK:
EVIDENCE FROM
A QUASI-EXPERIMENT**

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Threat effect of the labour market programs in Denmark: Evidence from a quasi-experiment*

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Abstract

This paper analyses the pre-participation effect of the Danish active labour market programs on the welfare recipients. The Danish participation rules differ for “young” and “old” individuals. A reform which increased the age boundary between “young” and “old” is used to identify the effect of the “threat” of active labour market program participation before the actual participation starts.

We use a register-based dataset and focus on the transition intensity out of welfare. We show that the reform led to a 25% increase in early exit rate for men, which corresponds to effect of halving the benefits. There is no indication that the reform led to exits elsewhere than employment or to lower-quality jobs. The impact on women is smaller, statistically not significant, and partially related to movements to education. There is some evidence that the effect is related to the arrival of specific information (anticipation effect) and it is limited to a number of compliers only.

JEL codes: J64, J68

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1. Introduction

The tense budgets and high unemployment rates in developed economies have created a considerable interest for active labour market programs (ALMP) as a way of getting unemployment individuals back to work. Unfortunately, the most robust effect according to the evaluation studies tends to be the negative lock-in effect during the participation, in the sense that people are not searching for a job while participating in ALMP. Individual post-program effects are rather low or even negative in some case (see Heckman et al. (1999) for a survey). However, not all programs are disappointing. Among the more successful examples are short job-search assistance courses or even simple interviews at the Labour Market Office, possibly including a threat of benefit suspension (Meyer, 1995; Dolton and O'Neill, 1996, 2002; Crépon et al., 2005). Such short-term treatments do especially favourably in cost-benefit analyses as they are cheap and do not cause any considerable lock-in.

Even if post-program effects of ALMPs are virtually zero, the programs may still be beneficial if their mere presence, the “threat” of the compulsory ALMP participation, changes the behaviour of the unemployed in a favourable way. Indeed, the requirement to participate in ALMPs in the future may alter the individual behaviour already in the beginning of the unemployment spell. In a sense it can be described as a future tax on the leisure, timing of which may be uncertain. This is what we call *threat effect* – effect on the behaviour of the unemployed even before the actual participation starts.

There is a lot of evidence, that a significant channel, through

which the short job-search interviews lead to shorter unemployment spells, is increased number of exits *before* the individuals even participate in the interview (Johnson and Klepinger, 1994; Klepinger et al., 2002; Richardson, 2002; Black et al., 2003; Hägglund, 2006). Analogously, the threat of benefit suspension leads to increased exits before the benefits are suspended (Lalive et al., 2005) and the exit rate is positively correlated to the strictness of the relevant labour market institution (Lalive et al., 2005; Svarer, 2007). The small number of analyses, devoted not to individual programs but existing active labour market policies (which may include quite different programs) indicate an effect of substantial size as well (Rosholm and Svarer, 2004; Geerdsen, 2006). Geerdsen (2006) finds the size of the effect comparable with that of benefit exhaustion in US.

This paper complements the literature of the threat effects of ALMPs in two ways. First, the bulk of the previous literature is related to early exits due to short job-search assistance courses or interviews. In this paper we investigate the effects of the bundle of existing programs in an European labour market. Second, our focus group is the welfare recipients, a group commonly considered as containing particularly problematic individuals.

The Danish compulsory participation rules differ for “young” and “old” individuals, the young welfare recipients have to participate considerably earlier in their unemployment spell. The age boundary between “young” and “old” was increased from 25 to 30 years in 1998. This quasi-experiment allows us to identify the effect.

We use register-based data on weekly labour market states and concentrate on the hazard rate of leaving the welfare. We show that the reform led to a significant increase in the hazard rate of entering ALMP for the affected group, individuals between 25 and 30 years old. The threat effect is statistically significant and of substantial size. The exit rate from welfare increases by

25 and 8% for males and females respectively, and the survival probability in welfare falls by around 4 percentage points at unemployment duration of 5 months. The impact is hump-shaped in duration, as is the exit rate, which suggests it may be caused by arrival of the specific information about the program start date.

This paper is structured as follows. In the next section we briefly introduce the Danish welfare system, describe the rules of participation in the active labour market programs and the concept of treatment in the current context. The third section describes the econometric framework. Section 4 is devoted to the description of the data, Section 5 analyses the actual implementation of the reform, Section 6 presents the results, Section 7 contains a brief discussion, and the last section concludes.

2. A Short overview of the Danish Social Assistance

2.1. The rules of the game

The Danish welfare system provides generous support to those who have lost their income. There are two types of transfers related to unemployment – unemployment benefits (*dagpenge*, UB), and welfare or social assistance (*kontanthjælp*, SA). The eligibility rules for the UB are much more strict than for SA. The individual must have had a certain attachment to the labour market (being employed at least 52 weeks during the last 3 years) and must be a member of Unemployment Insurance (the membership is voluntary). Certain types of education (*qualifying education*, in particular college and vocational education) provide eligibility as well as employment. The level of the benefits is 90% of the previous wage, although the presence of upper and lower bound (respectively 2545 and 2085 DKK weekly in 1998) leads to a much lower average replacement rate.

Social assistance (welfare) is designed as the last-resource security net for all the residents of the country. The eligibility rules are far less strict than those for the UB, stipulating that the individual has to lose her income as a result of a social occurrence, e.g. job loss, illness or divorce, and that she has to be actively seeking for a job. The local governments may provide individuals with one-time supplementary income even if they have a job, given that the current income does not cover the “needs”. SA is not related to the previous income, depending only on age and household type. SA is means-tested. The SA recipients are further split into two groups – those, who have unemployment as their only problem, and those who have problems beside unemployment (e.g. illness or alcohol abuse). The rules for these two groups are slightly different for duration of ALMP-s¹. Despite of the relatively lax rules, the people on welfare only represent around 25-35% of the total unemployment pool in age groups 20-35. The share is substantially larger among the youngest workers (below age 20) as they do not have working experience necessary for UI, and a lot smaller for the elderly (above 50) as the early retirement offers a good alternative source of income.

Since the early 1990s, the eligibility rules for SA have become more and more strict. In particular, the government has increased the ALMP participation requirements. The unemployment spells were divided into “passive” periods, where the individuals were supposed to search a job on their own, and “active” periods, where the individuals have to participate in ALMPs. For the young SA recipients, the active period starts after 13 weeks of unemploy-

¹The duration of the program for young SA recipients, who have *qualifying education* and who do not have problems beside of the unemployment, is 6 months, for the rest of the young recipients it is unspecified (before the reform) or 18 months (after the reform). For the old participants, the duration is to be specified by the municipality.

ment, for old ones, it starts after 12 months. The boundary between “young” and “old” was initially set at 25 years in 1994 and was risen to 30 since 1st of July 1998. More specifically, youth rules apply for those who have not turned 30 (formerly 25) at the date when the active period starts. If the individual turns 30 (25) after the start of the unemployment spell but before the beginning of the active period for the young, rules for the older group still apply. If the first active period expires, the individuals enter a new passive period. This must not exceed 3 months (i.e. about 13 weeks) for the young group, the length for the older group is left unspecified in the legislation.

The start of the active period is not universal. In particular, by participating in certain types of introductory courses², one may postpone the start by 6 weeks. In addition, before the reform the legislation states that if a young person is responsible for children, her active period start may be delayed until 12 months in unemployment. Post-reform rules do not specify the eventual delays, but state that the individual does not have to accept a job offer or an ALMP if she does not have alternative childcare possibilities.

The new regulations introduce a few more minor changes. Notably, the rules after July 1998 are more explicit about the dependence of the activation duration and types on the individual education. The former rules state the requirement for an activity plan for the “old” individuals after 6 months more clearly.

There are several different types of ALMP-s in Denmark. One can split the programs to short job-search assistance; class-room training, either for general human capital improvement (e.g. basic computer or language training) or vocational training for particular industry needs (e.g. operator for particular machinery or a particular service job); regular education; public or private job-

²typically a few days course where the individual’s background and perspective is assessed and job-search techniques introduced.

training; and subsidised employment. In many cases the programs offer combined “packages” of e.g. general language skills training combined with a particular vocational courses. The duration of the programs vary from a few weeks to 18 months. In particular, young participants without the qualifying education must participate in training (minimum duration of 18 months) which provide the required education.

The rules are to be carried out by the local communities. Although it is formally required that the recipients of the SA must be actively searching for a job, it is a widely used practice by the local governments not to register the recipient in the local Employment Office. The share of individuals, registered at the office, ranges between 10 and 40%.

2.2. Economic and political background

Danish economy suffered from a serious downturn in early 1990s where unemployment rate topped 12 percents in 1993 and 1994. It was commonly believed that the high replacement rate, long UI covering period, and very lax requirements for the unemployed were among the main reasons behind the high and long-term unemployment. In this context the political interest was more and more shifting to the obligations of the unemployed, and away from the income maintenance and poverty avoidance. This new focus resulted in what was called “the labour market reform of 1994”, a series of legislative changes, initiated by the social democratic government in agreement with the conservatives³.

The passive period for the insured unemployed period was shortened from 4 years in 1994 to 2 years in 1998 and further to 1 year

³See Andersen and Svarer (2007) and references therein for a longer overview of the Danish welfare reform.

in 1999. The requirements for the welfare recipients were made more restrictive in a similar way. The new rules introduced the compulsory early ALMP participation for young under age 25 in 1994. A year later, the age boundary for the adult benefit level was risen from 23 to 25 years. After a substantial fall in the youth unemployment since mid-1990, the age boundary for early participation was risen from 25 to 30 years in 1998. This is the reform we are investigating in this study. It was part of the ongoing process from welfare to “workfare”, a trend which has continued well into the new century, gaining further momentum after the liberals and conservatives formed the government in 2001.

Whether causally related or not, the stricter eligibility rules and increasing ALMP participation rates have been associated with falling unemployment. Since the record level of 12% in 1994, the unemployment rate has been slowly decreasing. A minimum of 5.2 percent was reached in 2001-2002 (see Figure 1). The other indicators, like long-term unemployment and youth unemployment have been developing in the favourable way as well.

2.3. Treatment

The “treatment” in the current setup is the requirement to start participation after 13 weeks of unemployment at latest, with the “non-treatment” being the start postponed up to 1 year. This is intention-to-treat (ITT) type of effect as the actual implementation of these rules may be quite different. The eventual participation is usually agreed during the first meeting with the caseworker after a period of unemployment. In addition to the formal requirements, the caseworker should take into account the needs of the particular individual and find an empty slot for a suitable program. This is not always possible within the first 13 weeks of unemployment, and the actual start of participation may be much further in the

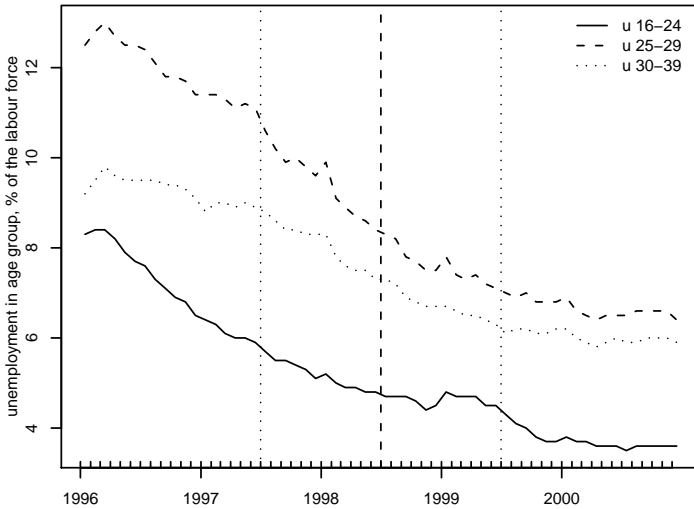


Figure 1. Unemployment, % of labour force (left scale), and the number of people on welfare in different age groups.

Note: The dashed vertical line corresponds to the reform July 1st, 1998, the dotted lines mark the time period, analysed in this study.

Source: Statistics Denmark

spell. Hence, we expect that the formal early activation requirement is reflected in the data as a higher probability (but still less than unity) of activation early in the unemployment spell, compared to the case where the requirement does not apply.

The participation requirements may have several types of pre-program impacts⁴. It is useful to distinguish at least two distinct

⁴Bjørn et al. (2005) distinguish five distinct events: announcement, planning of the activities, start date of the programs according to rules, expected start date,

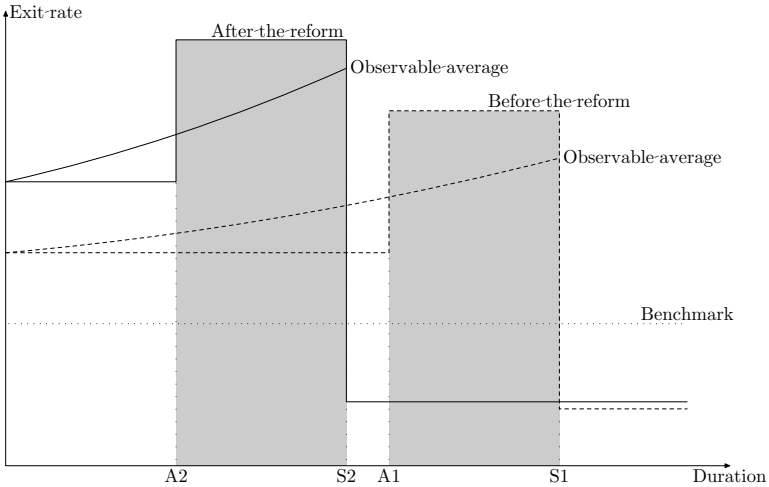


Figure 2. Expectation- and anticipation effects before- and after the reform.

processes before the programs start (Figure 2). First, the individuals who are aware of the rules, are less willing to remain on welfare because of the “risk” of future participation. We call this behaviour *expectation effect*. This effect rises the exit rate compared to the benchmark case of no compulsory participation. Second, as soon as the individual has been notified about the actual program start date (A1 in Figure 2), her behaviour may change as a reaction to the new information. We denote this as the *anticipation- or announcement effect*. At the start of the program (S1), the exit rate falls due to lock-in effect. The reform pushes both the start and announcement time to earlier in the spell (S2 and A2 respec-

and the actual start. All these events have, in general, a distinct impact on the unemployed’s behaviour.

tively). Due to the data availability – we have no information about the actual meetings and corresponding agreements with the caseworker – we cannot distinguish between these two effects. We observe individual exits at different points of elapsed time, but we do not know whether the individuals are aware of the actual date of the program start. Hence we observe a certain average over individuals of these effects, what we call for “threat effect”.

In general, the impact of these effects on the hazard rate is ambiguous. The expectation effect may be stationary, if the individual faces stationary conditions. The anticipation effect is, in general, duration-dependent, as the time until participation is decreasing. Both effects may be positive or negative, depending on how the individuals look the participation and participation probability. However, previous analyses have detected a positive effect (Johnson and Klepinger, 1994; Klepinger et al., 2002; Black et al., 2003; Rosholm and Svarer, 2004; Geerdsen, 2006; Lalive et al., 2005; Svarer, 2007).

What kind of policy questions can our analysis answer? In broad terms, we can say whether increased activity requirements early in unemployment spell lead to increased number of early exits. Though the expectation and anticipation effects affect individuals in distinct ways, we expect the average exit rate to increase, as the participation probability increases. In this way we are able to predict the impact of a similar policy where the age boundary were risen to e.g. 32 years and the local labour market offices' compliance rate will remain similar. However, generalising to a more different situation from this quasi-experiment may be more complicated. We can only estimate the elasticity of exit rate with respect to the observed participation rate, not with respect to the actual (or perceived) risk, as the latter may differ in the expectation and anticipation phase. For instance, it is possible that the expectation effect is zero and all the additional exits appear after announcement of the actual participation date (this possibility

is compatible with the results by Johnson and Klepinger (1994); Klepinger et al. (2002); Black et al. (2003); Lalive et al. (2005)). In this case only those individuals are affected, for whom the case-workers can quickly find a suitable program. In contrary, if the expectation effect is positive, all the unemployed are affected, regardless of when they personally have to participate.

3. Empirical Framework

3.1. Specification

This analysis focuses on the durations of the welfare spells. We model the welfare duration using discrete-time Markov processes (Ham and Rea, Jr, 1987) because we observe the individual labour market state only on weekly basis (see section 4 for description of the dataset). We look at the weekly conditional exit probability from welfare, given that the individual has not exited earlier. This corresponds to the hazard rate in continuous-time models.

We denote by “threat” the probability of being required to participate in an ALMP, given that the unemployed has not participated earlier (the conditional probability of entering ALMP).

We analyse the intention to treat (ITT) effect at the age group level, i.e. we know that the policymakers intended to change the treatment of the 25-30 year olds, but a number of individuals belonging to that group may not have experienced any difference. We are estimating ITT as a reduced form binary treatment effect – the person either is or is not eligible to the early activation. We only briefly discuss the elasticity of exit rate with respect to participation probability as the *threat effect* does not have any distinct behavioural interpretation.

3.2. Identification

Although the discontinuity in the policy around age 25 and 30 suggest to use regression discontinuity approach, we do not use this possibility in order to avoid issues with manipulation of the start date close to the discontinuities. Hence we rely solely on the 1998 reform, which led to the earlier start of ALMPs for a certain age group. The reform provides us an affected group – individuals of age 25 to 30, who experienced an exogenous increase in the ALMP participation requirements; and two control groups: the young control group – individuals below age 25, who were supposed to be activated early already before 1998; and the old control group – individuals above 30 years old. Below, we use the term *treatment* denoting the effect of 13-week activation rule, and the terms *affected group* or *middle group* denoting the age group, whose treatment rules were changed as a result of the reform.

The reform allows us to employ a differences-in-differences type of approach, comparing the trends in exit rate for the affected group (age 25-30), with trends for those, not affected (below 25 and above 30). Hence, in treatment literature parlance, we are estimating a local average treatment effect (LATE), the average effect on those, affected by the exogenous variation.

We allow the effect to vary in duration between given duration intervals. Such a specification of time-varying coefficients is equivalent to time-varying covariates. Although formally identified, the results must still be treated with care. If the increased participation has any effect, it may lead to high-skilled “voluntary” unemployed to leave welfare earlier while the rest, the “involuntary” unemployed, may still be unable to find a job. In this case we will see an initial positive effect, followed by a negative one, although none of the individuals are less willing to take a job. This could be described as a form of unobserved heterogeneity. However, we cannot disentangle such dynamic selection effects from a genuine duration dependence.

3.3. Econometric specification

Discrete-time Markov process allows transitions to occur only between successive time intervals, e.g. between two consecutive weeks. We look at the transition from unemployment U to a final state $d \in D$ where D is the set of possible destinations. Let $\vartheta_\tau^d(\mathbf{x}_i)$ be the probability to move to the final state d between the weeks τ and $\tau + 1$, for an individual with the personal characteristics described by the vector \mathbf{x}_i . We denote the probability to remain in the unemployment (U) by $\vartheta_\tau^U(\mathbf{x}_i) = 1 - \sum_{m \in D} \vartheta_\tau^m(\mathbf{x}_i)$. We specify the probabilities in the logit form as

$$\vartheta_\tau^d(\mathbf{x}_i) = \frac{e^{\tilde{\lambda}_\tau^d + \psi^d(\mathbf{x}_i)}}{1 + \sum_{m \in D} e^{\tilde{\lambda}_\tau^m + \psi^m(\mathbf{x}_i)}}. \quad (1)$$

The interval-specific parameter $\tilde{\lambda}_\tau^d$ describes the duration-dependence of the hazard rate and $\psi^d(\mathbf{x}_i)$ determines the effect of the covariates. The sum is taken over all the destination states. Such a specification guarantees the transition probabilities (including probability of remaining in the initial state, $\vartheta_\tau^U(\mathbf{x}_i)$) to be strictly positive and to sum to unity. Note that this specification is not a version of the popular proportional hazard model, though the exponent is still separable to duration- and covariate dependent terms. $\tilde{\lambda}_\tau^d$ may be restricted to have equal value over certain intervals, this gives us a discrete-time analogue to the widely used piecewise-constant-baseline hazard models.

In order to introduce the time-varying covariates (in particular, pre-participation “threat”), we split the spells into sub-periods, during which the covariates are constant. In that case the “sub-spells” of a spell which do lead to a following sub-spell of the

same spell, and not to the final exit, are market as censored. One has to keep in mind that the following sub-spell is not starting at duration zero but at duration τ_0 , end of the previous part of the spell.

Assume we observe a sub-spell, starting at period τ_0 and ending with transition to the state d after τ periods of unemployment. The corresponding background characteristics are described by \mathbf{x}_i . Hence the likelihood of the observation is

$$\mathcal{L}_i = \left(\prod_{t=\tau_0}^{\tau_0+\tau-1} \vartheta_t^U(\mathbf{x}_i) \right) \vartheta_\tau^d(\mathbf{x}_i). \quad (2)$$

The likelihood is expressed as a product of two terms: the first term (in parentheses) is the probability of survival in the unemployment $\tau - 1$ interval boundaries from the initial interval τ_0 on. The second term is the probability of exit to d after the interval τ . The second term is present only if the exit is in fact observed. Note that the likelihood, describing exits occurring after the shortest possible unemployment duration – one interval – does not include any survival term.

3.4. Differences-in-differences estimation

We introduce the threat effect of the ALMP-s in the following way: First, we construct a dummy for early participation, being equal to unity for those who are required to participate early, and to zero for those who aren't: $A = \mathbb{1}(\text{required})$. Hence $A = 1$ for individuals below age 25 and those between 25 and 30 after July 1st, 1998. For all the others, $A = 0$. We allow the threat effect to vary depending on the unemployment duration τ , hence we introduce not a single, but different dummies for different duration intervals. This is equivalent to time-varying coefficients.

The threat effect is identified by the non-stationary features in the age dependence curve for the exit rate. Namely, the curve should shift between pre- and post-reform periods for the affected age group 25-30. Hence we introduce a flexible age dependence for the hazard rate and add the dummies A_τ for the requirement of early participation during the unemployment duration τ . In top of that, we allow for possible non-stationary development by introducing a flexible difference in the age dependence between the pre- and post-reform period. Note that the difference must still have a small number of degrees of freedom only – we must be able to disentangle the effect for the affected group from the general non-stationary trend. This is a crucial assumption which allows us to disentangle the effect from the trend.

In summary, our specification includes five components in the exponent in (1): the interval-specific λ_τ (analogous to the baseline hazard); the rest of explanatory variables but age, \mathbf{y} ; a flexible age effect, describing the overall age dependence of the exit rate; another, less-flexible, age effect, describing the non-stationary development between the two time periods; and the eligibility dummies (A_τ), describing the effect of the early participation:

$$\begin{aligned} \tilde{\lambda}_\tau + \psi(\mathbf{x}_i) = & \tilde{\lambda}_\tau + \beta' \mathbf{y}_i + \\ & + \text{flexible age effect } g_1 + \\ & + \text{less flexible age effect } g_2 \cdot \mathbb{1}(\text{after reform}) + \\ & + \beta_\tau \cdot A_\tau \end{aligned}$$

We specify the flexible age effect g_1 either by polynomials or b-splines. The pre- and post-reform difference g_2 is specified by a polynomial. We require that g_1 has at least 2 more degrees of freedom than g_2 . We select the optimal specifications by the Akaike information criterion.

Note that the main parameter of interest, the eligibility effect β_τ , is only identified by the differences in the age dependence between

the pre- and post-program period for the age group 25-30. Although we have added the early participation dummies A_t for the young group, we cannot disentangle the eligibility effect for this group from the data, as there is no exogenous variation. Hence, although we do not allow the effect of interest to depend on age, we do not expect this to be a major problem because the effect is in fact identified for a quite narrow age group only.

4. Data

4.1. Dataset

We employ DREAM data which includes weekly labour market status for complete Danish population. DREAM data set is based on data from several Danish ministries and the Registry of Labour Market Measures (AMFORA). The dataset includes all the individuals who have received public income transfers from 1991 till 2004. The type of transfers is collected on weekly basis for each individual. The transfer type makes it possible to distinguish e.g. between welfare, insured unemployment, child care leave, illness, several types of education and ALMP participation. The registry has been supplied with information about public pensions, early retirement and death. Such a structure makes the dataset very well suited for spell-based analysis and allows us to control for the various features of labour market history.

In addition, the dataset includes several background variables as age (in days), immigrant status, location of residence, civil status and unemployment insurance membership. Unfortunately, this type of information in the DREAM data is still quite limited. In particular, we do not have information about employment, education and children.

The weekly status is registered if the individual has received the transfer at least one day a week. If the individual has received different types of transfers during the week, the registered state is based on certain priority order, for instance ALMP participation has priority over insured employment, which has priority over welfare. A possible problem with a registry, based on public transfers, is the fact that one cannot disentangle employment from a genuine non-participation. Although it is not considered to be a big problem in a country with a generous welfare system, we admit this may be a more of an issue for the youth on welfare than for the UI recipients.

We choose a subsample of individuals between 22 and 35 years old, and unemployment (social assistance) spells starting between July 1st, 1997 and June 30th, 1999. Such relatively wide observation window is used in order to avoid issues with seasonality. Next, we censor the spells at the entry to ALMP. This is because our interest lies at the pre-program effects, not at the behaviour during and after the participation. Note that pre-program exit rate from welfare may not be independent of the entry rate to ALMP. The correlation may be positive if the case-workers will prefer to activate the unemployed from the upper end of the skill distribution and negative in the opposite case. Positive correlation will introduce a negative bias to the estimated threat effect and the way around. However, we believe this is not a major issue for differences-in-differences estimation as a corresponding bias exists for the comparison group as well. Unfortunately, without additional information we cannot go further here (Peterson, 1976). This will remain a possible weakness of the analysis below.

In order to avoid possible manipulation with the start date, we exclude the individuals who's age is closer than 3 months to the thresholds 25 and 30. Additionally, we exclude all the individuals who have been unemployed during previous 52 weeks. This is because for those individuals we are not able to calculate the

unemployment tenure, an indicator which determines when the individuals are required to start the participation. We also exclude all the immigrants in order to focus on to a more homogeneous sample⁵. Hence, all the outcomes below will be for this particular group only. This must be kept in mind while generalising from the current results.

The subsample used in this study includes 12 966 completed- and 15 608 censored unemployment spells for males and 12 482 completed/17 253 censored spells for females. The technical details about the construction of welfare spells are given in the appendix 2.

4.2. Variables and descriptive statistics

In this section we describe the set of personal characteristics and indicators of the labour-market history we use as explanatory variables in the econometric analysis below. A short description of the variables used is given in the Table 1. In particular, we select individuals by their recent unemployment history and include a dummy for previous education spell. Table 2 provides the average values for the various explanatory variables for affected and non-affected groups for both pre- and post-reform periods.

The data suggests that the labour market histories are mostly similar for pre- and post reform period for all the age groups. Men in the middle group experience the largest decline in the unemployment duration among all the groups, while for women the old group shows the most rapid decrease. A variable which behaves differently before and after the reform is the UI membership rate which falls substantially for the young and middle group. There

⁵ The effect on immigrants turns out to be broadly similar to the native Danes but statistically insignificant. See Appendix 1.1.

is also a slight fall in the number of married individuals and the number of individuals, registered at the Labour Market Office. All these changes point toward a falling “quality” of the pool of welfare recipients, increasingly dominated by less experienced and less educated people. These trends are probably related to the falling unemployment rate where better qualified individuals were increasingly leaving unemployment.

However, the differences between age groups are more important. The share of Labour Market Office registered people is decreasing in age while the unemployment duration increases, suggesting that the older cohorts may be increasingly dominated by low-skilled workers. The increasing rate of marriage and UI membership reflect the life-cycle behaviour.

In conclusion, the preliminary look at the data shows that the welfare duration falls substantially for the affected group. The effect is quite clear-cut for males, the picture for females is a lot more fuzzy.

Table 1. Description of the explanatory variables

Variable	Description
A_{a-b}	effect during weeks (months) $a-b$ of early activation
	Demographic and family characteristics
<i>age</i>	age at the start of unemployment spell
<i>married</i>	married or co-habiting
	Labour market characteristics
<i>AK</i>	member of the Unemployment Insurance
<i>LMO</i>	registered at the Labour Market Office
<i>Edu prev 0-3</i>	education during previous 3 months
Controls (dummies) for region (county), year and month	

Table 2. Average values of selected variables.

	Y pre	Y post	M pre	M post	O pre	O post
<i>Males</i>						
<i>duration</i>	17.62	16.70	24.71	22.81	27.82	28.67
<i>startAge</i>	22.96	23.03	27.00	27.02	32.24	32.29
<i>UI</i>	0.37	0.29	0.50	0.47	0.50	0.51
<i>LMO</i>	0.56	0.52	0.47	0.44	0.48	0.42
<i>married</i>	0.16	0.13	0.27	0.24	0.29	0.25
<i>Edu Prev 0-3</i>	0.29	0.28	0.33	0.30	0.15	0.16
<i>N</i>	2795	2767	2698	2560	2088	1789
<i>Females</i>						
<i>duration</i>	20.13	19.56	28.75	26.07	38.49	34.61
<i>startAge</i>	22.95	22.98	26.91	26.93	32.14	32.29
<i>UI</i>	0.31	0.23	0.59	0.51	0.56	0.54
<i>LMO</i>	0.59	0.55	0.37	0.37	0.41	0.37
<i>married</i>	0.28	0.23	0.39	0.35	0.36	0.34
<i>Edu Prev 0-3</i>	0.38	0.40	0.50	0.49	0.22	0.24
<i>N</i>	3009	2836	2521	2577	1441	1411

Notes: Y, M, O refer to the young, middle and old group. Only unemployment spells which lead either out of unemployment, or to ALMP participation. Participation spells are not included.

5. Implementation of the reform

In this section we show that the reform indeed led to a substantial change in the ALMP participation rate. The purpose of this analysis is similar to the first-step regression in 2SLS where the task is to show that the instrument explains part of the variance in the variable of interest. We begin by using simple descriptive methods, and finish the section by estimating the exit rate from welfare to ALMP participation using exactly the same methodol-

ogy as described in Section 3.3 above. The same methodology will also be used for the effect analysis in Section 6 below.

The simplest way to look at the effect of the reform on the activation probability is to construct a table where we present the share of individuals who started ALMP participation during the first 13 weeks of unemployment among all the participating individuals (Table 3). The table reveals that the activation rate for the middle group has indeed increased as a result of the reform, by around 3-5 percentage points. This increase is matched by a slightly smaller decrease in the early activation for the young and old control groups. However, the old group experiences and increased early activation for the females. These figures are similar to those, used for analysing analogous programs in the literature (Carling and Larsson, 2005).

As a next step, we plot the weekly participation probability over the period of study, from July 1st 1997 till June 30th, 1999. We calculate the probability over all the individuals who have been at least a week on welfare while being 22-35 years old during this time period (Figure 3). The figure shows a highly seasonal pattern for all the age groups. In particular, participation probability peaks during the first and second quarter, and there is a large dip during the holiday season in July and August. The large seasonal effects suggest that we cannot just compare short time periods be-

Table 3. The share of individuals among the ALMP participants who started the program during the first 13 weeks of unemployment.

group	males		females	
	before	after	before	after
Young	0.68	0.62	0.65	0.62
Affected	0.49	0.51	0.38	0.43
Old	0.42	0.39	0.29	0.33

fore and after the reform. The window of the analysis must span at least a year to both sides of the date of the reform. Otherwise, the two periods may be too dissimilar because of the seasonal differences. Although the seasonal pattern of the age groups is quite similar, the trends are not. In particular, the ALMP participation rate for the middle group is catching up that of the young group (for males) and the old group (females) soon after the reform. Note also that the participation rate for the old group shows no particular trend while that for the young and middle group is visibly increasing. This picture is consistent with the increased participation requirements for the middle group, introduced by the reform.

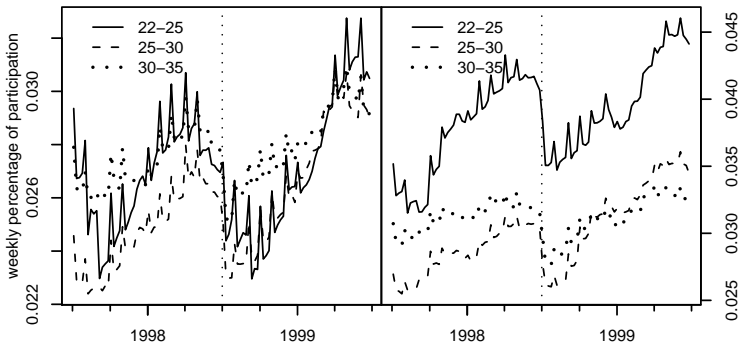


Figure 3. Probability of participating in the active labour market programs for different age groups during the period of analysis. The dotted vertical line denotes the time of the reform. Males on the left and females on the right panel.

The simple graphs and tables, presented above, do not control for a number of factors, in particular length of unemployment spells. As the third step, we now turn to the duration analysis.

The rates to enter ALMP programs (Figure 4) show a general falling pattern. The figure reveals that before the reform, the young group faced a substantially higher participation risk, compared to the middle and the old group, during the first 30 months of unemployment. After the reform, the ALMP entry rate remained virtually unchanged for the young group while it rose substantially for the middle group. The figure suggests a slight increase of that for the male old group too. Hence, as a result of the reform, the entry rate for the middle group transformed from being similar to that of the old group, to one resembling that of the young group. The impact of the reform is stronger for the males. For both genders the main effect is concentrated into the time period of 8-30 weeks. These outcomes correspond roughly to the new rules.

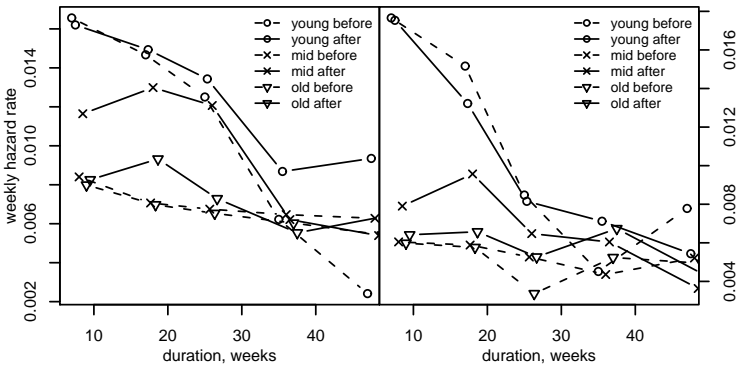


Figure 4. Weekly hazard rate of entering active labour market programs. Males on the left and females on the right panel. *before* and *after* refer to the periods before and after 1998 reform.

As the last step, we estimate the full model explaining the participation rate by various individual and labour-market characteristics, including the age effect and eligibility dummies, using the

same methodology as when analysing the final effects below. The results are given in the table 5. Most of the estimated impacts on the entry rate are positive and significant. The reform has caused an exogenous increase in the entry rate to participation by 25-35% during the period up to 21 weeks of unemployment, the impact fades away thereafter.

The analysis assumes that different risks, in particular the risk of entering ALMP and that of leaving welfare, are independent. This may not be a reasonable assumption if, for instance, a substantial number of unemployed will take a job when the ALMP risk turns particularly high. This may be a result of, for example, a meeting at the Employment Office. If this is the case, the risks are positively correlated, and the exit rate to the ALMP participation is underestimated.

In conclusion, the analysis of the implementation indicates, that the middle group, individuals between 25 and 30 years old, experienced a certain exogenous increase in the participation probability. The analysis also suggests that it is essential to look at the actual implementation of the reforms as that may be quite different from the written rules.

6. Results

6.1. Exits from the welfare

As a first step, we look at the Kaplan-Meier exit rates from the welfare (Figure 5). One can see a similar hump-shaped pattern for all the groups. Besides to that, the exit rate is falling in age. Comparing the figures before (dashed lines) and after the reform (solid lines), we see a slight increase of the rate for the middle group, the rates for the other groups seem to be rather falling or

Table 4. Impact of the reform on the entry rate to ALMP participation, and on the survival probability in non-participation welfare.

Weeks	Effect on:							
	Entry rate to ALMP				Survival probability			
	Male		Female		Male		Female	
	%pt	%	%pt	%	%pt	%	%pt	%
6-7	0.393*	34.178	0.388*	42.323	-2.231*	-2.391	-2.220*	-2.347
	<i>0.106</i>		<i>0.100</i>		<i>0.603</i>		<i>0.576</i>	
12-13	0.248*	22.452	0.241*	23.082	-3.426*	-3.925	-3.403*	-3.830
	<i>0.110</i>		<i>0.117</i>		<i>0.976</i>		<i>1.004</i>	
20-21	0.366*	34.557	0.238*	25.527	-5.556*	-6.932	-4.776*	-5.794
	<i>0.118</i>		<i>0.111</i>		<i>1.421</i>		<i>1.442</i>	
35-36	0.187	20.232	-0.074	-9.318	-6.935*	-9.947	-3.523	-4.814
	<i>0.098</i>		<i>0.080</i>		<i>1.984</i>		<i>1.947</i>	

Notes: The effect is given both in percentage points (%pt) and percentages (%) of the baseline value.

Standard errors in italics.

* – significant at 5% confidence level.

Selected weeks only.

constant (the female old group seems to be an exception). For males, the increase is concentrated to weeks 10-20, for females to a slightly shorter period.

This figure suggests that the reform was related to a slight increase of the exit rate for the affected, middle group. Next, we turn to the econometric analysis according to the specification, described in the Section 3.3. We present the effect on the exit rate from welfare and corresponding survival rate in Table 6.1. The effect on different exit destinations is presented in Section 6.4.

The table shows an effect which is hump-shaped in duration. The impact on the exit rate is tiny and insignificant during the first

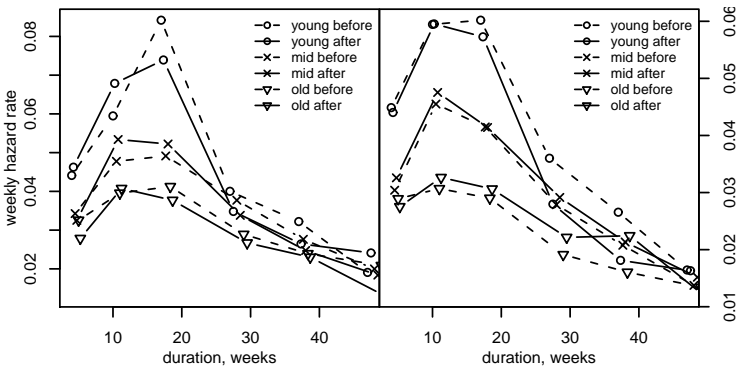


Figure 5. The Kaplan-Meier hazard rates for the control and treatment groups. Transitions out of unemployment. Males (left panel) and females (right panel). *before* and *after* refer to the periods before and after 1998 reform.

weeks of the unemployment spell but rises close to 1.5%-points additional weekly exits at around 20 weeks in unemployment (for men). This corresponds to roughly 25% increase in the exit rate. The effect on women is positive and about the same general shape but is not statistically significant. The impact turns negative after the 21th week of unemployment. The last four columns depict the effect on the survival probability. The reform led to about 5%-point fall in the survival probability in welfare for males around week 20, which corresponds to around 13% of the respective baseline survival rate. The effect on females is much weaker and nowhere statistically significant.

This outcome is in concordance with the visual impression from the Figure 5. It also compares to the growing participation probability (Figure 4) and the respective estimates (Table 5) and cor-

responds to the new rules for the affected group with explicit requirement for participating after 13 weeks of unemployment.

In order to visualise the effects better, we present two graphs, one for the impact on the exit rate (Figure 6), the other for that on the survival rate (Figure 7). The impact on the exit rate out of wel-

Table 5. Impact of the reform on the exit rate from welfare, and on the survival probability in welfare (percentage points).

Weeks	Effect on:							
	Exit rate				Survival probability			
	Male		Female		Male		Female	
%pt	%	%pt	%	%pt	%	%pt	%	
<i>Exits from unemployment</i>								
6-7	-0.041 <i>0.205</i>	-1.071	0.060 <i>0.207</i>	1.649	0.204 <i>1.018</i>	0.258	-0.301 <i>1.035</i>	-0.376
12-13	0.402 <i>0.281</i>	7.631	0.340 <i>0.270</i>	7.068	-1.321 <i>1.518</i>	-2.312	-1.499 <i>1.510</i>	-2.520
20-21	1.281* <i>0.307</i>	23.784	0.372 <i>0.268</i>	8.115	-4.694* <i>1.652</i>	-12.789	-2.290 <i>1.680</i>	-5.604
35-36	-0.429* <i>0.216</i>	-11.105	-0.330 <i>0.182</i>	-10.662	-1.355 <i>1.449</i>	-6.667	-0.142 <i>1.570</i>	-0.559
<i>Exits from employment</i>								
25-26	-0.239* <i>0.091</i>	-19.753	-0.058 <i>0.089</i>	-5.319	4.106* <i>1.538</i>	5.441	0.986 <i>1.507</i>	1.251
40-41	-0.160* <i>0.060</i>	-22.726	-0.121* <i>0.061</i>	-18.000	5.388* <i>1.797</i>	8.069	2.204 <i>1.795</i>	3.107
53-54	-0.187* <i>0.089</i>	-40.803	-0.055 <i>0.074</i>	-18.605	6.164* <i>1.973</i>	10.067	2.962 <i>2.020</i>	4.522

The effect is given both in percentage points (%pt) and percentages (%) of the baseline value.

Standard errors in italics.

* – significant at 5% confidence level.

Selected weeks.

fare is increasingly positive until around 20 weeks of unemployment. The maximum values are achieved between weeks 13 and 20, where the weekly exit rate after the reform exceeds the pre-reform value by around 1.3 and 0.6 percentage points for males and females respectively.

The impact on the survival probability offers the view from another perspective. The impact is relatively similar for both males and females, leading to a monotonous fall in the probability to stay on welfare until around week 20. Thereafter the effect fades away and after 40 weeks it is indistinguishable from the pre-reform situation. In the maximum, the reform leads to around 4%-points fall in the survival probability. However, we cannot reject the hypothesis of no impact for females.

6.2. Impact on the re-entry probability

A shift in treatment rules may not only influence the exit rate from unemployment but the re-entry rate as well, if the reform encourages the individuals to take different type of jobs. This fact has caused a substantial interest not just in the unemployment spells but in the following employment history too.

In this subsection we estimate analogous econometric models for the subsequent employment spells and transitions to unemployment. We construct our sample in the same way as above but select only individuals who entered employment after the welfare spell. In particular, we exclude here also the observations where people participated in ALMP-s. In this way we attempt to answer the question whether the additional “threat”, experienced by the unemployed, is also affecting the re-entry probability. We admit that the results may be biased – we do not address the endogenous

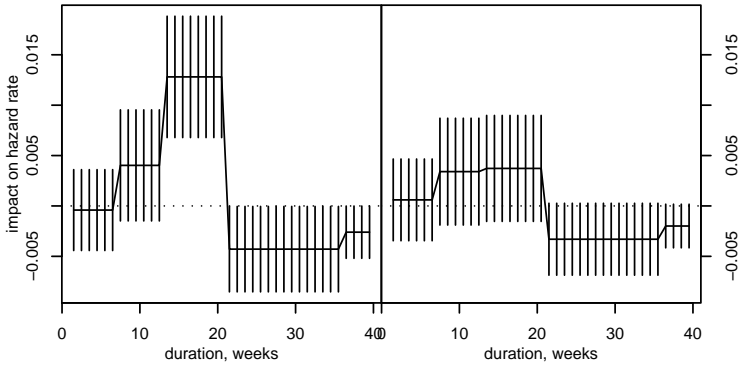


Figure 6. Impact of the reform on the hazard rate out of welfare. Males on the left and females on the right panel. The vertical lines mark the confidence bands.

censoring and selection into ALMP-s here, so these figures must be regarded as suggestive.

The estimated impact is presented in the lower panel of Table 6.1. We see a strong and long-lasting negative effect on the re-entry probability for males, the effect for females has the same sign, but is nowhere statistically significant. The analysis suggests that the re-entry rate for the middle group falls by around 20 and 25% for the period of up to one year and even further later. The probability to stay in employment increases by about 10% by the end of the first year. These relatively large figures suggest the presence of substantial inflow effects.

As these results may be criticised for various methodological problems, we just conclude here that we do not have any evidence about deteriorating labour market outcomes related to the early exits.

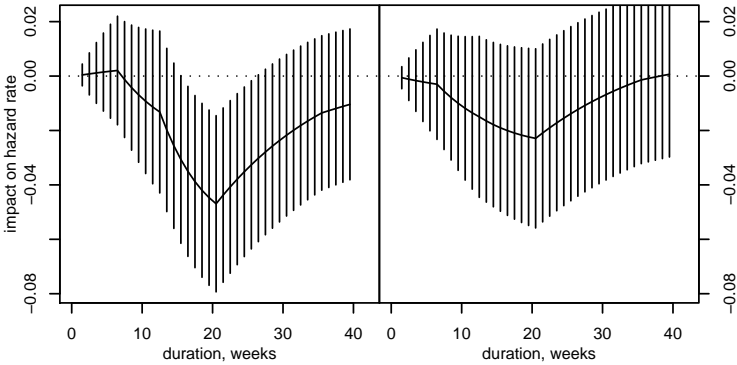


Figure 7. Impact of the reform on the survival rate on welfare. Males on the left and females on the right panel. The vertical lines mark the confidence bands.

6.3. Other results

The other individual-specific characteristics have mostly the expected sign (Table 6). Members of UI have higher probability to leave welfare, this outcome is presumably related to work experience or better education, necessary for UI membership. Surprisingly, being registered at the Labour Market Office leads to fewer exits for males. Although counterintuitive, it points to sample selection issues, where men who have unemployment as their only problem have worse human capital in average, than those who have other problems too. Marriage is related to faster exits from welfare. This may either be related to selection – individuals with

more human capital have easier to find a partner – or true causal effects. Individuals who have had an education spell immediately before unemployment are also faster to leave welfare. This group consists mostly of individuals, just finished their school and looking for the first job. Their problem is not as much related to human capital as to lack of work experience for UI membership. There is also a number of regional differences: The Copenhagen Area (Frederiksborg and Roskilde counties) is doing better than the rest of the country, in particular Aarhus county (the reference group).

Table 6. Individual and regional effects.

<i>parameter</i>	Males		Females	
	estimate	std	estimate	std
<i>AK</i>	0.124*	0.044	0.282*	0.043
<i>LMO</i>	-0.128*	0.044	-0.020	0.042
<i>married</i>	0.247*	0.026	0.160*	0.025
<i>Edu Prev 0-3</i>	0.088*	0.026	0.212*	0.025
<i>Bornholm</i>	0.057	0.166	0.034	0.179
<i>Frederiksborg Amt</i>	0.401*	0.055	0.280*	0.059
<i>Fyns Amt</i>	0.024	0.049	0.056	0.051
<i>Københavns Amt</i>	0.144*	0.037	0.213*	0.039
<i>Nordjyllands Amt</i>	0.179*	0.051	0.014	0.054
<i>Ribe Amt</i>	0.181*	0.070	0.020	0.071
<i>Ringkøbing Amt</i>	0.337*	0.070	0.033	0.080
<i>Roskilde Amt</i>	0.343*	0.066	0.295*	0.070
<i>Sønderjyllands Amt</i>	0.206*	0.071	-0.060	0.081
<i>Storstrøms Amt</i>	0.132*	0.066	0.035	0.071
<i>Vejle Amt</i>	0.214*	0.055	0.058	0.062
<i>Vestsjællands Amt</i>	0.243*	0.063	-0.028	0.071
<i>Viborg Amt</i>	0.296*	0.068	0.101	0.080

6.4. Further Extensions

Exits to different destinations

The previous analysis was focused on the exits from welfare. However, there is evidence that the exit rate from registered unemployment and entry rate to employment may differ a lot (see e.g. Card et al., 2007). Hence it is relevant to analyse where are the actual exits leading. The dataset, which includes only public transfer types, does not allow us to distinguish employment from generic non-participation. However, we can distinguish education where the individuals receive state student allowance, and “unknown” labour market state where the individuals do not receive any allowances. This is most likely employment. The table 7 shows the estimated effects for both of these states. The estimates are based on assumption of independence of the different failure times, which may not be appropriate here (see discussion in Section 5).

The table suggests that the increased early exits for men lead in most cases to employment. However, females seem to prefer education instead of jobs, while the fall of the exit rate after 21 weeks of unemployment seems to be related to decreasing entry rate to employment. The effects seem even stronger here with hazard rate increasing up to 37%.

Counties

As the labour market reforms are implemented by the local labour market offices, the impact may differ substantially between different regions. Here we allow the reform to have independent impact by different counties. The Table 9 in the Appendix 1.2 presents the threat effect by interval and county.

Table 7. Impact of the reform on the exit rate to education and employment, and on the corresponding survival probabilities. The effect is given both in percentage points (%pt) and percentages (%) of the base-line value. Standard errors in parenthesis. * – significant at 5% confidence level. Selected weeks.

Weeks	Effect on entry rate to:				“Unknown”			
	Education				Male		Female	
	Male	Female	Male	Female	Male	Female	Male	Female
	%pt	%	%pt	%	%pt	%	%pt	%
	<i>Exits to education</i>							
6-7	0.002 <i>0.039</i>	0.723	0.075 <i>0.051</i>	22.877	0.385 <i>0.232</i>	11.380	-0.067 <i>0.190</i>	-2.274
12-13	-0.018 <i>0.057</i>	-5.392	0.123* <i>0.060</i>	34.179	1.013* <i>0.322</i>	21.844	0.136 <i>0.254</i>	3.386
20-21	0.040 <i>0.072</i>	9.271	0.201* <i>0.085</i>	35.525	1.728* <i>0.345</i>	37.118	-0.023 <i>0.244</i>	-0.623
35-36	0.057 <i>0.048</i>	24.249	-0.053 <i>0.073</i>	-9.073	-0.137 <i>0.233</i>	-4.034	-0.377* <i>0.156</i>	-16.588

The main features, identified earlier, seem to be quite robust. In particular, the maximum for males for weeks 13-21 is present in most cases albeit in many cases it is not statistically significant. The negative effect past the week 21 seems also to be fairly robust. We also see a few significant negative effects early in the unemployment spell (weeks 1-13).

7. Discussion

We have documented a substantial “threat effect” of the presence of labour market programs in Denmark. This outcome is in concordance with other Danish results (Rosholm and Svarer, 2004; Geerdsen, 2006; Svarer, 2007) and with the international evidence (Richardson, 2002; Black et al., 2003; Lalive et al., 2005). As we were looking not at a particular labour market program but at the

bundle of programs actually used for the young welfare receivers, we confirm that the existing Danish active labour market policy indeed leads the people to take a job faster. This is an encouraging finding as it shows that the combined effect of all the programs, implemented as imperfectly as they actually are, is positive. This may be one of the important mechanisms behind the Danish “flexicurity”.

The fact that the duration profile of the estimated effect follows more-or-less that of the exit rate suggests that the additional “threat” leads to employment through the more intensive use of the same channels which the unemployed were using before the reform. It is interesting to note that Rosholm and Svarer (2004) found a similar hump-shaped profile for the Danish insured unemployed. Another possible explanation may be the time delay between the meeting with caseworker and start of the program – obviously, the delay is short for programs starting very soon after beginning of the unemployment, while it may be longer if the ALMP starts later. Hence there is too little time for finding a job even with stronger motivation. It might be advantageous to announce the programs well in advance in order to allow the better motivated unemployed to find a job before the start date.

We can try to put the effect in monetary terms. A 20% increase of the hazard rate requires decreasing the benefits by around 40-60%, using the hazard rate elasticities of 0.3-0.5 as often found in the literature (Meyer, 1990; Toomet, 2005). This figure compares to around 15% increase in hazard rate to employment at benefits exhaustion in Austria but is far lower than the corresponding impact on the exits from registered unemployment (140%) (Card et al., 2007).

The estimated effect is not stationary but increases in absolute value, achieves a maximum at about 20 weeks of unemployment, and fades away or even turns negative thereafter. One has to be

careful when interpreting non-stationary features in duration context. Several different behavioural responses are compatible with this outcome. The simplest assumption is that individuals are homogeneous – the estimated effect describes *all* of the sampled individuals. However, it is also possible that the reform led a certain subgroup of the sample to take the jobs earlier while leaving the rest unaffected. If this is the case, one should see an initial increase of the hazard rate, compared to the pre-reform world, followed by later decline of it with respect to the pre-reform level. This is because of the dynamic selection – the compliers, who are in some sense voluntary unemployed, now exit earlier and leave the hazard rate to be determined solely by never-takers. This corresponds closely to what we actually observe. Although the standard errors are fairly large, our results are compatible with such behaviour.

It is tempting to generalise from the current results. Although we cannot do it rigorously as we estimate a reduced-form model only, we can construct a “naive” estimate of the elasticity of exit rate from welfare with respect to the entry rate to ALMP-s. The ALMP entry rate around week 20 of unemployment increased by around 35% for men and 25% for women. This can be compared to increase of the exit rate by around 24% and 8% correspondingly. Hence we have the naive elasticities 0.7 for males and 0.3 for females. These number can be criticised because we do not observe crucial events of information arrival, and the impact of the reform on the entry rate to participation may be underestimated (see discussion in Section 5). However, they are of the same order as the current estimates for elasticity with respect to unemployment benefits.

8. Conclusions

We estimated the “threat effect” – the effect on exits from the welfare before the individuals actually participate – of the Danish active labour market programs. We focused on the policy of early ALMP participation for the young Danish social assistance recipients. We used a register-based dataset which includes weekly welfare status for the complete population. We selected a sample of native Danish individuals in the age range 22-35 and with no unemployment record during the 52 weeks preceding the welfare spell. The rules for participation in ALMP differ between young and old individuals, in particular, young individuals are required to participate earlier. The age boundary for early activation was increased from 25 to 30 in 1998. This reform was used as the source of exogenous variation.

We showed that the reform led indeed to an increased risk of participation for the affected group, 25 to 30 years old individuals. The main results indicate that the reform caused a substantial and statistically significant increase in exits from the welfare for males. The weekly exit rate rises by around 1.3 percentage points for men and 0.4 percentage points for women for the unemployment duration 13–20 weeks. This corresponds to 25 and 8 percentage increase respectively. The probability of surviving in the welfare for more than 21 weeks fell by approximately 5 (men) and 2 (women) percentage points, corresponding to about 13 and 6 percentage decline in the survival probability. The impact on the exit rate turned negative (although insignificant) after 20 weeks on welfare for both genders. The analysis suggests that the additional exits lead mostly to additional employment for males but rather to more education for females. We did not find any evidence of the additional exits leading to lower-quality jobs.

The duration profile of the impact is hump-shaped and follows that of the exit rate. This may be related to the delay between the

meeting with the caseworker and the start of the program which is short for programs which start early in the unemployment spell. Hence given even the additional pressure by increased participation, the time between the announcement and start of the program is too short to find a job. However, we were unable to test this hypothesis using the current dataset.

The fact that the impact on the survival probability decreases in absolute value after 20 weeks of unemployment indicates that the impact may have been limited to “compliers” – individuals who took a job earlier as a result of the reform, and left the outcome of the others unaffected.

This study has a number of limitations. We mentioned above the issue with possible correlation between the program participation and exit risks. Second, as all the differences-in-differences type of analyses, it relies on the assumption that the group-specific differences in time trends are correctly taken into account.

Further work is needed to analyse the inflow effect and assess the possibility to use the regression discontinuity identification. As the reform was conducted during a long period of economic growth and hence the impact may be different during different economic conditions. Data which allows to distinguish between the different types of ALMPs would be useful.

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SISUKOKKUVÕTE

Taani tööturuprogrammide ähvardusefekt 1998 aasta reformi näitel

Antud töö analüüsib tööturuprogrammide “ähvardusefekti” – programmide mõju tööpuudusest lahkumisele veel enne programmide algust. Analüüs keskendub noortele sotsiaalabi saajatele ja nende kohta käivale nõudele, et nad on kohustatud varsti peale töötuks jäämist osalema mõnes treeningprogrammis. Enne 1998 aasta juulit kehtis see nõue noorematele kui 25 aastat, siis tõsteti vanusepiir aga 30 aastani. See eksogeenne variatsioon lubabki identifitseerida ähvardusefekti.

Töö põhineb 100% Taani sotsiaalabi saajate registril. Selekteeritakse sotsiaalabisajaate vanusegrupp 22-35 kes ei ole enne viimast töötust 52 nädalat töötud olnud.

Näitakse, et 1998 aasta reform tõi kaasa vastava grupi, 25-30 aasta vanuste sotsiaalabi saajate, varasema osalemise tööturuprogrammides. Varasem osalemine omakorda viis kiiremale töötusest välja liikumisele, vastav tõenäosus kasvas nädalas 1.3 (mehed) ning 0.4 (naised) protsendipunkti (need arvud käivad 13-20 nädalase töötuse kestuse kohta). Suhteliselt teeb see vastavalt 25 ning 8% tõusu. Maksimumi järel väheneb efekt kiiresti ning muutub negatiivseks (kuigi negatiivsed väärtused ei ole statistiliselt olulised). Mehed kaldusid reformi mõjul liikuma pigem hõivesse, naised aga haridusse. Tulemused ei kinnita mõtet, et kiirem töö saamine on seotud vähestabiilsete töödega.

Efekti on ajas kühmu-kujuline mille maksimum jääb 13-21 nädala töötuse juurde. Efekti niisuguse kuju üks võimalik seletus on järgmine: programmides osalemine otsustatakse tavaliselt kohtumisel tööturuameti konsultandiga kuid varakult algavate programmide korral võib otsusele järgnev aeg olla liiga lühike, et enne

tööd leida. Kahjuks ei võimalda käesolevad andmed seda hüpoteesi testida. Reformi mõju kahanemine 20 nädala järel võib olla seotud töötute heterogeensusega. Ainult võimekamad suudavad reformi järel kiiremini töö leida.

A. Different groups and specifications

A.1. Immigrants

The results for the immigrant subsample is given in the Table 1.1.

Table 8. Impact of the reform on the exit rate from welfare, and on the survival probability in welfare (percentage points). Immigrants.

Weeks	Effect on:							
	Exit rate				Survival probability			
	Male		Female		Male		Female	
	%pt	%	%pt	%	%pt	%	%pt	%
	<i>Exits from unemployment</i>							
6-7	-0.296 <i>0.177</i>	-20.394	0.043 <i>0.159</i>	3.760	1.653 <i>0.989</i>	1.804	-0.243 <i>0.899</i>	-0.261
12-13	-0.323 <i>0.203</i>	-19.935	0.054 <i>0.159</i>	5.352	3.147 <i>1.628</i>	3.790	-0.515 <i>1.420</i>	-0.586
20-21	0.193 <i>0.189</i>	15.072	-0.002 <i>0.147</i>	-0.213	1.632 <i>2.234</i>	2.179	-0.460 <i>1.946</i>	-0.569
35-36	-0.047 <i>0.127</i>	-4.795	-0.043 <i>0.098</i>	-6.038	1.851 <i>2.764</i>	2.865	0.061 <i>2.502</i>	0.084

Notes: The effect is given both in percentage points (%pt) and percentages (%) of the baseline value.

Standard errors in italics.

* – significant at 5% confidence level.

Selected weeks.

A.2. The effect by counties

The estimates by counties are given in Table 9. We used the same specification as for the other estimates, however, the effect was introduced

independently in all the counties. We merged the two first intervals because of the low sample size.

Table 9. The threat effect in different time intervals by counties. Regression coefficients.

interval	Males			Females		
	1-13	13-21	21-Inf	1-13	13-21	21-Inf
Aarhus Amt	0.088	0.389*	-0.113	0.104	0.300*	-0.099
	<i>0.088</i>	<i>0.103</i>	<i>0.131</i>	<i>0.092</i>	<i>0.111</i>	<i>0.131</i>
Frederiksborg Amt	0.154	0.353*	-0.076	0.009	-0.494*	-0.413*
	<i>0.109</i>	<i>0.154</i>	<i>0.221</i>	<i>0.114</i>	<i>0.181</i>	<i>0.186</i>
Fyns Amt	-0.270*	0.465*	0.164	-0.243*	0.310*	-0.070
	<i>0.101</i>	<i>0.107</i>	<i>0.136</i>	<i>0.102</i>	<i>0.115</i>	<i>0.140</i>
København Amt	0.175*	0.133	-0.052	0.137*	0.082	-0.113
	<i>0.059</i>	<i>0.074</i>	<i>0.081</i>	<i>0.059</i>	<i>0.075</i>	<i>0.082</i>
Nordjyllands Amt	-0.113	0.292*	-0.141	0.104	0.126	0.008
	<i>0.100</i>	<i>0.119</i>	<i>0.149</i>	<i>0.111</i>	<i>0.140</i>	<i>0.149</i>
Ribe Amt	0.179	-0.159	-0.548	0.070	-0.341	0.178
	<i>0.140</i>	<i>0.231</i>	<i>0.288</i>	<i>0.148</i>	<i>0.224</i>	<i>0.200</i>
Ringkøbing Amt	-0.078	-0.260	-0.642*	0.032	-0.338	-0.089
	<i>0.141</i>	<i>0.222</i>	<i>0.261</i>	<i>0.170</i>	<i>0.252</i>	<i>0.247</i>
Roskilde Amt	-0.118	0.546*	-0.736*	-0.166	-0.007	0.123
	<i>0.136</i>	<i>0.168</i>	<i>0.320</i>	<i>0.147</i>	<i>0.192</i>	<i>0.206</i>
Sønderjyllands Amt	-0.097	0.042	-0.208	-0.162	-0.215	-0.569*
	<i>0.146</i>	<i>0.197</i>	<i>0.263</i>	<i>0.172</i>	<i>0.236</i>	<i>0.279</i>
Storstrøms Amt	-0.383*	0.152	-0.265	-0.169	0.122	-0.558*
	<i>0.142</i>	<i>0.168</i>	<i>0.221</i>	<i>0.150</i>	<i>0.188</i>	<i>0.249</i>
Vejle Amt	0.112	0.066	-0.096	0.107	-0.146	-0.118
	<i>0.109</i>	<i>0.153</i>	<i>0.185</i>	<i>0.130</i>	<i>0.179</i>	<i>0.185</i>
Vestsjællands Amt	-0.005	0.080	-0.679*	-0.255	-0.098	-0.544*
	<i>0.126</i>	<i>0.184</i>	<i>0.280</i>	<i>0.151</i>	<i>0.188</i>	<i>0.224</i>
Viborg Amt	-0.109	0.369*	-0.217	0.136	0.385	0.111
	<i>0.144</i>	<i>0.175</i>	<i>0.230</i>	<i>0.175</i>	<i>0.223</i>	<i>0.265</i>
Bornholm	-0.047	0.729	-0.574	-0.008	0.326	-0.281
	<i>0.410</i>	<i>0.421</i>	<i>0.816</i>	<i>0.408</i>	<i>0.498</i>	<i>0.649</i>

B. Construction of welfare spells

The welfare spells are constructed in such a way that they include welfare, ALMP and various other income transfers. We define welfare spell as a spell where unemployment starts with welfare. A welfare period may follow employment, education or long (more than 5 weeks) non-participation. The welfare spell is considered to end with either employment, non-participation (over 5 weeks), or education. In particular, if the individual began to receive unemployment benefits instead of social assistance, it is still considered as a continuing welfare spell. This is because we are more interested in transitions to employment and not to a different type of income transfer.

The DREAM states (see DREAM (2005)) are aggregated as follows:

activation 132, 721

activation, continuation 211, 212, 213, 214, 215, 221, 222, 223, 224, 232, 311, 312, 313, 314, 315, 321, 322, 323, 324, 331, 332, 339

censored 811, 831

education 241, 242, 243, 244, 245, 246, 247, 248, 249, 341, 342, 343, 344, 345, 346, 347, 348, 349, 413, 521, 651, 652, 661, 662

employed 362

non-participation 412, 741, 745, 751

welfare 131, 711, 712, 714

welfare, continuation 111, 112, 113, 121, 122, 123, 411, 413, 414, 713, 731, 743, 761, 762

A welfare spell must begin with at least a week in a *welfare* state. It is considered to last until minimum a week in a state, included neither in *welfare* nor *welfare, continuation*. This is because in many cases welfare recipients move to states which are not primarily welfare-related (e.g. child care leave). The same is true for the activation states.