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The Effects of Active Labour Market Policies for Immigrants Receiving Social Assistance in Denmark

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Abstract

We estimate the effect of active labour market programmes on the exit rate to regular employment for non-western immigrants in Denmark who receive social assistance. We use the timing-of-events duration model and rich administrative data. We find large positive post-programme effects, and, surprisingly, even most in-programme effects are positive. The effects are largest for subsidized employment programmes, but effects are also large and significant for direct employment programmes and other programmes. The effects are larger if programmes begin after six months of unemployment. Implications of our estimates are illustrated by calculating effects on the duration to regular employment over a five-year period.

JEL Classification: J64, J24, J68, J61, C41

Keywords: Programme evaluation, duration analysis, timing-of-events model

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1. Introduction

In most European countries employment rates of non-western immigrants are very low compared to employment rates of natives (OECD, 2005), and this has become a major policy issue because of the important consequences for aggregate labour supply, economic growth and the long-run fiscal sustainability issues. Furthermore, it is often argued that labour market integration of immigrants may be important for social integration and cohesion, and there may be long-term effects through integration of children of immigrants.

In this paper, we investigate the effect of active labour market programmes (ALMPs) on the duration until regular employment for non-western immigrants in Denmark receiving social assistance (cash benefits). The reason why we focus on social assistance recipients is that the majority of non-western immigrants in Denmark are not members of an unemployment insurance fund, implying that they are not entitled to unemployment insurance benefits when they become unemployed; instead they receive social assistance, and they are heavily over-represented among social assistance recipients, especially among long-term recipients.

Like other recipients of social assistance in Denmark, immigrants are offered active labour market programmes administered by the job centres. Because a large fraction of non-western immigrants are social assistance recipients, it is very important to assess whether these programmes have positive effects on immmigrants' employment prospects. If some programmes show positive effects, further targeting of such programmes to immigrants may have large positive effects on labour market integration and, indirectly, on social integration in general.

We use rich administrative data covering all immigrants in Denmark, and we employ the timing-of-events duration model of Abbring and van den Berg (2003).[1] We find large positive post-programme effects, and, surprisingly, most in-programme effects are positive too. We find the largest effects for subsidized employment programmes, but effects are also large and significant for direct employment programmes as well as for other programmes. Effects are larger for programmes beginning after six months of unemployment. Implications of our estimates are illustrated by calculating marginal effects on the expected duration to regular employment over a five-year period for typical starting times and programme durations. Subsidized employment programmes shorten the social assistance spell by about 10 months for women and 15 months for men. The effect of direct employment programmes is 3.7 months for women and 4.6 months for men, and the effect of other programmes is 1.5 months for women and 2.6 months for men.

Only very few papers have investigated the effects of ALMPs specifically for immigrants. Clausen *et al.* (2009) study effects of programmes offered to *newly arrived* non-western immigrants in Denmark. They find that post-programme effects on the hazard rate to regular employment are significantly positive for wage subsidy programmes, but not for other types of programmes. Bolvig *et al.* (2003) reach a similar conclusion investigating effects of ALMPs for social assistance recipients in the second largest municipality in Denmark, but they do not estimate separate effects for natives and immigrants.

The overall finding in previous studies on programmes for unemployed workers is that earnings effects as well as employment effects are small; see the surveys in Stanley *et al.* (1999), Heckman *et al.* (1999), Kluve (2006), and Card *et al.* (2010). Stanley *et al.* (1999) summarise the effects of several US programmes. They find that temporary wage subsidy programmes increase the probability of finding jobs in the subsidy period, but not in the long run, and that job search courses and counselling shorten unemployment duration. The surveys in both Stanley *et al.* (1999) and Heckman *et al.* (1999) conclude that effects are heterogeneous: some ALMPs may have positive effects for unemployed with a weak position in the labour market, but for other groups the effects are smaller if at all positive. Our findings of rather strong positive effects for non-western immigrants in Denmark are consistent with these previous results, since these immigrants in general have a weak position in the Danish labour market because of language problems and a low level of education or non-transferable education from their country of origin. The findings in the surveys of European labour market programmes by Kluve (2006) and Card *et al.* (2010) are similar to those for the US: 'private-sector incentive programmes' (including wage subsidies) and 'services and sanctions' (including job search assistance, counselling, and sanctions for non-compliance) typically have positive employment effects, whereas 'traditional labour market training' (including classroom training and on-the-job training) has much smaller and often insignificant effects, and 'direct employment programmes in the public sector' are rarely effective and often have negative employment effects. Card *et al.* (2010) do show, however, that these negative effects tend to become smaller when effects are studies over a longer time perspective.

This paper is organized as follows. Section 2 describes the institutional setting. Section 3 develops the econometric model. Section 4 describes the data used in the empirical analysis. Section 5 presents the results. Section 6 concludes and discusses policy implications.

2. Institutional setting

In Denmark, membership of an unemployment insurance fund is voluntary, and membership of a given fund may be restricted by education and previous employment. Only members will receive UI benefits if they become unemployed. Non-insured workers who become unemployed may instead receive social assistance benefits which are means-tested. As discussed above, we focus on non-insured immigrants in this paper because there are considerably more non-western immigrants who are non-insured than insured, and, in particular, immigrants are over-represented among long-term recipients of social assistance. Therefore, the effect of programmes aimed at labour market integration of non-western immigrants receiving social assistance is of particular interest.

Social assistance recipients will receive ALMP offers from the local authorities, and they have to participate in such a programme in order to remain eligible for social security benefits, which are of unlimited duration. A wide range of ALMPs are being used. In this paper we distinguish between three types: employment with a wage subsidy (mainly in the private sector), direct employment programme (mainly in the public sector), and other programmes which include education, training, and counselling programmes.

According to national law, persons should be offered participation in a programme within 12 months from the beginning of the social-assistance spell.

3. Econometric model

We use the timing-of-events duration model of Abbring and van den Berg (2003). We model the duration of the social assistance spell to regular employment simultaneously with the duration from the beginning of the social assistance spell until entry into active labour market programmes. The duration of the social assistance spell includes the time spent in ALMPs. The model takes account of non-random selection into these programmes with respect to observable and unobservable covariates. Assuming mixed proportional hazard (MPH) rates and no anticipation effects, the treatment effects (i.e. the effects of participating in labour market programmes) are non-parametrically identified; see Abbring and van den Berg (2003). The no-anticipation assumption requires that a treatment starting at time t should not affect the outcome state (employment or non-employment) before time t. This may be a reasonable assumption in the present application since typically social assistance recipients are not able to predict neither time of treatment nor the specific programme to which they may be assigned. First of all, municipalities have a large degree of discretion regarding the timing of treatment, some offer programmes at a very early stage of social assistance receipt, while others typically do not meet the 12-month criterion. In addition, there is a significant variation regarding assignment to ALMPs between case workers within municipalities, and finally programme participation decisions are taken at meetings with case workers, the timing of which is also random to some extent. Thus, the starting times vary a lot for each category of programmes, and for all types of programmes taken together the standard deviation of duration until treatment is 15 months; see Table 1 (in the next section).

Given the no-anticipation and MPH assumptions, no exclusion restrictions are needed. The intuition behind the identification strategy intrinsic to the timing-of-events model is that there is some random variation in the duration until treatment. This enables a separation between the treatment effect and the unobserved heterogeneity, which is assumed time-invariant.

The baseline hazard rate is modelled flexibly by a piecewise constant function, and time-varying variables are used for modelling in- and post-programme effects of ALMPs.

Normalising the time at which immigrants begin a social assistance spell to zero, the non-negative stochastic variables T_u and T_p measure duration until employment and duration until programme participation, respectively. By construction, $T_p \leq T_u$. If $T_p < T_u$, the immigrant participates in a programme, and if $T_p = T_u$, he does not (the duration until participation is right-censored).

Let $x(t)$ be a vector of observed time-varying variables, and let ν_u and $\nu_p = (\nu_{p1},...,\nu_{pJ})$ denote unobserved variables affecting the hazard rates to employment and to participation in each of the J programmes, respectively. The hazard rate to participation in programme j is

$$q_{pj}\left(t_p \mid x\left(t_p\right),\nu_{pj}\right) = \lambda_{pj}\left(t_p\right)\exp\left(x\left(t_p\right)\beta_{pj} + \nu_{pj}\right) \tag{1}$$

where $\lambda_{pj}\left(t_p\right)$ are piecewise constant baseline hazard rates,

$$\lambda_{pj}\left(t_p\right) = \sum_{m=1}^{M} \gamma_{pjm} 1\left\{h_{m-1} \le t_p < h_m\right\}, \quad h_0 = 0, h_M = \infty, \; h_0 < K < h_M . \tag{2}$$

In this application, where the time unit is months, $h_1 = 3$, $h_2 = 6$, $h_3 = 12$, $h_4 = 24$. The hazard rate to programme participation is the sum of the hazard rates to the specific programmes:

$$q_p\left(t_p \mid x\left(t_p\right),\nu_p\right) = \sum_{j=1}^{J} q_{pj}\left(t_p \mid x\left(t_p\right),\nu_{pj}\right). \tag{3}$$

Participation in the J different programmes is denoted by two time-varying $1 \times J$-dimensional vectors of dummy variables, $d_1(t)$ and $d_2(t)$. The jth element of $d_1(t)$ is equal to 1 if the individual is participating in programme j at time t, and 0 otherwise; at most, one element of $d_1(t)$ is equal to 1 at time t. Similarly, the jth element of $d_2(t)$ is equal to 1 if the individual participated in programme j before time t, but is no longer participating, and 0 otherwise. We only consider effects of the first programme during a social assistance spell; if a person participates in a second programme, the observation is right-censored at the time this participation begins.

The exit rate to employment is given by

$$q_u\left(t_u \mid x\left(t_u\right), d_1\left(t_u\right), d_2\left(t_u\right), \nu_u\right) = \lambda_u\left(t_u\right)\exp\left(x\left(t_u\right)\beta_u + d_1\left(t_u\right)\delta_1 + d_2\left(t_u\right)\delta_2 + \nu_u\right) \tag{4}$$

where the baseline hazard $\lambda_u(t_u)$ has a form similar to (2), and β, δ_1 and δ_2 are vectors of parameters; β is the effect of the control variables, δ_1 the in-programme effect, and δ_2 the post-programme effect after completed programme participation. The model takes account of endogeneity of $d_1(t)$ and $d_2(t)$ through possible correlation between the unobserved variables ν_u and ν_p.

Let c be a dummy variable equal to 1 if the person exits to employment and 0 otherwise; similarly, let $c_j = 1$ if the person participates in programme j. Then the contribution to the likelihood function of a specific spell, given observed variables, is

$$L(\nu_u,\nu_p) = \left[\prod_{j=1}^{J} q_{pj}\left(t_{pj} \mid x(t_{pj}),\nu_{pj}\right)^{1\{t_{pj}<t_u\}c_j}\right] q_u\left(t_u \mid x(t_u),d_1(t_u),d_2(t_u),\nu_u\right)^{c} \times \exp\left[-\int_0^{t_p} q_p\left(s \mid x(s),\nu_p\right)ds - \int_0^{t_u} q_u\left(s \mid x(s),d_1(s),d_2(s),\nu_u\right)ds\right] \tag{5}$$

The likelihood function is

$$L = \int\int L(\nu_u,\nu_p)\,dF(\nu_u,\nu_p) \tag{6}$$

where F is the distribution function of (ν_u,ν_p). We take account of the fact that a given person may have more than one social assistance spell. To simplify the estimation, we apply a discrete distribution (Heckman and Singer, 1984). Specifically, we assume that (ν_u,ν_p) has a discrete distribution with 2×2 mass points. This implies that the unobserved components of the selection into the J different programmes are perfectly correlated, but the correlation between ν_u and ν_p is unrestricted.

3.1 Marginal effects on the hazard rate and on the duration to employment

The marginal effects of the control variables on the hazard rate to employment are given by the coefficients β_u (ignoring the effects via programme participation). Thus, the coefficient of the h^{th} explanatory variable, β_{uh}, is equal to the change in the logarithm of the hazard rate to employment when this variable is changed by 1 unit holding all other variables constant. Similarly, δ_1 and δ_2 are the marginal in-programme and post-programme effects,

respectively, of participation in labour market programmes on the log hazard rate to employment.

The total effect of participation in a specific programme on the expected duration until employment depends of course on d_1 and d_2, but also on the timing and duration of the programme and on the basic level of the hazard rate to employment (since d_1 and d_2 affect the hazard rate multiplicatively) determined by individual characteristics. We calculate the marginal effects of programme participation for a 'reference person' given a range of typical programme starting times and durations. These marginal effects are calculated as the difference in expected mean duration to employment with and without programme participation. In these calculations we use restricted mean durations, i.e. expected mean durations up to a predetermined endpoint, T_{max} (which is taken to be five years).

Let $z(t) = (x(t), d_1(t), d_2(t))$ denote the vector of covariates. Let $z^1(t)$ denote the covariates when an individual is assigned to a given programme at a given time and with a given duration, and let $z^0(t)$ denote covariates when the individual is not assigned to any programme. Then the marginal effect of this programme is defined as the difference in restricted expected durations:

$$M = E_{T_{\max}}\left[T_u \mid z^1(t)\right] - E_{T_{\max}}\left[T_u \mid z^0(t)\right] \tag{7}$$

where the restricted expected duration is the expected area under the survivor curve up to time T_{max}

$$E_{T_{\max}}\left[T_u \mid z(t)\right] = E\left[\int_0^{T_{\max}} S(r)\,dr\right] \tag{8}$$

and the survivor function is calculated from the hazard rate:

$$S(t) = \exp\left(-\int_0^t q_u(s \mid z(s))ds\right). \tag{9}$$

Details on the calculation of marginal effects are described in Section 5.

4. Data

We use data from several administrative registers, which are collected and merged by Statistics Denmark. Our data set covers the period 1984-2004 and contains all immigrants in Denmark, but we restrict the analysis to immigrants from non-western countries.[2]

We further restrict the sample to persons who were residents in Denmark in 1997 or 1998 due to the fact that there was a major institutional change in 1999 affecting newly arrived immigrants, and also that the administrative data on ALMP participation for immigrants who got their residence permit in 1999 are incomplete. Also, we restrict the analysis to immigrants who began a social assistance spell between January 1997 and December 2003 due to the fact that data on participation in ALMPs are only available from 1997 onwards. Finally, we restrict the analysis to social assistance spells where the immigrants were 18-66 years of age when the spell began.

The final estimation sample contains 66,768 social assistance spells, 31,215 for women and 35,553 for men; see Table 1.

The upper panel of Table 1 shows figures for both women and men. For 38% of the social assistance spells, the immigrant is participating in an activation programme. Of those who participate in programmes, 7.4% concerns employment with a wage subsidy, and 26.7% direct employment programmes. Durations of each type of activation programme vary a lot (mean duration is 5-6 months with a standard deviation of 4-6 months), but one reason for this is that some programmes are interrupted, for instance because the participant finds a job. There is also a large variation in the time of entry into programmes: On average, immigrants who participate in a programme enter about 13 months after the start of the social assistance spell, and the standard deviation is 15 months. 34% of all the immigrant social assistance spells have employment as destination state. The percentage is 39 for spells not involving ALMP participation and 26 for spells with ALMP participation, varying from 51% for employment with wage subsidy to 20 for 'other programmes'.

[See Table 1]

The two lower panels in Table 1 show figures for women and men, separately. The fraction participating in employment programmes is larger for men, whereas the fraction participating in 'other programmes' is larger for women. The average duration of direct employment programmes and 'other programmes' is about 1 month longer for women than for men, and women are enrolled in these programmes much later than men (about 3 and 6 months later,

respectively). The probability of employment as the destination state is considerably larger for men than for women, especially for social assistance spells not involving ALMP participation and for spells with participation in 'other programmes'.

Durations of the social assistance spells are in general very long and considerably longer for women than for men. This is illustrated in Figure 1 by non-parametric Kaplan-Meier survival functions. For women, the probability that a social assistance spell lasts at least 12, 24, 48 and 84 months is 79, 71, 61 and 54%, respectively. For men the corresponding percentages are 67, 54, 43 and 37.

[See Figure 1]

We estimate separate models for men and women. Control variables in the analyses are measured in the year where the social assistance spell began. Controls are variables for years since migration, country of origin, type of residence permit, age, whether the person has children in different age groups, whether the person is single, working experience in Denmark, type of municipality, education, health indicators based on the number of yearly doctor visits, the local unemployment rate in the commuting area of the municipality, and the calendar year in which the social assistance spell began. Table A1 in the Appendix contains descriptive statistics for the control variables.

5. Results

Table 2 shows the main estimation results. The first columns show the estimation result for women, and the last columns the result for men. Table 2 shows results for parameters related to ALMP participation only. Estimated parameters of other explanatory variables are shown in the Appendix, Table A2. For each of the three types of ALMPs, Table 2 shows parameter estimates for in-programme and post-programme effects. Furthermore, we allow these parameters to differ according to whether the immigrant entered the programme earlier than six months after the start of the social assistance spell, or later. Thus, the table shows for each gender six estimates of in-programme effects and six estimates of post-programme effects. All estimates of post-programme effects are positive and clearly significant. Employment with a wage subsidy has the largest effect followed by direct employment programmes. For all three types of ALMPs, the post-programme effects on the hazard rate to employment are larger if the activation period begins after six months (rather than during the first six months of the social assistance spell).

[See Table 2]

Somewhat surprisingly, most in-programme effects are also positive, indicating that ALMP participation increases the hazard rate to ordinary employment also during participation. The standard finding here is one of lock-in effects during programme participation. The only exception is for subsidized employment spells which begin less than six months after the start of the social assistance spell; here we do find a lock-in effect, but it is only marginally significant. Clausen *et al.* (2009) also find positive, but insignificant, in-programme effects for subsidized employment programmes for newly arrived immigrants. Another surprising feature of the estimates is that the positive in-programme effect is larger than the post-programme effect for direct employment programmes and 'other programmes' beginning at least six months after the start of the social assistance spell (and for males the two types of effects are about equal in size for direct employment and 'other' programmes beginning within the first six months of the social assistance spell).

One reason why the estimated in-programme effects are positive and rather large may be that immigrants on social assistance benefits in general have weak qualifications, including weak host country language proficiency, and only a limited knowledge of the Danish labour market. Participating in ALMPs may therefore be particularly important for immigrants' employment chances, also because participation may serve as a positive signal to

employers who may have more difficulties assessing the qualifications of immigrants than of natives.

The estimated parameters – and thereby the relative effects on the hazard rate to employment – are generally larger for women than for men, but the initial level of the hazard rate to employment is considerably lower for women than for men. The post-programme parameter of subsidized employment starting after six months for women is 2.4 indicating a tenfold increase in the hazard rate to employment. The corresponding parameter for men (1.9) indicates a fivefold increase in the hazard rate. The corresponding in-programme parameters of 1.3 and 0.84 indicate increases in the hazard rate to employment of 277% and 132%, respectively.

Table 3 shows the marginal effects of participation in activation programmes on the restricted mean duration to employment over a five-year period, calculated from a large number of typical programme spells. The effects are calculated for a 'reference person'. The characteristics chosen for this person (which affect the size of the marginal effects, but not their sign or statistical significance) are given by the reference categories of each set of categorised variables (less than 5 years since migration, from former Yugoslavia, refugee, age above 45 years, has children below 2 years of age (but no older children), cohabiting, no working experience in Denmark, lives in a big city, education unknown, 1-4 visits to the doctor, the social assistance spell began in 1997) and by the average of the local unemployment rate. If such a person did not participate in any activation programme, the restricted mean duration to employment would be 55 months for a woman and 42.4 months for a man (see the first row in Table 3). These numbers are very large; the maximum would be 60 months (given that it is restricted to be at most 5 years).

Given the values of the control variables, the restricted mean duration when participating in a given programme depends on the duration until entering the programme and the duration of the programme. Starting time and duration of a given programme vary a lot (see Table 1). Therefore, we calculate 'the' marginal effect of a given programme as an average over several typical variants of the programme defined by starting time and duration. Specifically, we use the following simplifying assumptions. Programme spells may have three different starting times and durations defined by the first, second and third quartile in the observed distributions of starting times and durations (for women and men, respectively). These quartiles are shown in Table A3 in the Appendix. Thus, there are nine different types of a given programme, and it is assumed that each type has equal probability 1/9.

Participation in ALMPs leads to a large reduction in the restricted mean duration to employment as shown in Table 3. Employment with a wage subsidy shortens the restricted mean duration by 10 months for women and by 15 months for men, which are very large effects. The effects of direct employment programmes and 'other ALMPs' are smaller, but also large; they reduce restricted mean durations by about 4 and 2 months, respectively. Again, the estimated effects are larger for men than for women.

[See Table 3]

The estimated marginal effects in Table 3 are clearly significant. Standard errors of the marginal effects are calculated from simulations of the estimated parameters. Given the estimated parameters and their estimated covariance matrix, we draw 500 random parameter vectors, and calculate the marginal effects for each parameter vector. The estimated standard error of the marginal effect of a given programme is the standard deviation of the 500 calculated marginal effects of this programme.

To our knowledge, only one earlier study has focused on effects of ALMPs for immigrants receiving social assistance. Thus, Clausen *et al.* (2009) analysed effects for *newly arrived* immigrants in Denmark and found significant effects for subsidized employment (a reduction in the restricted mean duration to employment of about four months over a four-year period), but not for direct employment programmes or other programmes. Comparing our results to the broader literature on effects of ALMPs on labour market outcomes (see the surveys in Stanley *et al.*, 1999; Heckman *et al.*, 1999; Kluve and Schmidt, 2002; Kluve, 2006; Card *et al.*, 2010), the positive effect of employment with a wage subsidy on the hazard rate to regular employment is consistent with most previous studies. Our finding of significant and rather large effects for direct employment programmes is less consistent with previous findings, since most studies find only small and often insignificant effects. Our category 'other programmes', for which we find a small but significant effect, includes very different programmes such as training, special employment programmes and counselling. Most previous studies find positive effects of counselling, marginally positive effects of special employment programmes and small positive or insignificant effects of training.

6. Discussion and conclusion

Using the timing of events duration model and a large administrative data set, this study finds large and substantial positive effects of having participated in ALMPs on the hazard rate to regular employment for immigrants receiving social assistance in Denmark. We estimate separate effects for three categories of programmes, and we allow both in-programme and post-programme effects to differ according to whether the program began before or after 6 months. The post-programme effects are largest for subsidized employment programmes. We also find positive in-programme effects except for subsidized employment programmes starting early. Both lock-in and post-programme effects are much larger when the program begins at least six months after the start of the social assistance spell.

The total effect of ALMP participation depends on both in-programme and post-programme effects. To assess the overall effect, we calculate the marginal effects on the mean duration to regular employment over a five-year period, given a range of typical starting times and durations of ALMP sub-spells. Subsidized employment programmes reduce the duration of social assistance spells by 10-15 months, direct employment programmes reduce it by about 4 months, and other programmes by about 2 months.

The finding that subsidized employment is the most effective type of ALMP is consistent with an earlier study focussing on newly arrived immigrants and with other studies of ALMP effects for unemployed in general. However, this type of ALMP is by far the least frequently applied in Denmark; only 7.4% of ALMPs offered to immigrants on social assistance are subsidized employment programmes (4.9% for females and 9.6% for males). Our results thus indicate that labour market integration of immigrants may be improved considerably by targeting subsidized employment programmes to unemployed immigrants.

Since we also estimate considerable positive effects of direct employment programmes and other programmes for immigrants – effects which are larger than similar effects for unemployed in general found in other studies – offering these programmes to a larger number of unemployed immigrants may also be beneficial to labour market integration and labour supply in general.

However, even though our results indicate large beneficial effects of an intensified use of ALMPs for immigrants, it may not be optimal to offer these programmes at a very early state of the unemployment/social assistance spell since our estimates indicate much larger positive effects on the hazard rate to employment if the ALMPs begin after six months of social assistance receipt. Such a decision requires weighing the costs of programmes against the saved social assistance.

In conclusion, we have found very large positive employment effects of ALMPS for non-western immigrants, suggesting a much more active role for activation policies in national strategies for integrating immigrants into the country. Also, we would definitely advocate more research on the topic.

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Dansk Sammenfatning

Effekten af aktivering for ikke-vestlige indvandrere på kontanthjælp

Formålet med dette papir er at estimere effekten af aktivering på varigheden til ordinær beskæftigelse for ikke-vestlige indvandrere på kontanthjælp. Der tages højde for, at det ikke er tilfældigt, hvem der bliver aktiveret i bestemte foranstaltninger (ved brug af timing-of-events-metoden). Analysen er baseret på registerdata for kontanthjælpsforløb i perioden 1997-2004 for indvandrere, der kom til Danmark før 1999. Resultaterne viser, at aktivering har en stor positiv effekt på indvandrernes sandsynlighed for at komme i ordinær beskæftigelse. Effekterne er størst for ansættelse med løntilskud, men de er også store for virksomhedspraktik og anden aktivering. Effekterne er noget større for mænd end for kvinder. Den gennemsnitlige forventede varighed på kontanthjælp inden for en femårsperiode er ca. 42 måneder for mænd. Ansættelse med løntilskud afkorter denne periode med ca. 15 måneder, virksomhedspraktik afkorter den med ca. 4½ måned og anden aktivering afkorter den ca. 2½ måned. For kvinder er de tilsvarende reduktioner i varigheden på kontanthjælp henholdsvis ca. 10, 3½ og 1½ måned.

Appendix

Tables A1 and A2 show descriptive statistics and parameter estimates, respectively, for control variables. Table A3 shows characteristics of ALMP spells used to calculate marginal effects, namely the quartiles in the distributions of duration of social assistance spells until start of programme and time spent in the programme, respectively.

[See Table A1]

[See Table A2]

[See Table A3]

Table 1. Descriptive statistics of immigrants' social assistance spells and ALMP participation

	Social assistance spells		ALMP spells	Duration of ALMP subspells (months)		Duration of spell until start of ALMP (months)		Spells with employment destination	
	N	per cent	per cent	Mean	SD	Mean	SD	N	per cent
Females and males									
Social assistance spells with ALMPs	25,541	38.3	100.0	5.8	6.1	13.4	15.3	6,664	26
- Employment with wage subsidy	1,893	2.8	7.4	5.3	4.2	8.6	10.2	959	51
- Direct employment programme	6,814	10.2	26.7	5.7	6.0	11.2	13.1	2,273	33
- Other programmes	16,834	25.2	65.9	5.9	6.3	14.8	16.4	3,432	20
Social assistance spells with no ALMP	41,227	61.7						15,916	39
All	66,768	100.0		5.8	6.1	13.4	15.3	22,580	34
Females									
Social assistance spells with ALMPs	11,802	37.8	100.0	6.3	6.3	16.2	17.5	2,575	22
- Employment with wage subsidy	573	1.8	4.9	5.4	4.2	8.5	10.1	278	49
- Direct employment programme	2,958	9.5	25.1	6.2	6.1	13.1	14.9	953	32
- Other programmes	8,271	26.5	70.1	6.4	6.5	17.9	18.4	1,344	16
Social assistance spells with no ALMP	19,413	62.2						5,984	31
All	31,215	100.0		6.3	6.3	16.2	17.5	8,559	27
Males									
Social assistance spells with ALMPs	13,739	38.6	100.0	5.3	5.9	10.9	12.7	4,089	30
- Employment with wage subsidy	1,320	3.7	9.6	5.2	4.3	8.7	10.2	681	52
- Direct employment programme	3,856	10.8	28.1	5.3	5.9	9.8	11.3	1,320	34
- Other programmes	8,563	24.1	62.3	5.3	6.0	11.7	13.6	2,088	24
Social assistance spells with no ALMP	21,814	61.4						9,932	46
All	35,553	100.0		5.3	5.9	10.9	12.7	14,021	39

Table 2. Estimates of effects of participation in ALMPs on the hazard rate to employment

	Females			Males		
	Coeff.	SE		Coeff.	SE	
ALMP spell begins less than 6 months after start of social assistance spell						
Lock-in effects:						
Employment with wage subsidy	-0.2394	0.1505		-0.1887	0.0917	**
Direct employment programme	0.4131	0.0702	***	0.3791	0.0537	***
Other ALMPs	0.1693	0.0616	***	0.1588	0.0446	***
Post-programme effects:						
Employment with wage subsidy	1.4287	0.1333	***	1.2430	0.0805	***
Direct employment programme	0.6844	0.0920	***	0.3757	0.0718	***
Other ALMPs	0.2369	0.0769	***	0.1240	0.0570	**
ALMP spell begins at least 6 months after start of social assistance spell						
Lock-in effects:						
Employment with wage subsidy	1.3192	0.1786	***	0.8382	0.1100	***
Direct employment programme	1.5442	0.0695	***	1.0925	0.0607	***
Other ALMPs	0.9390	0.0563	***	0.7245	0.0505	***
Post-programme effects:						
Employment with wage subsidy	2.4127	0.1235	***	1.8976	0.0738	***
Direct employment programme	1.2847	0.0871	***	0.4565	0.0861	***
Other ALMPs	0.5277	0.0701	***	0.3266	0.0607	***

Note: ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.
Parameter estimates for the other explanatory variables and for the duration dependent constant terms are shown in the Appendix, Table A2.

Table 3. Marginal effects of labour market programmes: Change in restricted mean duration of social assistance spells over a five-year period (measured in months)

	Females			Males		
	Restricted mean duration	Marginal effect	SE	Restricted mean duration	Marginal effect	SE
No ALMP	55.0			42.4		
Employment with wage subsidy	45.1	-9.9	1.3	27.3	-15.1	1.0
Direct employment programme	51.4	-3.7	0.5	37.8	-4.6	0.6
Other ALMPs	53.5	-1.5	0.2	39.8	-2.6	0.4

Note: The calculation of marginal effects is described in the text.

Table A1. Descriptive statistics for controls

	Females				Males			
Variable	Mean	SD	Min	Max	Mean	SD	Min	Max
Years since migration: 5-9	0.248	0.432	0	1	0.232	0.422	0	1
Years since migration: 10-19	0.183	0.386	0	1	0.235	0.424	0	1
Years since migration: 20-	0.166	0.372	0	1	0.176	0.381	0	1
From Turkey	0.151	0.358	0	1	0.114	0.318	0	1
From Europe (except former Yugoslavia)	0.090	0.286	0	1	0.082	0.274	0	1
From Africa (except Somalia)	0.071	0.256	0	1	0.081	0.273	0	1
From Somalia	0.096	0.294	0	1	0.120	0.325	0	1
From American countries	0.021	0.144	0	1	0.017	0.129	0	1
From Afghanistan	0.018	0.135	0	1	0.023	0.148	0	1
From Iraq	0.076	0.264	0	1	0.118	0.322	0	1
From Iran	0.050	0.218	0	1	0.063	0.243	0	1
From Sri Lanka	0.037	0.188	0	1	0.025	0.155	0	1
From other Asian countries	0.088	0.284	0	1	0.044	0.205	0	1
From Pakistan	0.043	0.203	0	1	0.037	0.188	0	1
From Lebanon	0.059	0.236	0	1	0.087	0.282	0	1
From other countries	0.041	0.199	0	1	0.043	0.203	0	1
Family reunified to a refugee	0.128	0.334	0	1	0.044	0.204	0	1
Family reunified to non-refugee	0.169	0.375	0	1	0.099	0.298	0	1
EU residence permit	0.035	0.183	0	1	0.020	0.140	0	1
Unknown type of residence permit	0.313	0.464	0	1	0.343	0.475	0	1
Age 16-24	0.215	0.411	0	1	0.189	0.391	0	1
Age 25-34	0.400	0.490	0	1	0.378	0.485	0	1
Age 35-44	0.264	0.441	0	1	0.309	0.462	0	1
Children 3-6 years of age	0.194	0.395	0	1	0.122	0.327	0	1
Children 7-17 years of age	0.205	0.404	0	1	0.123	0.329	0	1
No children	0.321	0.467	0	1	0.531	0.499	0	1
Single	0.331	0.471	0	1	0.423	0.494	0	1
Working experience up to 1 year	0.224	0.417	0	1	0.279	0.448	0	1
Working experience 1-3 years	0.112	0.315	0	1	0.175	0.380	0	1
Working experience 3 years or more	0.064	0.245	0	1	0.120	0.325	0	1
Lives in provincial town municipality	0.343	0.475	0	1	0.326	0.469	0	1
Lives in a rural district	0.113	0.317	0	1	0.097	0.296	0	1
Danish education	0.166	0.372	0	1	0.217	0.413	0	1
Years of Danish education	1.694	3.858	0	20	2.205	4.281	0	20
Foreign education	0.346	0.476	0	1	0.325	0.468	0	1
Years of foreign education	3.876	5.656	0	18	3.957	5.962	0	18
No visits to doctors	0.150	0.357	0	1	0.241	0.428	0	1
5-9 visits to doctors	0.270	0.444	0	1	0.207	0.405	0	1
10-19 visits to doctors	0.220	0.414	0	1	0.108	0.310	0	1
20 or more visits to doctors	0.076	0.265	0	1	0.025	0.156	0	1
Local unemployment rate x 10	0.621	0.150	0.326	1.361	0.622	0.150	0.317	1.361
Social assistance spell began 1998	0.192	0.394	0	1	0.194	0.396	0	1
Social assistance spell began 1999	0.178	0.382	0	1	0.191	0.393	0	1
Social assistance spell began 2000	0.110	0.313	0	1	0.111	0.314	0	1
Social assistance spell began 2001	0.108	0.311	0	1	0.105	0.307	0	1
Social assistance spell began 2002	0.098	0.297	0	1	0.095	0.293	0	1
Social assistance spell began 2003	0.090	0.287	0	1	0.080	0.271	0	1

Note. Reference categories are: Years since migration less than five years; from former Yugoslavia; refugee; 45-66 years of age; children 0-2 years of age; married or cohabiting; no working experience (in Denmark); lives in the metropolitan area of Copenhagen or one of the three largest provincial cities in Denmark; education unknown; 1-4 visits to doctors; spell began in 1997

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Table A2. Estimated parameters for controls in the hazard rate to employment

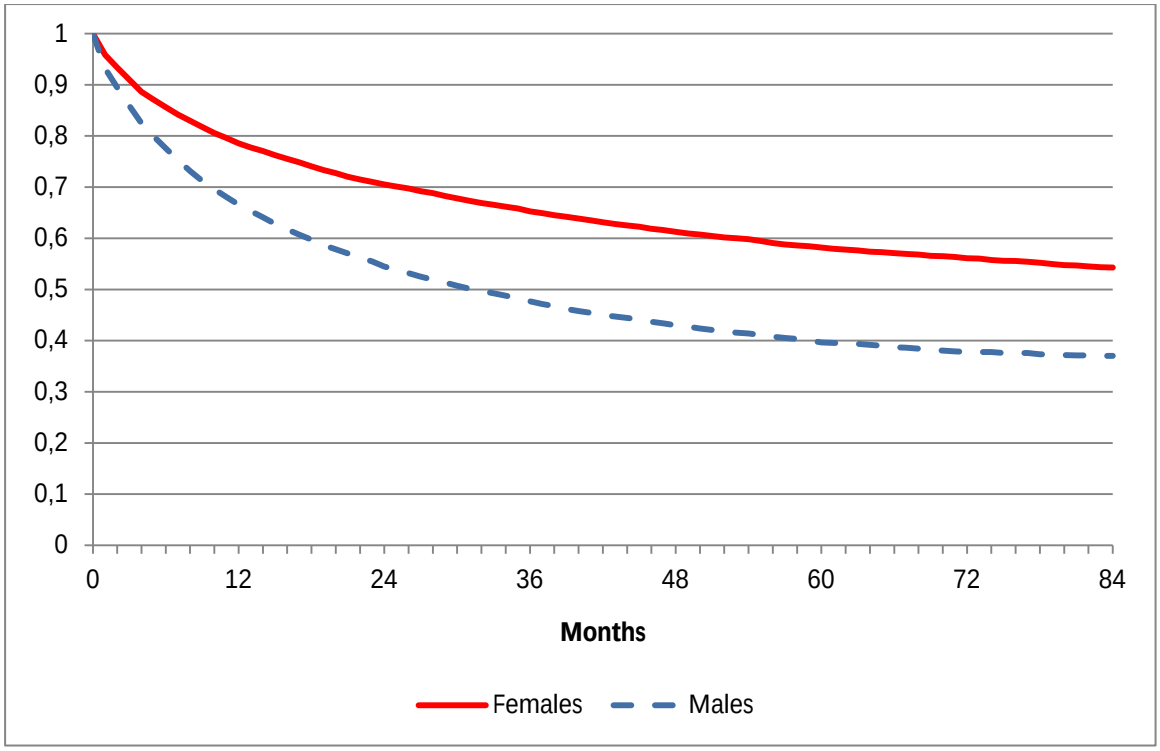
	Females			Males		
	Coeff.	SE		Coeff.	SE	
Years since migration: 5-9	0.276	0.038	***	0.134	0.029	***
Years since migration: 10-19	0.008	0.053		-0.102	0.040	***
Years since migration: 20-	-0.126	0.050	***	-0.092	0.038	***
From Turkey	-0.455	0.063	***	-0.228	0.049	***
From Europe (except former Yugoslavia)	-0.353	0.060	***	-0.322	0.048	***
From Africa (except Somalia)	-0.360	0.067	***	-0.267	0.051	***
From Somalia	-0.971	0.071	***	-0.532	0.048	***
From American countries	-0.176	0.094	*	-0.275	0.092	***
From Afghanistan	-0.574	0.124	***	-0.249	0.076	***
From Iraq	-0.851	0.076	***	-0.458	0.044	***
From Iran	-0.253	0.075	***	-0.176	0.052	***
From Sri Lanka	0.226	0.077	***	0.057	0.065	
From other Asian countries	-0.119	0.062	*	-0.170	0.056	***
From Pakistan	-0.676	0.084	***	-0.135	0.063	**
From Lebanon	-0.998	0.084	***	-0.485	0.052	***
From other countries	-0.588	0.082	***	-0.388	0.056	***
Family reunified to a refugee	-0.262	0.058	***	-0.110	0.063	*
Family reunified to non-refugee	0.074	0.052		0.117	0.044	***
EU residence permit	0.082	0.079		-0.011	0.079	
Unknown type of residence permit	-0.145	0.050	***	-0.288	0.037	***
Age 16-24	1.221	0.061	***	1.132	0.048	***
Age 25-34	1.068	0.050	***	0.799	0.037	***
Age 35-44	0.803	0.048	***	0.475	0.034	***
Children 3-6 years of age	0.299	0.038	***	0.109	0.032	***
Children 7-17 years of age	0.544	0.042	***	0.214	0.035	***
No children	0.415	0.039	***	0.035	0.034	
Single	-0.163	0.029	***	-0.095	0.031	***
Working experience up to 1 year	1.675	0.035	***	1.296	0.028	***
Working experience 1-3 years	1.860	0.044	***	1.667	0.033	***
Working experience 3 years or more	1.776	0.058	***	1.779	0.042	***
Lives in provincial town municipality	-0.078	0.032	***	0.026	0.024	
Lives in a rural district	0.111	0.045	***	0.167	0.037	***
Danish education	-1.536	0.142	***	-1.280	0.114	***
Years of Danish education	0.178	0.012	***	0.126	0.010	***
Foreign education	-0.420	0.087	***	-0.387	0.078	***
Years of foreign education	0.052	0.007	***	0.044	0.006	***
No visits to doctors	-0.163	0.043	***	0.024	0.025	
5-9 visits to doctors	-0.083	0.031	***	-0.152	0.025	***
10-19 visits to doctors	-0.346	0.035	***	-0.512	0.033	***
20 or more visits to doctors	-0.651	0.054	***	-0.899	0.067	***
Local unemployment rate x 10	-0.620	0.135	***	-0.689	0.107	***
Social assistance spell began 1998	-0.075	0.044	*	-0.117	0.034	***
Social assistance spell began 1999	-0.162	0.052	***	-0.211	0.040	***
Social assistance spell began 2000	-0.047	0.058		-0.141	0.045	***
Social assistance spell began 2001	-0.236	0.062	***	-0.207	0.049	***
Social assistance spell began 2002	-0.267	0.064	***	-0.441	0.051	***
Social assistance spell began 2003	-0.355	0.061	***	-0.415	0.048	***
Duration 0-3 months	-5.432	0.153	***	-4.171	0.118	***
Duration 3-6 months	-6.168	0.154	***	-4.931	0.120	***
Duration 6-12 months	-6.406	0.152	***	-5.113	0.119	***
Duration 12-24 months	-6.751	0.151	***	-5.410	0.118	***
Duration 24- months	-7.033	0.150	***	-5.811	0.118	***

Note. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively. The last five variables are the duration dependent constant terms. See the note to Table A1 for reference categories of the explanatory variables.

Table A3. Characteristics of ALMP spells used to calculate marginal effects: Quartiles in the distributions of duration of social assistance spells until start of programme and time spent in the programme

	Females			Males		
Quartile	First	Second	Third	First	Second	Third
	Duration until start of programme (in months)					
Employment with wage subsidy	2	5	11	2	5	11
Direct employment programme	2	7	19	2	5	13
Other programmes	3	11	26	2	6	16
	Duration of programme (in months)					
Employment with wage subsidy	3	5	7	3	5	7
Direct employment programme	2	5	7	2	3	6
Other programmes	2	4	9	2	3	6

Figure 1. Kaplan-Meier survival functions (survival until regular employment)



Endnotes

[1] The timing-of-events duration model has been used to evaluate ALMPs in several previous studies; see e.g., Richardson & van den Berg (2001), Bolvig *et al.* (2003), van den Berg *et al.* (2004), Abbring *et al.* (2005), Crépon *et al.* (2005), Lalive *et al.* 2005, 2008), Clausen *et al.* (2009) and Rosholm & Svarer (2008).

[2] Non-western countries are defined as countries which are not Nordic, not in the EU (as of May 2004), and not the US, Canada, Australia, New Zealand, Switzerland, Andorra, Liechtenstein, Monaco or San Marino.

The Effects of Active Labour Market Policies for Immigrants Receiving Social Assistance in Denmark

We estimate the effect of active labour market programmes on the exit rate to regular employment for non-western immigrants in Denmark who receive social assistance. We use the timing-of-events duration model and rich administrative data. We find large positive post-programme effects, and, surprisingly, even most in-programme effects are positive. The effects are largest for subsidized employment programmes, but effects are also large and significant for direct employment programmes and other programmes. The effects are larger if programmes begin after six months of unemployment. Implications of our estimates are illustrated by calculating effects on the duration to regular employment over a five-year period.

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