Evaluating Search Periods for Welfare Applicants: Evidence from a Social Experiment

Jonneke Bolhaar[*], Nadine Ketel[†], Bas van der Klaauw[‡]

===== FIRST DRAFT, PRELIMINARY =====

Abstract

We investigate the implications of a search period for welfare applicants on re-employment. In this period of four weeks applicants are supposed to actively search for work. To look at the implications of a search period we ran a unique field experiment in which individuals received differential treatment. We find a strong and persistent negative effect of a search period on the probability to receive welfare. The effect is significant up to six months after applying for welfare. The total amount of benefits paid out in six months is reduced by 27%. There is no spillover to other benefit schemes and the lower income from welfare benefits is almost fully (91%) compensated by more income from wages. A search period is most effective for applicants that are highly educated and younger than 40. Our findings fit in the literature that small (financial) incentives matter for welfare recipients.

JEL-codes: C21, C93, I38, J64, J08

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[*]VU University Amsterdam

[†]VU University Amsterdam, University of Amsterdam, Tinbergen Institute

[‡]VU University Amsterdam,

Address: department of economics, VU University Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands.
Email: j.a.bolhaar@vu.nl, n.ketel@vu.nl, b.vander.klaauw@vu.nl

1 Introduction

Although the Netherlands, like many Northern European countries, has quite a large budget for welfare-to-work programs, little is known about the (cost)effectiveness of these programs. The literature on program effectiveness often concentrates on programs aimed at people receiving unemployment benefits, with a relative short distance to the labor market. Welfare recipients are relatively disadvantaged workers that are at risk of leaving the labor force permanently. Given that many (reference?) countries have no limit on the number of years that an individual can receive welfare benefits potential gains of effective programs can be large.

This paper will investigate the effect of a search period for welfare applicants with potential to work. In this search period of four weeks applicants are supposed to actively search for work. Their application for welfare will only be activated if they return to the agency after the search period. The idea is to signal to the worker that receiving welfare comes with the obligation to actively search for employment. To look at the implications of such a search period we ran a unique field experiment, covering the full population of new welfare applicants with potential to work in the city of Amsterdam. Instead of randomizing the treatment over individuals, we randomized the treatment over caseworkers. Caseworkers received the instruction to apply one particular treatment to all their new incoming clients. This particular treatment we call their default option, which makes our design similar to an encouragement design (like (Behaghel et al., 2013)). We allowed caseworkers to deviate from the standard option only in cases where the standard option is really not appropriate. In this way we wanted to avoid harmful effects on welfare recipients and also make the experiment more acceptable for the caseworkers. Applicants are randomly assigned to caseworkers, so in case of sufficient compliance this design enables us to estimate the causal effect of a search period.

The experiment was implemented from April 2012 to March 2013. Compliance was substantial, under the default option "Never apply a search period" a search period was applied in 9% of the cases, under "Always apply a search period" in 55% of the cases and under "Normal policy" in 46% of the cases. Furthermore, we find that there are no observable differences of the applicants' characteristics in the three treatment groups. This means we can estimate the effect of a search period using an Instrumental Variable approach, were the

default option of the treating caseworker is used as an instrument.

We find a strong and persistent negative effect of a search period on the probability to receive welfare. The effect is significantly negative up to six months after applying for welfare. The total amount of benefits paid out in six months is reduced by 27%. There is no spillover to other benefit schemes and the lower income from welfare benefits is almost fully (96%) compensated by more income from wages. A search period is most effective for applicants that are highly educated and younger than 40. Our findings fit in the literature that small (financial) incentives matter for welfare recipients (REFERENCE). Since there are practically no costs of implementation to apply a search period, and large savings on welfare payments, it also seems a very (cost)effective method.

The remainder of the paper is structured as follows. The next section provides details about the institutional setting of the experiment. In section 3 we explain the experimental design of the field experiment and section 4 describes the data used in this paper. Section 5 discusses the empirical strategy and the identification. In section 6 we present the main results, and section 7 concludes.

2 Institutional setting

2.1 Welfare in the Netherlands

Welfare (*WWB* or *bijstand* in Dutch) serves as a safety net and provides households that have no or not enough other means of living with a minimum income level. Welfare is means tested and the benefit level depends on the composition of the household. The exact amounts for 2012 are given in figure 1, and range from 668 euro per month for a single to max. 1336 euro per month for a couple with children. If a welfare recipient finds part-time employment or has part-time employment with earnings below the welfare level, earnings have a marginal tax rate of 100%.[1] There is no maximum number of years that an individual can receive welfare benefits. Welfare recipients have to accept all jobs, independent of the match to their education or work experience.[2]

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[1]Municipalities can choose to excempt recipients from this rule for at most 6 months, during which they may keep 25% of their earnings with a maximum of € 193.

[2]A different regime applies to recipients of unemployment benefits, who are only obliged to accept jobs that match their education level.

Table 1: Benefit levels (net, in € per month)

	housing costs		
	full	shared	none
single without children	935.80	802.12	668.43
single with children	1203.19	1069.50	935.81
couple without children	1336.87	1203.19	1069.50
couple with children	1336.87	1203.19	1069.50

Benefit levels in period July 1 to December 31 in 2012, including holiday allowance. Benefit levels outside this time frame differ only marginally

Rules about eligibility and level of benefits are decided upon at the national level, but the responsibility for the implementation is at the municipality level. Municipalities receive a fixed annual budget for welfare, of which any unused excess may be kept.[3] How welfare recipients are guided to work and how the number of welfare recipients is kept under control is left to the municipalities' discretion. The level of the annual budget is determined with an allocation model based on population characteristics of the municipality, and does, therefore, not depend on the effectiveness of the municipalities' labor market policy.

2.2 Setting of experiment

The experiment took place in the municipality of Amsterdam, capital of the Netherlands. On a total population of 790,110, Amsterdam had 34,164 people receiving welfare benefits on January 1, 2012 (4.3%). The total inflow over the year 2012 was 11,706 and total outflow 8,944. The municipality has five welfare offices in different city districts; individuals have to apply at the office in their own city district.

Applicants for welfare in Amsterdam are classified into four classes, depending on their relative distance to the labor market. This classification determines the type and intensity of guidance given to the unemployed worker and what is expected of him. Individuals in the highest class (class IV) should be able to find employment within six months, and are the only group with potential to flow out to a regular job. The welfare offices have a team of caseworkers that specializes in guiding this group. Since the relevant outcome for this paper is outflow out of welfare benefits this is also the group that we will focus on. On average

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[3]For example, in 2012 the municipality of Amsterdam spent 103% of its budget for welfare (103% was also the average for all municipalities in the Netherlands).

20% of the total inflow is classified as class IV. For the remaining classes, individuals in class III are able to work, but need more skills and guidance to find employment and stay employed. This group will be working in a subsidized work environment in order to acquire the relevant employability skills. Individuals in Class I and II lack the social or physical ability to work, and either work in a sheltered work environment or receive a very minimal amount of guidance from a caseworker. During the period on welfare, the classification of an individual can be altered. In general, individuals in class IV are reclassified into class III (and assigned a new caseworker) if they haven't found employment within six months.

The intervention on which this paper focuses is a search period. Figure 1 gives a schematic representation of the application process for welfare in Amsterdam. Individuals that apply for welfare have to register at the welfare office and are given an appointment for an intake meeting with a caseworker. In this intake meeting the caseworker assesses whether the individual is likely to qualify for welfare and determines the applicants' class. Search periods can only be given to individuals in class IV. A search period postpones the handling of the welfare application and can last up to 4 weeks, in which the individual has to actively search for employment. In many cases, the caseworker also specifies a minimum number of job applications that a person has to do within this period. The application for welfare will only be activated if an applicant returns to the agency after the search period. If the welfare application is reactivated and processed, the applicant will (retrospectively) receive welfare starting from the date of registration. A search period thus only delays the payment of benefits; it does not reduce the amount of benefits that an individual is entitled to. Irrespective of the search period, the welfare application needs to be processed within 8 weeks after the day of registration.

Given that the entitlement to benefits starts at the day of registration, applicants that find employment during a search period can file a request for welfare for the period between the date of registration and the starting date of the new employment. This is quite some administrative hassle, so not all individuals that find a job during the search period use this possibility. In general, caseworkers do not apply a search period if an applicant has severe financial problems or can prove that he has been very active in applying for jobs.

Figure 1: Welfare application procedure
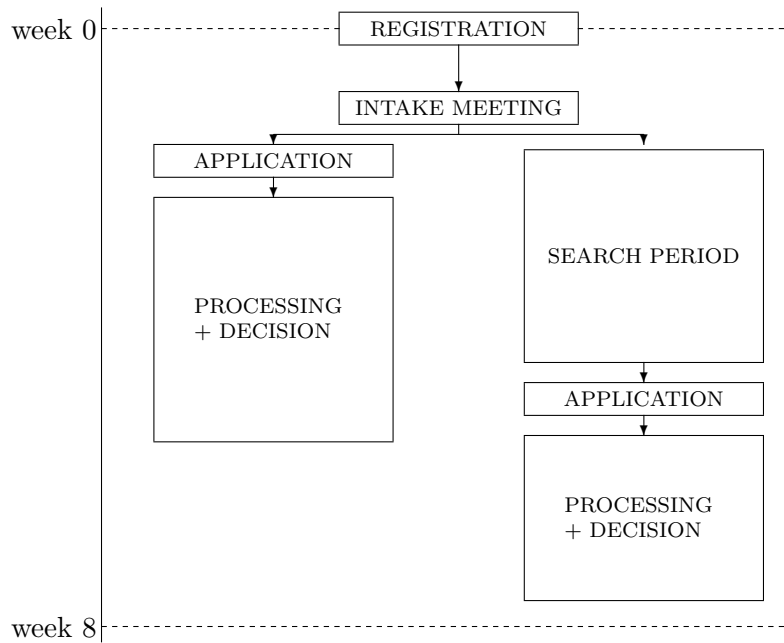
3   Experimental design

The sample for the experiment consistent of all individuals above 27 in class IV that applied for welfare in Amsterdam from April 2012 till March 2013.[4] Applicants were not informed that they were part of an experiment, to prevent that this knowledge would influence their behavior. Instead of full randomization of the treatment over individuals, we chose to use an encouragement design (like Crépon et al., 2013) with randomization of the treatment over caseworkers. Caseworkers received the instruction to apply one particular treatment to all their new incoming clients. This particular treatment we call their *default option* or *standard option*. The default option that a caseworker had to apply to its new incoming clients changed every three months. We allowed caseworkers to deviate from the default option only in cases where the standard option was really not appropriate. There were three different default options:

- Never: never apply a search period
- Always: always apply a search period if the financial situation of the individual allows

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[4]Different rules apply to welfare recipients under 27. Therefore, they were left out of the experiment.

this[5]

- Normal policy: do what you think is most appropriate in this case

The last default option is included to see what the caseworkers would normally decide to do with the individual in absence of an experiment. In the remainder we will refer to these default options as 'never', 'always' and 'normal'. Applicants are randomly assigned to caseworkers in an administrative process, so in case of sufficient compliance we can estimate the causal effect of a search period with this design.

This set up had several advantages. Full randomization in the context of social security may be problematic and seen as inappropriate. This is especially the case when evaluating existing policies (in contrast to the evaluation of additional policies or resources). An experimental design that leaves room to 'opt out' of the experiment in special cases helps to prevent harmful effects of the experiment and is therefore ethically easier to defend. Furthermore, the experiment depended on the compliance of the caseworkers with the (randomized) instruction that was given to them. The possibility to deviate in special cases helped to make the experiment more acceptable for caseworkers and therefore in getting the caseworkers to commit to the experiment.

Before the start of the experiment we had meetings with all caseworkers to inform them about the experiment. During the experiment the welfare offices were visited almost weekly to answer questions from caseworkers and to keep an eye on the implementation of the experiment. At the start of every three-month period each caseworker was instructed individually about his new default option. Caseworkers were asked to fill in a form for each intake meeting they had with an individual in the experiment sample. The forms were personalized for each caseworker and had their default option pre-printed on the form.

4 Data

4.1 Data sources

Our data come from three different sources. The first source is the administrative data from the welfare agency of Amsterdam. It provides information on the date of registration at the

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[5]As applying a search period also implies that first benefit payment is delayed, applying a search period is considered unethical if an applicant has a (very) bad financial situation.

welfare office, date of application for welfare, start and end date of welfare benefits, whether a search period is applied and the name of the caseworker that conducted the intake meeting. The individual characteristics of applicants that are registered are date of birth, gender, household composition, educational level and the class of the applicant (I-IV). Furthermore we have access to the exact records of all benefits paid out.

From the administrative data we only know whether an individual receives welfare in the city of Amsterdam or not. It is not known when someone does not receive welfare, whether this is because he found employment or for alternative reasons. Therefore our second data source is employment and income data from social security records. The social security records have monthly information for each individual on the amount of income from employment, welfare benefits and income from other benefit schemes.[6] We have this information for all participants in the experiment from 2008 up to October 2013. Using these data we can look at outcomes like wage earned, job stability, length of the first job, etc. The retrospective nature of the data allows us to include labor market history as a control variable.

The third are the forms that were filled in during the intake meeting. The form asked for date of birth, gender, educational level, household composition, reason of applying for welfare, financial situation, the estimated time (by the caseworker) till exit to employment, whether a search period was applied and duration of the applied search period. The last two questions are included to check whether the caseworker adhered to the standard option he was given, or used the possibility to deviate in special cases. The forms were filled in for 71% of the observations. Given that all crucial information is also available through the administrative records (for the full sample), we will not use the information from the forms in our analysis.

4.2 Descriptive statistics

Based on inflow in previous years we expected to include 2500 individuals in the experiment. Our final sample consists of 2851 welfare applications (2716 unique individuals).[7] Worsening

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[6]The other benefit schemes include among others unemployment benefits and disability benefits. Next to that we also observe if someone receives welfare benefits in another municipality.

[7]For three applicants we do not have information on the caseworker matched to the applicant, so we can not determine under which standard option they were treated. These applicants are therefore excluded from the analysis

Table 2: Descriptive statistics, full sample and by default option

| | | Default option | | |
	Full sample	Always	Never	Normal
Female	0.38	0.41	0.36	0.39
Age at application	38.4	38.2	37.7**	38.8
Years of education	12.0	12.0	12.1	11.9
Bachelor and/or Master degree	0.28	0.28	0.30	0.27
Cum. wage 6 months before	2612	2508	2602	2653
Cum. wage 12 months before	6643	6478	6807	6652
Reason applies for welfare				
Lost job	0.05	0.08**	0.04	0.05
End UI	0.34	0.31	0.34	0.35
Other reason	0.61	0.62	0.62	0.61
Household composition				
Single without children	0.81	0.81	0.82	0.81
Single with children	0.09	0.10	0.10	0.08
Couple without children	0.05	0.04	0.05	0.05
Couple with children	0.06	0.05	0.04**	0.06
Form present	0.72	0.73	0.74	0.71
Search period	0.40	0.55***	0.09***	0.46
Number of observations	2851	586	577	1688

Note: stars denote the significance of the difference between the default option always
or never and the default option normal. *** =significant at 1% level, ** =at 5% level,
* =at 10% level

economic circumstances are probably the explanation for this increase. The first column of table 4.2 gives some descriptive statistics of the full sample.

The majority of our sample (over 60%) is male. Applicants are relatively young: the average age in the sample is only 38.4 years, with the median at 37 years. Recall that our sample selected only individuals aged 27 or up. The overrepresentation of young people is related to the accumulation of unemployment benefits (UI) rights. Duration of UI can range from 3 up to 38 months, based on work history. Young people have had less time to build up work history and therefore have in general a lower maximum UI duration. Average earnings in the six months before applying are 435 euro per month, while the minimum wage in the Netherlands is approximately 1500 euro per month. If we look at the reasons for applying for welfare we see that only 5% of the sample recently lost their job. The majority of the sample depleted unemployment benefits or applied for another reason. Other reasons to apply for welfare include exhaustion of savings, termination of self-employment, divorce, etc. As welfare is means tested and the income of the partner is also taken into account in the means test, couples are less likely to qualify for welfare. In our sample of individuals registering at the welfare office, close to 90% lives without a partner. The singles living with children are almost exclusively women.

Although new applicants are randomly assigned to caseworkers for the intake meeting, it is important to check whether the applicants under the three different regimes in the experiment are comparable in terms of observable characteristics. Columns three to five of table 4.2 show descriptive statistics by default option. Stars indicate whether the difference between always (never) and normal is significant. There are some observable differences between the default options, but these are small and there does not appear to be a specific pattern that can be related to the nature of the default options. Also the likelihood that the caseworker completed the form does not differ by default option.

At the bottom of table 4.2 we see that there is a large difference in the likelihood to receive a search period under the different default options. On average over the research period, caseworkers with default option never gave a search period to 9% of applicants, caseworkers with default option always gave a search period to 55% of applicants and caseworkers with default option normal gave a search period to 46% of applicants. To get a more detailed view on the compliance to the default options, figure 2 shows the fraction of search periods given per default option over the research period. The distinction between the three default

Figure 2: Percentage of applicants that was given a search period by default option, over time
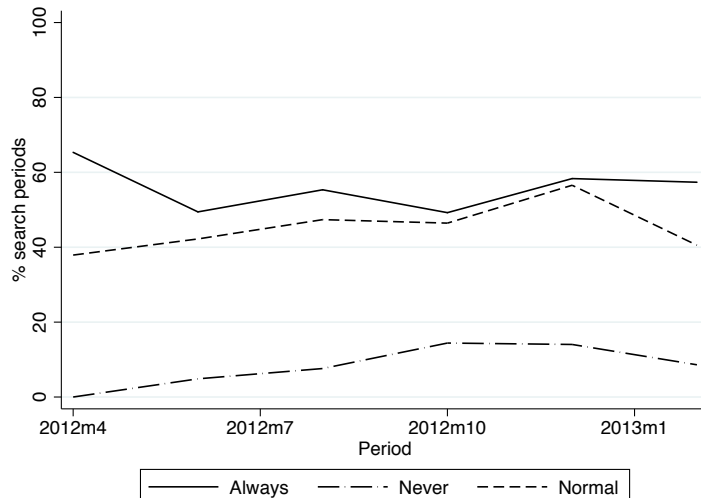
options is most pronounced at the start of the experiment. During the period the amount of search period under always remained relatively stable, while it increased for normal and never.[8]

Figure 3 shows the fraction of applicants that receives welfare benefits over time by default option.[9] We see that under the default option never the fraction of people receiving welfare is higher than under the default always. The fraction receiving welfare under the default option normal is in between the two, but closer to the default option always. This figure is purely descriptive. It does not take into account business cycle effects, welfare office effect, etc. In the next section we will therefore elaborate on our empirical strategy.

5 Empirical strategy

To estimate the effect of a search period on welfare receipt and other related income variables we assume a linear relationship between the labor market outcome of individual i at time t who applied for welfare at time τ $(Y_{it\tau})$ that had a search period $(SP_{i\tau})$:

$$Y_{it\tau} = \alpha_\tau + \gamma_{i,t-\tau} + \delta_{t-\tau}SP_{i\tau} + X_i\beta_{t-\tau} + u_{it\tau} \tag{1}$$

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[8]During the research period the policy of the agency changed to giving as many search periods as possible, which can be an explanation for this increase.

[9]The increase in the fraction during week 1 to 5 are mainly people who register at the welfare office before the date of exhaustion of UI benefits (which is advised by the benefit office to prevent financial problems due to the processing time in which no welfare benefits are received).

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Figure 3: Fraction of applicants receiving welfare benefits by default option
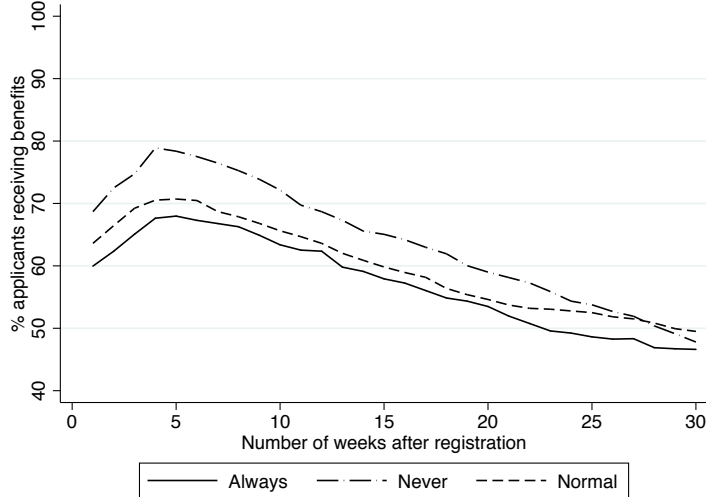
where $t - \tau$ indicates the number of weeks elapsed between the day of registration and the week in which the outcome is observed. X_i is a set of covariates including age at registration, gender, household composition and cumulative wage in 6/12 months before application. α_τ are fixed effects for the month of registration to take business cycle effects into account and $\gamma_{i,t-\tau}$ are local welfare office fixed effects to control for differences between local welfare offices and other differences between the local labor market and the city districts that they serve. The parameters of interest are $\delta_{t-\tau}$ which describe the effect of a search period $t - \tau$ weeks after registration. We estimate equation (1) separately for each week since registration $(t - \tau)$.

If caseworkers are more likely to give a search period to more able applicants the OLS estimator of $\delta_{t-\tau}$ will be biased. We will exploit our experimental design to estimate the causal effect of the search period using two strategies. First, we can replace $SP_{i\tau}$ with the default options of the caseworker that conducted the intake meeting:

$$Y_{it\tau} = \alpha_\tau + \gamma_{i,t-\tau} + \delta_{1,t-\tau} Always_{i\tau} + \delta_{2,t-\tau} Normal_{i\tau} + X_i \beta_{t-\tau} + u_{it\tau} \qquad (2)$$

As there was no full compliance, this estimates the intention-to-treat effect (ITT). The ITT is a lower bound on the true effect of the search period. The second strategy is to instrument $SP_{i\tau}$ with the default option of the caseworker that conducted the intake (following Angrist et al. (1996)). We estimate a first-stage equation of the form:

$$SP_{i\tau} = \alpha_\tau + \gamma_{i,t-\tau} + \lambda_{1,i\tau} Always_{i\tau} + \lambda_{2,i\tau} Normal_{i\tau} + X_i \beta_{t-\tau} + v_{it\tau} \qquad (3)$$

With this strategy we will estimate the average treatment effect on the treated (ATET). The identifying assumption is that the default option of the caseworker is mean independent of $u_{it\tau}$. This assumption is satisfied by the nature of the experiment: Default options were randomly assigned to caseworkers and caseworkers had no say in which individuals were assigned to them for an intake meeting.

In equation (3) $\lambda_{1,i\tau}$ and $\lambda_{2,i\tau}$ reflect the compliance, the difference in the probability to receive a search period for caseworkers with the default options always and normal, compared to the default option never. We saw before that caseworkers with the default option always (normal) give 45% (36%) more search periods than caseworkers with the default option never. Compliance is not perfect because caseworkers were allowed to deviate from the default if an applicant had severe financial problems and because sometimes there was no time in the administrative process to give a search period. Second, some caseworkers did give a search period while they had default option never.[10]
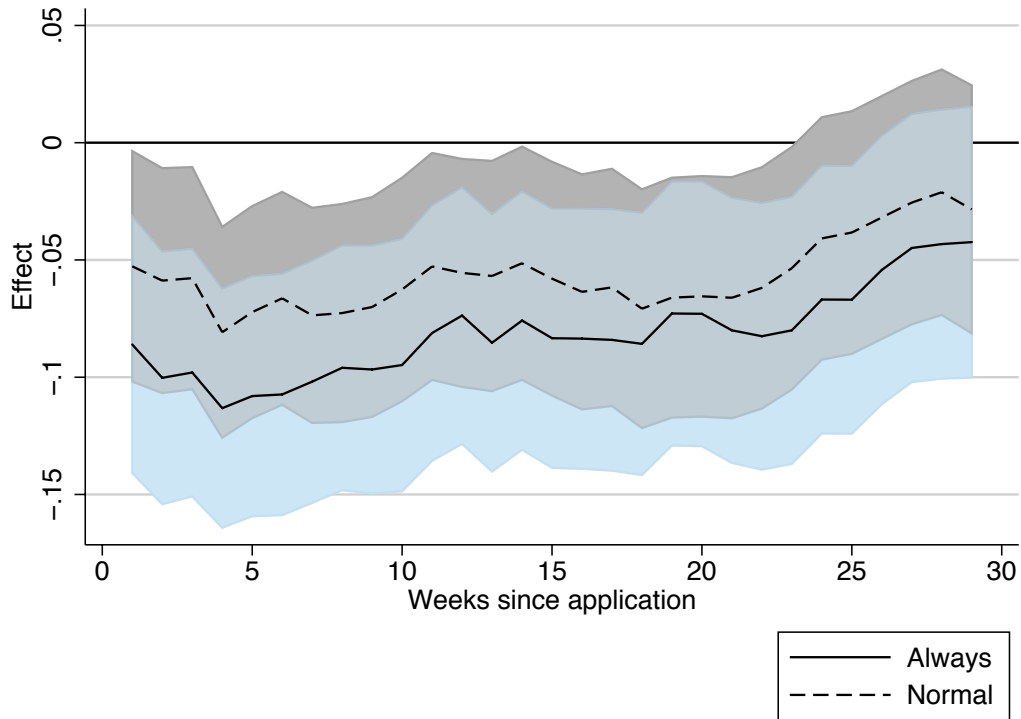
6 Results

Income from benefits and wages

In figure 4 we plot the intention-to-treat effect on the probability to receive benefits (0/1) for each week after registration (following equation 2). In this figure, default options always and normal are compared to the default option never. The shaded areas reflect 95% confidence intervals. We see that individuals with a caseworker with default option always have a 10% lower probability to receive welfare. Individuals with a caseworker with default option normal have a 6% lower probability to receive welfare. More than 20 weeks after registration both effects are still significantly different from zero.

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[10]This might be a problem for the monotonicity assumption, which states that no individuals would have received a search period from a caseworker with default option never and would not have received a search period from a caseworker with default option always. This is very likely to hold for the same caseworker. However, between caseworkers there may be differences. Some caseworkers may not believe in the effect of search periods and never issue them. Other caseworkers might have a standard of always giving a search period. If these two caseworkers both never change their behavior in response to the default option, the monotonicity assumption may be violated. However, it is not very likely that this will be the case for a large number of caseworkers.

Figure 4: Effect default option on probability to receive benefits (ITT)

These results are easier to interpret when we estimate the average treatment effect on the treated (ATET). The first stage effect of the default options on the probability to receive a search period is highly significant, with an F-statistic of 237. Figure 5 plots the point estimates and 90% confidence intervals of the Instrumental Variable estimates. We see that a search period lowers the probability to receive welfare with around 20% in the first ten weeks. Given that in the group with the default option never total take up of welfare benefits is around 80% this implies an effect of 25 percentage points. After the tenth week the effect somewhat decreases to minus 17% in week 22. The effect of a search period is significantly different from zero up to 27 weeks after registration. This implies that the search period does not only delay the start of benefits with a few weeks, but also that it has a more profound and longer lasting effect on welfare uptake.

Figure 5 uses a binary variable for receiving welfare. Welfare recipients are however obliged to accept part-time jobs and therefore also partial outflow can take place. In order to look at the total impact of the search period on welfare receipt figure 6 therefore looks at the effect of a search period on the amount of welfare an individual receives. The pattern is quite similar to the pattern in figure 5 with the binary welfare variable. The search period

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has a strong effect on welfare receipt that is long lasting and only becomes insignificant after 24 weeks. Until week 20 about 40 euro per week is saved on welfare benefits if a search period is issued. Table 6 reports the effect of a search period on (cumulative) outcomes half a year after registration. In the first row of table 6 we see that during the first half year after registration (26 weeks) in total 915 euro is saved due to a search period. This amounts to 29% of the mean cumulative amount of welfare over 26 weeks if no search period is applied. Furthermore, it reduces the amount of weeks that an individual receives welfare by 4.6 weeks. Recall that this is not a mechanical effect of the search period. The entitlement to benefits starts at the date of registration and independent of a search period applicants receive benefits from this day on.

Figure 5: Effect search period on probability to receive benefits (IV)
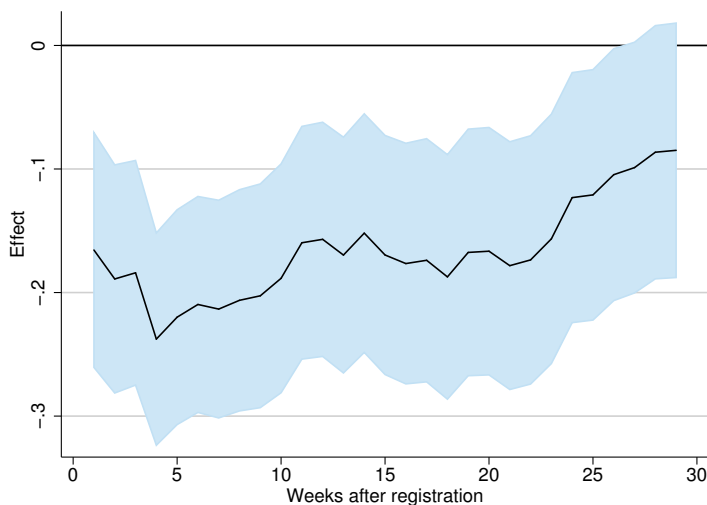
A search period thus reduces the probability to receive welfare benefits. However, not receiving welfare does not necessarily imply that someone is employed. Applicants could feel discouraged to apply for welfare by the search period or might believe that it is harder to get welfare. Figure 7 therefore estimates the effect of the search period on weekly income from employment (income from self-employment is not known). A search period has a positive effect on earned wages of about 30 euro per week that becomes significant after five weeks. After 14 weeks the effect increases steadily to 50 euro a week. After 23 weeks the effect decreases and becomes insignificant. In table 6 we see that during the first half year after registration individuals with a search period earned in total 829 euro more than individuals without a search period (see table 6). Recall that a search period saved 915 euro on welfare

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Figure 6: Effect search period on amount of benefits received (IV)
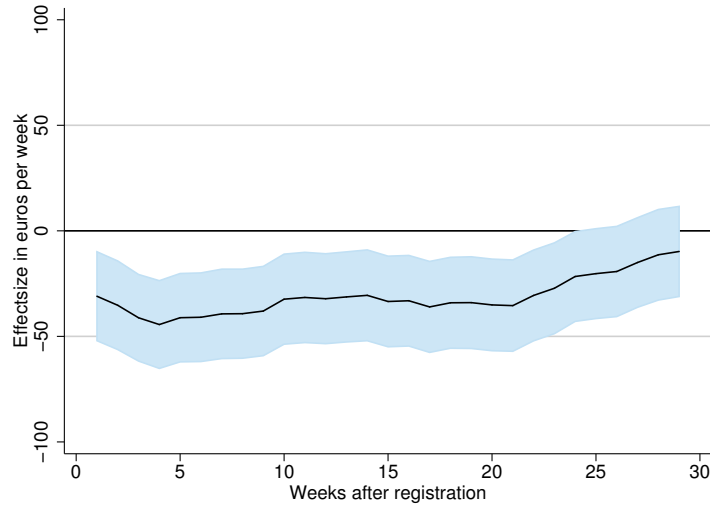
benefits. Individuals with a search period therefore almost fully compensate (91%) their forgone benefits by income from employment.

Figure 7: Effect on other income: Wages (IV)
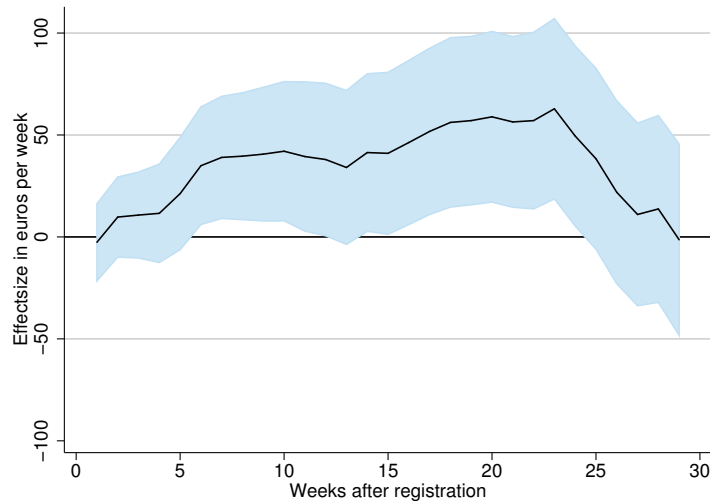
A spillover effect of a search period could be that individuals try to get income from another benefit scheme or apply for welfare benefits in a different municipality. We don't expect large effects here, as welfare should be the safety net and people only apply if there is no other benefit scheme they are entitled to. Second, people would need to move in order to apply for welfare benefits in a different municipality. Figure 8 shows the estimates of the effect on income from other benefit schemes and these are indeed small and insignificant. In table 6 we see that the effect on cumulative income earned during the 26 weeks after

registration is not significantly different from zero.

The increase in wage earnings can be through three different channels: An increase in the probability to have a job, an increase in the amount of hours worked or an increase in the hourly wage. In table 6 we look at several outcomes to distinguish these channels. First, we see that a search period does not have a significant effect on the number of weeks that an applicant has a non-zero wage. The number of hours worked is, however, significantly increased by the search period. A sea4rch period increases the amount of hours worked with 69 hours, an effect of 38%. This is even more so the case if we look at the number of hours conditional on working, to separate the hours effect from the effect of finding a job. Taken together with the fact that there is no effect on the number of weeks with a non-zero wage, this implies that a search period does not lead to an increase in the probability to find a job, but that increases the amount of hours that an individual works if they have a job. The effect on mean hourly for the full population might be negative if more people work with a search period and therefore also the less able people work. In line with the fact that we do not find an effect on employment we do not find an effect on the mean hourly wage. This remains the case if we look at mean hourly wage conditional on being employed.

Figure 8: Effect on other income: Other benefit schemes (IV)
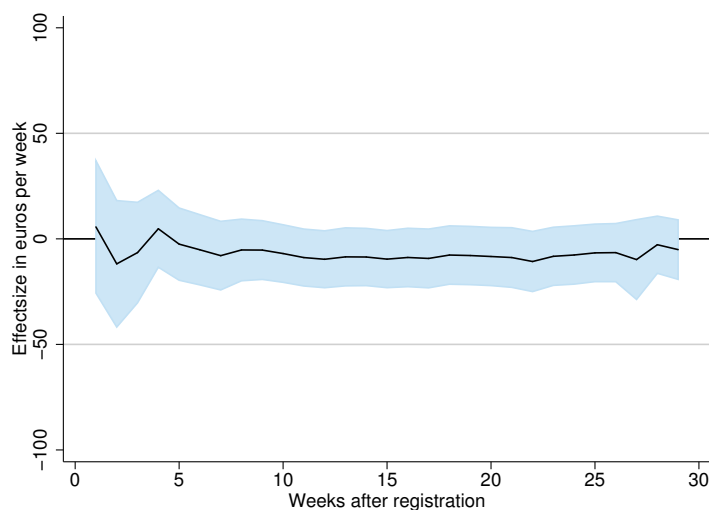
Finally, the effect of a search period on total income (the sum of income from welfare, wages and other benefits) is shown in figure 9. During the first four weeks the effect on total income is negative and significant. After that, the effect is very close to zero and insignificant. The effect on cumulative total income is small and not significantly different from zero (table

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Table 3: Effect of search period on outcomes 26 weeks after registration

	Intention to treat		IV	Nr. of obs
	Always	Normal		
Cum. benefits received	-475***	-281**	-921***	2753
	(144)	(130)	(289)	
Cum. wage earned	348	402**	829*	2753
	(223)	(203)	(458)	
Cum. income from other benefits	-58	-68	-153	2753
	(97)	(89)	(204)	
Cum. total income	-167	97	-165	2753
	(259)	(238)	(536)	
Nr of weeks I[benefits>0]	-2.28***	-1.59***	-4.61***	2753
	(0.60)	(0.57)	(1.26)	
Nr of weeks I[wage>0]	0.71	0.44	1.32	2753
	(0.60)	(0.53)	(1.22)	
Cum. hours worked	29*	33**	69**	2753
	(16)	(15)	(33)	
Cum. hours worked (conditional on work)	50**	65***	127***	1527
	(23)	(23)	(49)	
Mean hourly wage (over 26 weeks)	0.35	0.05	0.48	2750
	(0.45)	(0.38)	(0.90)	
Mean hourly wage (conditional on work)	0.37	0.07	0.67	1527
	(0.45)	(0.35)	(0.90)	
Controls	Yes	Yes	Yes	

The first two columns of each row represent one equation. The third column represents a separate equation. All regressions include controls for age at registration, gender, household composition and cumulative wage in 6/12 months before application. Furthermore, fixed effects for month of registration and local welfare office are included.

*** =significant at 1% level, ** =at 5% level, * =at 10% level

Figure 9: Effect on total income (IV)
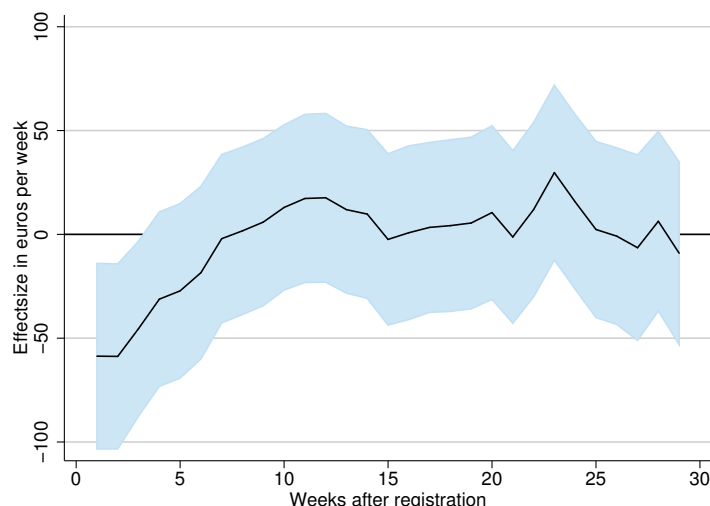
6). The negative effect during the first four weeks might be caused by individuals that find employment within the search period, and do not bother to apply for benefits for the couple of weeks they spent searching before they found a job.

The estimated effects so far are average effects. It could be that part of the applicants that received a search period find employment and earn far more than the amount of welfare while others have no or little income from employment but don't return to the welfare office after the search period to apply for welfare. If that is the case, giving a search period seriously harms the latter group. Figure 10 therefore looks at the effect of the search period on the probability of having total income above 150 euro per week. Weekly welfare benefits are more than 150 euro per week so if an individual is on welfare this is automatically the case. In the first 13 weeks individuals that were given a search period have a lower probability to have income higher than 150 euro per week. In the first week the probability is decreased by 13% and this becomes smaller thereafter. This indicates that some individuals are harmed because of the search period as they have very little income for some weeks, up to 3 months after registration.

Heterogeneous treatment effects

The effect of a search period might be different for different groups of applicants, depending on their labor market position. Therefore we look at differential effects by age and education

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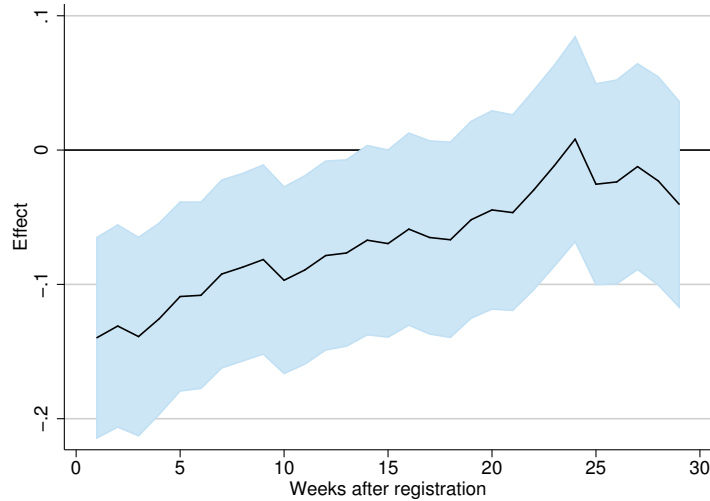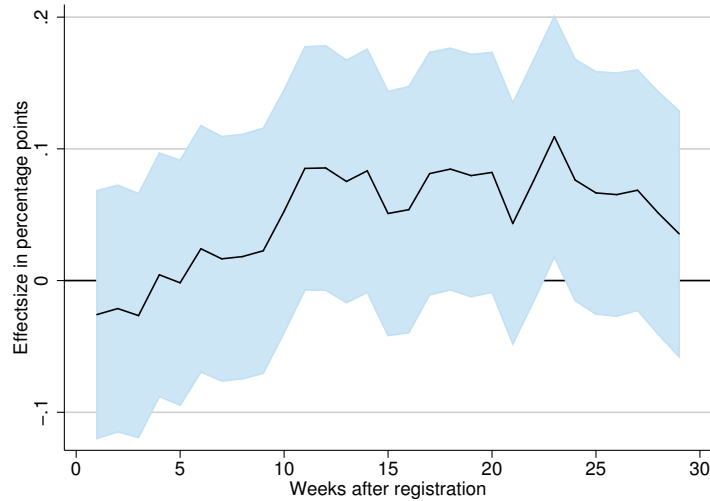Figure 10: Effect search period on probability income above € 150 per week (IV)

Figure 11: Effect search period on probability income above € 400 per week (IV)

group, two important determinants of labor market success.[11] We define highly educated as having a degree from tertiary education and we look at people above and below 40.[12] The results for the probability to receive welfare benefits are shown in Figure 12.[13] For readability the confidence intervals are left out. There are clear differences in the effectiveness of search periods for the different subgroups. For highly educated individuals below 40 a search period is most effective and the effect is large: a search period reduces the probability to receive

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[11]Splitting the sample even further to look into differential effects for men and women showed that there are no gender differences in effectiveness of the search period.

[12]Recall that the people that apply for welfare are relatively young, of our sample 59% is younger than 40.

[13]The coefficients in this figure are estimated together in one model, with included interactions for the different subgroups.

Figure 12: Heterogeneous treatment effects: probability on welfare
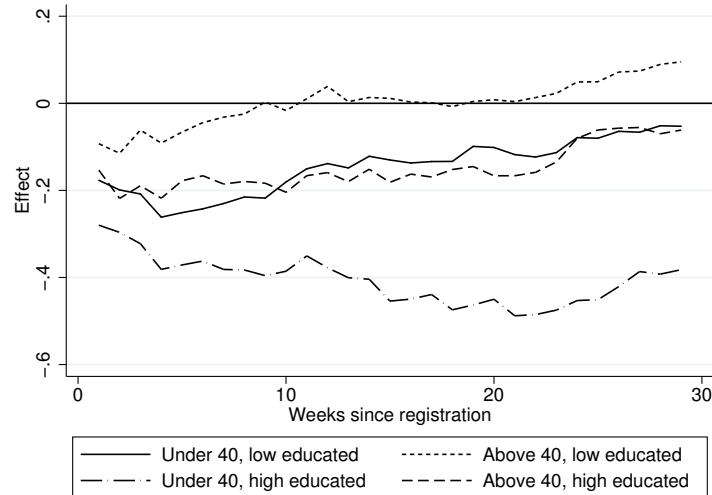
welfare by around 40%. Given that for this subgroup total take up of welfare benefits is around 80%, this implies an effect of 50 percentage points. Search periods are least effective for low educated individuals over 40. For them the effect is close to zero. The other two groups, low educated below 40 and high educated above 40, benefit equally from the search period. Both groups have about 20% lower probability to be on welfare if they had a searched period. For the majority of the period the effect of a search period for the groups above40/low educated and below40/high educated is significantly different from the effect for the other two groups.

Table 6 repeats the analysis of table 6 for the different subgroups. For the majority of the outcomes we see that the effects are especially large for the highly educated below 40. This group receives 2034 euro less in welfare benefits, but earns 3226 euro more from wage income. The receive on average 10.7 weeks less welfare and have 4.1 more weeks in which they earn a positive income. When we look at the mean hourly wage we see that for the full sample it is higher, but it is also higher conditional on working. This seems to imply that those with a search period do not only work more, but that they also end up in a higher paying job.

If we look at the other subgroups we see that for the lower educated above 40 there is no effect of a search period on any of the outcomes. For the low educated under 40 a search period reduces the amount of benefits received, but it does not affect earnings from wages. For the highly educated above 40 the number of observations is not that large, so the

Table 4: Heterogeneous treatment effects 26 weeks after registration

	Low educated		Highly educated	
	Under 40	Above 40	Under 40	Above 40
Cum. benefits received	-957***	-68	-2034***	-420
	(329)	(394)	(358)	(588)
Cum. wage earned	-98	411	3226***	677
	(494)	(578)	(657)	(911)
Cum. income from other benefits	181	-506*	-15	-450
	(226)	(288)	(224)	(400)
Cum. total income	-240	-292	850	-567
	(591)	(691)	(719)	(1066)
Nr of weeks I[benefits>0]	-3.89***	-0.28	-10.70***	-4.48*
	(1.41)	(1.72)	(1.61)	(2.56)
Nr of weeks I[wage>0]	-0.31	2.63	4.07***	-1.55
	(1.38)	(1.65)	(1.51)	(2.35)
Cum. hours worked	27	59	202***	-23
	(38)	(47)	(45)	(62)
Cum. hours worked (conditional on work)	79	110	216***	74
	(23)	(78)	(56)	(95)
Mean hourly wage (over 26 weeks)	-0.59	-0.49	4.52***	0.25
	(1.02)	(1.20)	(1.20)	(1.87)
Mean hourly wage (conditional on work)	-0.16	-1.54	3.60***	4.94**
	(1.08)	(1.36)	(1.05)	(2.06)
Nr of observations	1119	803	459	297
Controls	Yes	Yes	Yes	Yes

Each row in this table represents one regression including interactions for the different subgroups.
All regressions include controls for age at registration, gender, household composition and cumulative
wage in 6/12 months before application. Furthermore, fixed effects for month of registration and local
welfare office are included.
*** =significant at 1% level, ** =at 5% level, * =at 10% level

estimates are imprecise. The effects, however, point in the same direction as for the highly educated under 40, but the magnitude of the effects is smaller.

Figure 13: Heterogeneous treatment effects: probability income above € 150 per week
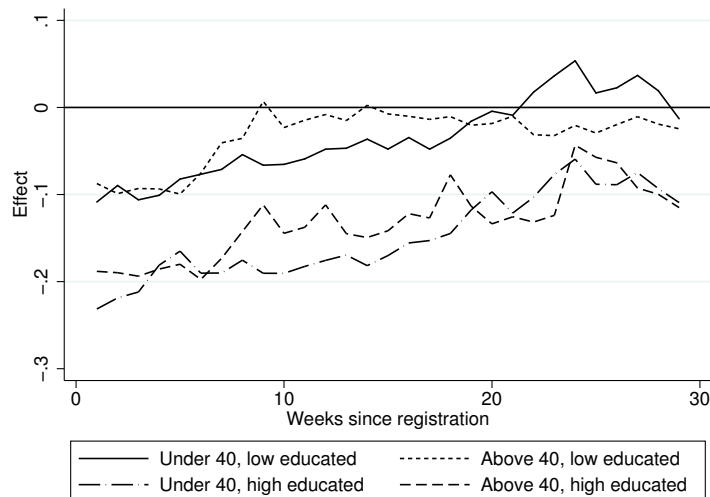
The differences in effectiveness that are found on de the dimensions age and education could also lead to differences in the harmful effects of the search period. This might especially be a worry given that we find that for the lower educated under 40 a search period does reduce the amount of benefits received but does not increase earnings from wages. In Figure 13 we therefore estimate the probability to have weekly income above € 150 for the four different subgroups. We find no differential effects on age, but do find differential effects on educational level. The highly educated are 10% more likely than the low educated to have income below € 150 per week. It could be that there are two effective elements in the signal the search period sends out to applicants. The first element is that they are forced to actively look for employment during the search period to get welfare. The second element in the signal is that all employment should be accepted, even if this is employment far below the educational and experience level of the applicant. For highly educated individuals the second element could have much more impact than for low educated individuals.

7   Conclusion

This paper analyzed the effect of giving search periods to individuals registering at the welfare office. They had to search for employment for mostly 4 weeks before their application would

be made active and be processed. For a one-year period random variation was created in the issuing of search periods by using an encouragement design targeted at caseworkers. Search periods are found to be an effective instrument to decrease inflow into welfare and outflow out of welfare. Individuals that were given a search period receive less welfare benefits (on average € 915 over 6 months) and almost fully compensated this with higher wage earnings (€ 829 over 6 months). Potential harmful side-effects were found to be small: only in the first 4 weeks after registration individuals with a search period faced a higher probability of having a very low income. Effect of the search period is strongest for young, highly educated individuals. They are 40% less likely to receive welfare benefits at any point in time in the first 6 months after registration. They are also the ones that are most likely to suffer from a very low income for some time due to the search period.

8 References

References

Behaghel, L., Crepon, B., and Gurgand, M. (2013). Robustness of the encouragement design in a two-treatment randomized control trial. IZA Discussion Papers 7447, Institute for the Study of Labor (IZA).