Long term effects of active labour market policies



seo amsterdam economics

Amsterdam, augustus 2017

Long term effects of active labour market policies

UI benefit recipients and welfare recipients

Marloes Lammers Lucy Kok

seo amsterdam economics

The science of knowing"

SEO Amsterdam Economics carries out independent applied economic research on behalf of national and international clients – both public institutions and private sector clients. Our research aims to make a major contribution to the decision-making processes of our clients. Originally founded by, and still affiliated with, the University of Amsterdam, SEO Amsterdam Economics is now an independent research group but retains a strong academic component. Operating on a nonprofit basis, SEO continually invests in the intellectual capital of its staff by granting them time to pursue continuing education, publish in academic journals, and participate in academic networks and conferences. As a result, our staff is fully up to date on the latest economic theories and econometric techniques.

Disclaimer: This is a discussion paper, not a finished report. The content of this paper is not definite.

SEO-Discussion paper nr. 90

Copyright © 2017 SEO Amsterdam. Alle rechten voorbehouden. Het is geoorloofd gegevens uit dit rapport te gebruiken in artikelen, onderzoeken en collegesyllabi, mits daarbij de bron duidelijk en nauwkeurig wordt vermeld. Gegevens uit dit rapport mogen niet voor commerciële doeleinden gebruikt worden zonder voorafgaande toestemming van de auteur(s). Toestemming kan worden verkregen via secretariaat@seo.nl. The long run effects of active labour market policies can be quite different from their short run effects. Short run effects, measured 1 to 2 years after the start of the program, are modestly positive This small short run effect can be explained by the lock-in effect: during training, the job search efforts of unemployed individuals decrease or even seize, thereby causing an initial drop in the probability of employment for those attending training programs. We show that in the long run (4 to 7 years after the start of a program) all programs have a positive and long-lasting impact on the probability of employment. After 7 years the productivity gains are larger than after 4 years, and generally positive. However, the cost-effectiveness over the period of 4 to 7 years depends crucially on the magnitude of the initial lock-in effect. The initial lock-in effect is larger for UI recipients (compared to welfare recipients) and programs starting in an economic upturn (compared to programs starting in an economic downturn). For programs which *increase* the job search efforts of participants during the program, like placement services, no lock-in effect is observed. In the long run only placement services and short-term training courses are cost-effective.

Table of contents

Abstr	act	i
1	Intro	luction1
2	Active	e labour market policies
3	Data	and descriptives
	3.1	Data5
	3.2	Selection of treatment and control groups5
	3.3	Descriptive Statistics
4	Estim	nation method13
	4.1	Matching
	4.2	Conditional independence
	4.3	Program start dates for non-participants15
5	Estim	nation Results17
	5.1	Treatment effects on the treated17
	5.2	Cost-benefit analysis
	5.3	Impact heterogeneity
6	Concl	usion
Litera	ture	
Apper	ndix A	Estimating the probability of program participation

How useful are active labour market policies in increasing job chances for the unemployed? While much has been written on short term effects for UI recipients, not much is known on effective programs for benefit recipients who are 'not as close to the labour market as the typical recipient of UI benefits' (Martin, 2014). Moreover, research investigating long term effects of activating programs on labour market outcomes are scarce.

The long run effects of active labour market policies can be quite different from their short run effects. Recent meta-analyses by Kluve (2010) and Card et al. (2010, 2015) show a modest positive effect of training programs on the probability of employment when measured 12 to 24 months after the program start. The small short run effect can be explained by the lock-in effect (van Ours, 2004): during training, the job search efforts of unemployed individuals decrease or even seize, thereby causing an initial drop in the probability of employment for those attending training programs.

It can take up to two years after the start of a training program until the probability of employment for participants exceeds that of the (counterfactual) nonparticipant outcome. Card et al. (2010) show that the employment effects of training programs are larger when effectiveness is measured at least two to three years after program start. Moreover, the type of program that seems most effective in a short-term study is not always most effective on the long-run. A training program lasting for up to 120 days has the largest impact on the probability of employment two years after the start of the program (Kluve et al., 2012). Lechner et al. (2011) show that longer programs have a larger lock-in effect, but also a larger positive effect on employment prospects (Lechner et al., 2011).

This paper uses matching techniques to estimate both the short-term and long-run effects of various active labour market programs in the Netherlands. Our main outcome variables are the probability of employment, benefit receipt and earnings. Unlike most of the literature, we show effects not only for UI recipients but also for welfare recipients. We are therefore able to shed light on the similarities and differences between both groups.

We use a rich administrative dataset obtained from Statistics Netherlands, with which we are able to track individuals for up to eight years after the start of a program. We control for all major relevant characteristics that determine whether a program is offered, including personal characteristics, labour market and earnings history, information on the unemployment period such as the remaining potential benefit duration, and regional indicators on the level of the municipality.

The following main results stand out: (1) all programs have a positive and long-lasting impact on the probability of employment in the long run (60 to 96 months after inflow into UI/welfare). (2) For UI recipients, programs are more effective when started during a recession, a result also found by Lechner and Wunsch (2009). (3) We show that the lock-in effect is much larger for UI recipients than for welfare recipients. The main reason for a lock-in effect is time spend in the

classroom by unemployed individuals who would have been able to find a job for themselves without any assistance. In comparison to UI recipients, welfare recipients have a lower probability to quickly obtain a job, thereby decreasing the lock-in effect. (4) ALMP's for UI recipients do not lead to a significant decline in the probability to receive any benefits. For welfare recipients who are offered placement services, the probability to receive any benefits *does* decline. (5) In the long run only placement services for welfare recipients and short term training courses for both UI-recipients as for welfare recipients are cost-effective (6) Almost all trajectories are more effective for those without recent labour market history. Lower educated benefit more from schooling than higher educated. This holds for both welfare recipients and UI recipients. In contrast, placement services are especially effective for higher educated welfare recipients, and for welfare recipients with recent work experience.

The remainder of the paper is set up as follows. Chapter 2 gives an overview of active labour market policies in the Netherlands. Chapter 3 presents our dataset and some descriptive statistics. Chapter 4 discusses the matching techniques used before turning to the main results in Chapter 5. Chapter 6 concludes.

2 Active labour market policies

During the period 2003-2008, over € 2 billion per year or 0,5% of GNP was spent on active labour market policies in the Netherlands (Table 2.1). The largest share of this budget was spent by municipalities, who are responsible for re-employment of welfare recipients. Every year about 100.000 trajectories are started. During the years 2003-2005, municipalities were legally obliged to buy training programs from private re-employment companies. Commonly bought trajectories include career counselling, training, 'social activation', and placement services. Career counselling usually consists of one or more career tests and/or personality assessments, accompanied by several conversations with a career counsellor. Training is a very diverse instrument, ranging from short courses to acquire job specific skills (for example to obtain a reachtruck certificate), and more general training classroom training courses providing an update of general knowledge such as computer skills or job acquiring skills. Not all training is aimed directly at finding a job. Training can also be directed at decreasing the distance to the labour market or preparing for returning to formal vocational education. Social activation programs are not directly aimed at finding a job. They are meant to help welfare recipients to develop a daily routine and participate in society. These programs are not studied since they are not expected to enhance job prospects of participants. Placement services directly aim to bring a welfare recipient under the attention of a network of employers.

	2003	2004	2005	2006	2007	2008				
	Expenditures on active labour market policies in millions									
Municipalities	1.844	1.667	1.636	1.665	1.647	1.581				
PES	635	605	560	561	489	485				
Other	235	257	131	61	9					
Total	2.714	2.529	2.325	2.287	2.145	2.066				
		Number	of programs	started (x1.000))					
Municipalities	105	109	98	91	91	100				
PES – UI	30	53	53	37	39	41				
PES – DI	44	42	33	32	33	33				

Table 2.1 Expenditures on active labour market policies more than 2 billion per year

Source: Rijksbegroting 2007, CBS Statline, UWV Kwartaalverkenning 2009 – III, letter from the minister of Social Affairs d.d. July 12th 2010.

The Public Employment Service (PES) is responsible for re-employment of individuals receiving unemployment insurance. They yearly start between 30.000 and 53.000 trajectories in the period 2003-2008 – see Table 2.1. The PES makes yearly arrangements with private re-employment companies about the type and amount of programs that will be offered to UI recipients. In the data at hand, a distinction is made between regular programs, individual budgets and free space programs. The naming of the programs does not reveal anything about the content of the program. A *regular program* can consist of career counselling, training, job search assistance etc. It usually combines a job application training with job search assistance. The key feature of a regular program is that it one out of a range of trajectories for which the PES has made preset arrangements with the private re-employment companies. With an *individual budget* of €5.000 maximum, a client can approach the re-employment company himself and negotiate an individually tailored program. Both regular programs and individual budgets usually have a duration between 14 and 65 weeks (UWV, 2005).

Programs in the so called *free space* were usually tailored toward specific groups of unemployed. Separate *training* modules were offered by the PES from 2006 onwards. These training modules were generally short-term and diverse. Typical training programs include a course in computer skills or administrative skills, or a training to become a (taxi- or personal) driver (Groenewoud and Slotboom, 2009).¹

¹ Note that these training courses could also be part of a regular program or an individual budget. In the period June 2006 – march 2008, only 20% of training courses were separate modules (Groenewoud and Slotboom, 2009).

3 Data and descriptives

3.1 Data

We make use of high quality administrative data obtained from Statistics Netherlands. A file with data from municipalities, tax authorities and social insurance administrations is used as a basis for estimation. For every individual in the Netherlands, and for every month in the period 2001-2011, this file contains dummy variables indicating whether an individual receives any social insurance or social security benefit, the type of benefit (welfare/unemployment benefits/disability benefits), an indicator whether an active labour market trajectory has started, variables for being in paid employment in that month, and information on gender and age.

This information on benefit receipt and jobs is merged with information on active labour market instruments for welfare recipients in 2003 and 2004 (obtained from municipalities) and for unemployment insurance recipients in 2003/2004 and 2006/2007 (obtained from the unemployment office). Various other administrative data is merged, containing the education of the individual, the type of household, nationality, number and age of children, the sector of previous employment, yearly wage payments, a variable containing a subjective assessment of the caseworker regarding the distance to the labour market of the UI recipients (with individuals in 'distance' 1 being the most employable), and various variables on the level of the municipality such as labour force participation, number of inhabitants, unemployment rate, percentage of low income households and location. We also include variables for the maximum potential benefit duration for UI recipients, based on age and labour market history in the two to five years before inflow in UI. The merged dataset thus presents us with all background variables that are of major importance in the correct identification of treatment effects of active labour market programs.

3.2 Selection of treatment and control groups

We select three groups of individuals for analysis: (1) all individuals who start to receive welfare benefits in 2003 (2) all individuals who start to receive UI benefits in 2003 (3) all individuals who start to receive UI benefits in 2006. The inflow in 2003 has been selected such that there remain 2 years of labour market history (2001 and 2002) which we can use as background information in the matching procedure of Chapter 4, while retaining a period of 8 years after inflow to study long-term effects.² We also select UI inflow in 2006, since from that year onwards training programs are separately identifiable in the data. A number of selections on these groups have been carried out. First, for those on welfare benefits in 2003 (group 1), we select only individuals for those municipalities that delivered data on their use of ALMPs in 2003 and 2004 – about 60 of the largest municipalities in the Netherlands. Second, we select only individuals aged 25-55 so that results are not influenced by any early retirement decisions. Third, we select only individuals that are fully unemployed at the moment that they flow into welfare/UI. Finally, for the UI-inflow in 2006 we discard any individual who worked as a civil servant in his job before inflow. As from July 1st 2005,

² Short-term labour market history variables are important determinants of both selection into training and subsequent labour market outcomes (e.g. Dolton and Smith, 2011; Lechner and Wunsch, 2013). governmental organisations are fully responsible for re-employment of their former employees, including offering active labour market programs.

Following Lechner et al. (2011), we take a static approach to program evaluation and consider those who start a program within the first 12 months of their UI/welfare spell as participants, and those who do not start a program in this period as non-participants. Participants are divided in subgroups based on the first program they participated in within the first 12 month of their unemployment spell, for example a regular program for a UI recipient. The effect of any single program participation could therefore be overestimated when individuals participate in multiple programs. On the other hand, the effect could be underestimated when many non-participants participate in programs after 12 months of UI/welfare. For UI recipients, Table 3.1 shows that neither seems to be the case: within a single UI spell, only 6% of non-participants inflow in 2003 (2% of inflow in 2006) participate in a program after 12 months. Moreover, only 4-8% of participants inflow in 2003 start a second program after participating in the first program. This is a direct consequence of the policy of the PES, which states that a UI recipient can take place in a maximum of one active labour market trajectory during a single UI spell. For the inflow in 2006, a larger percentage of participants takes place in more than one program (10-29%). These individuals usually combine a full active labour market trajectory (regular program, free space or individual budget) with a training module. We expect that the type of training modules that are combined with a full trajectory are relatively inexpensive, such as obtaining a reachtruck certificate. Therefore, for UI recipients, the estimated effects are very close to the pure effect of the first program.

For welfare recipients the difference between participants and non-participants is less clear cut. Around 21% of welfare recipients that do not start a program within 12 months, do start a program at some later moment. Treatment effects for welfare recipients are therefore likely underestimated. Around half of the program participants do not take place in a single program, but in a sequence of programs. However, subsequent participation usually consists of participation in the same type of program or career counselling. Since results in Chapter 5 show that career counselling has a relatively small impact on the probability of employment, estimates for welfare recipients are also close to the pure effect of the first (type of) program.

3.3 Descriptive Statistics

Table 3.2, Table 3.3 and Table 3.4 show selected background characteristics for the three samples of participants. For individuals flowing into UI in 2003, participants with an individual budget show characteristics that are likely to increase their chances on the labour market: they are more often distance 1 clients, are higher educated, and have more recent labour market experience as compared to non-participants. They also had a higher wage and were less likely to receive any type of social benefit in the 2 years before flowing into UI. For individuals flowing into UI in 2006, background characteristics of participants and non-participants are more comparable although those with an individual budget still have a higher education. Individual budgets are only offered from January 1st 2004. An individual had to approach the re-employment company himself, negotiating on the most optimal trajectory tailored to the individual's need. It is therefore likely that especially in these early stages, when individual budgets were relatively unknown, the higher educated were more likely to use this option.

For individuals flowing into welfare in 2003, participants of placement services have some characteristics that makes them relatively favourable to employers: they are more often male, distance 1, and higher educated. They also worked a larger number of months preceding their inflow in welfare, and those who worked had a higher wage. Moreover, they were less likely to receive any kind of social insurance benefit in the 24 months before inflow. Non-participants are the worst risks: they received an average of 5,7 months of welfare in the 24 months before inflow, against 2,4 to 2,5 months for participants.

Future program participation in same UI/welfare spell	First program w	vithin 12 mont	hs after inflow						
	UI inflow 2003								
	Non- participant	Regular	Free space	Individual budget					
No future program	94%	92%	92%	96%					
Future program, of which:	6%	8%	8%	4%					
Regular	3,2%	1,7%	2,0%	0,0%					
Free space	0,3%	0,1%	0,0%	0,0%					
Individual budget	0,4%	0,3%	0,0%	0,0%					
• Other	0,0%	0,0%	0,0%	0,0%					
Unknown	2,0%	6,3%	5,6%	4,2%					
			UI inflow 2006						
	Non- participant	Regular	Free space	Individual budget	Training				
No future program	98%	88%	90%	89%	71%				
Future program, of which:	2%	12%	10%	11%	29%				
Regular	0,8%	1,9%	2,7%	0,6%	5,6%				
Free space	0,0%	0,3%	0,0%	0,3%	0,9%				
Individual budget	0,7%	2,2%	5,3%	0,8%	16,1%				
Training	0,1%	3,8%	0,0%	6,5%	2,9%				
• Other	0,0%	0,0%	0,0%	0,0%	0,0%				
Unkown	0,9%	3,5%	2,3%	2,7%	3,9%				
		We	lfare inflow 200	3					

Table 3.1 Few programs started later than 12 months after inflow in Ul/welfare

			Wen		JW 2003		
		Non- participant	Career counselling	Training	Placement services		
No	future program	79%	40%	48%	53%		
Fut	ure program, of which:	21%	60%	52%	47%		
•	Career counselling	2,4%	16,9%	8,7%	9,3%		
•	Training	0,4%	9,3%	15,9%	2,6%		
•	Placement services	0,5%	11,9%	7,4%	18,4%		
•	Other	0,0%	3,3%	3,5%	2,4%		
•	Unkown	17,4%	19,0%	16,9%	14,6%		

The type of program is unknown for programs started from 2008 (2005) for UI inflow (welfare inflow). Source: Statistics Netherlands, calculation SEO Amsterdam Economics

	Non- Participant	Regular	Free space	Individual budget
Male	58%	59%	57%	69%
Age	38	40	39	42
Distance 1	61%	58%	69%	72%
Distance 2/3	25%	31%	24%	21%
Distance 4	3%	4%	2%	1%
Distance unknown	11%	7%	6%	5%
Primary school	6%	6%	4%	1%
High school 1	22%	23%	23%	12%
High school 2 / low vocational	40%	43%	44%	35%
Higher vocational degree	17%	16%	17%	31%
University degree	9%	7%	8%	19%
Education unknown	7%	5%	4%	3%
No Dutch citizenship	29%	29%	29%	22%
Single household	22%	22%	23%	21%
Number of months employed in 24 months before inflow	19	19	20	22
Wage of those employed 1 year before inflow	€22.914	€23.918	€24.882	€34.089
Part time factor of those employed 1 year before inflow	0,83	0,85	0,85	0,90
Number of working days 1 year before inflow	202	207	215	232
Number of months UI in 24 months before inflow	1,4	0,9	0,9	0,6
Number of months on welfare in 24 months before inflow	0,5	0,3	0,3	0,2
Number of months DI in 24 months before inflow	2,0	2,1	1,5	0,5
Number of months out of labour force in 24 months before inflow	3,0	3,2	2,7	1,9
Potential UI benefit duration in months	19	23	21	24
Number of observations	133.895	25.386	1.574	535

 Table 3.2
 Inflow in UI 2003 – participants more favourable background characteristics

	Non- Participant	Regular	Free space	Individual	Training
Male	50%	45%	65%	49%	54%
Age	39	42	42	43	41
Primary school	5%	9%	13%	3%	6%
High school 1	19%	25%	24%	17%	22%
High school 2 / low vocational	40%	38%	40%	41%	45%
Higher vocational degree	14%	8%	8%	19%	11%
University degree	6%	2%	3%	8%	5%
Education unknown	16%	19%	12%	12%	11%
No Dutch citizenship	29%	37%	32%	23%	31%
Single household	20%	18%	19%	21%	22%
Number of months employed in 24 months before inflow	17	15	18	16	16
Wage of those employed 1 year before inflow	€22.167	€20.460	€25.879	€26.188	€23.165
Part time factor of those employed 1 year before inflow	0,80	0,81	0,88	0,83	0,83
Number of working days 1 year before inflow	191	201	227	201	208
Number of months UI in 24 months before inflow	2,7	1,3	1,0	1,5	1,4
Number of months on welfare in 24 months before inflow	0,7	0,7	0,7	0,4	0,6
Number of months DI in 24 months before inflow	2,6	5,2	4,0	4,8	3,3
Number of months out of labour force in 24 months before inflow	3,2	3,7	2,4	3,5	3,8
Potential UI benefit duration in months	17	20	22	21	20
Number of observations	112.565	6.819	527	7.370	1.152

Table 2.2	Inflow in LII 2006 r	participante and no	n participante cor	mparable backgroup	d charactoristics
I able 3.3	1111000 111 01 2000 - 1	aniunanis anu nu	11-Darticiparits cor	Indatable backuluun	

	Non- Participant	Career	Training	Placement
Male	54%	60%	57%	69%
Age	37	37	37	36
Distance 1	24%	29%	25%	41%
Distance 2/3	37%	42%	51%	40%
Distance 4	19%	21%	14%	11%
Distance unknown	19%	9%	10%	8%
Primary school	15%	14%	15%	11%
High school 1	28%	30%	30%	28%
High school 2 / low vocational	24%	31%	26%	32%
Higher vocational degree	7%	9%	11%	12%
University degree	5%	6%	6%	10%
Education unknown	21%	9%	11%	8%
No Dutch citizenship	57%	58%	67%	63%
Single household	34%	39%	32%	42%
Number of months employed in 24 months before inflow	6,9	9,1	7,2	10,8
Wage of those employed 1 year before inflow	€10.240	€11.566	€10.033	€11.900
Part time factor of those employed 1 year before inflow	0,68	0,73	0,71	0,73
Number of working days 1 year before inflow	135	151	133	148
Number of months UI in 24 months before inflow	1,1	1,9	1,6	1,9
Number of months on welfare in 24 months before inflow	5,7	2,4	2,5	2,5
Number of months DI in 24 months before inflow	1,2	0,6	0,4	0,4
Number of months out of labour force in 24 months before inflow	10,4	11,0	13,3	9,5
Potential UI benefit duration in months	5	7	5	9
Number of observations	31.424	2.118	680	1.598

 Table 3.4
 Welfare inflow 2003 – participants more favourable background characteristics

The differences in employment probabilities between participants and non-participants are confirmed in Figure 3.1. This figure shows the probability of employment in the months before and after inflow. Employment probabilities of participants and non-participants starting UI in 2003/2006 are similar, only those participants with and individual budget in 2006 have somewhat larger employment probabilities right before the start of their UI benefit receipt. For welfare inflow in 2003, there is a relatively large difference in employment probability before inflow between nonparticipants and those receiving placement services. Note that in case of welfare recipients, those with higher probability of employment right before inflow are not necessarily the good risks: individuals with a long labour market history will first receive UI benefits before flowing into welfare.

From these descriptives, the lock-in effect for UI recipients participating in a program seems prevalent: the probability of employment for non-participants increases strongly in the first 12 months of UI, whereas the probability of employment for participants stays behind. The difference in employment probabilities between participants and non-participants 6 months after inflow is about 40 percentage points. The major part of this difference can be explained by the fact that the nonparticipants are selective in the sense that they are not attending any program because they already found a job (Fredriksson and Johansson; 2003, 2008), since our estimation results in Chapter 5 show that the lock-in effect is 'only' around 10 percentage points maximum.



Figure 3.1 Probability of employment – UI inflow (2003, 2006), welfare inflow (2003)

Source: Statistics Netherlands, calculation SEO Amsterdam Economics

4 Estimation method

4.1 Matching

Let $Y_t(1)$ be the value of some outcome (e.g. the probability of employment) at time t since inflow in UI/welfare when participating in training program P. Likewise, let $Y_t(0)$ be the value of the same outcome at time t since inflow in UI/welfare when not participating in training program P. This paper aims to estimate the average treatment effect on the treated (ATET) of participating in training program P:

 $ATET_{P} = E(Y_{t}(1) - Y_{t}(0)|P = 1) = E(Y_{t}(1)|P = 1) - E(Y_{t}(0)|P = 1)$

The counterfactual outcome $E(Y_t(0)|P = 1)$ is not observed and therefore needs to be constructed from the outcome of non-participants. The ATET can be identified under two assumptions:

- 1. Conditional independence (CIA): given a set of observable characteristics X which are not affected by treatment status, the potential outcome in case of no treatment $Y_t(0)$ is independent of treatment status P.
- 2. Common support: given a set of observable characteristics X which are not affected by treatment status, the probability of treatment is between 0 and 1: 0 < P(P = 1|X) < 1. This condition ensures that treatment status P is not perfectly predictable conditional on X.

We use propensity score matching (Rosenbaum and Rubin, 1985) to estimate the ATET. The matching procedure followed is developed by Lechner et al. (2011) and implemented in STATA by Huber et al. (2012). This estimator combines propensity score radius matching with bias adjustment for possible mismatches. Importantly, this estimator is superior in terms of the Root Mean Squared Error (RMSE) in a study by Huber et al. (2013) who test the finite sample performance of various estimators in estimating the effects of active labour market policies. The estimators tested include inverse probability weighting, various types of matching estimators as well as different parametric methods.

4.2 Conditional independence

The dataset likely contains all variables needed to ensure that the CIA is satisfied, i.e. the data at hand provides us with all major factors that jointly determine selection into the program and the estimated outcome (e.g. probability of employment). There are three main reasons why selection on unobservables are unlikely to drive our results, with the exception of the results for individual budgets started in 2003.³

First, a recent paper by Caliendo et al. (2017) shows that characteristics such as personality traits, attitudes, expectations and job search behaviour play a significant role in for selection into active labour market programs, but hardly change estimated treatment effects of active labour market

³

Individuals who became unemployed in 2003 and made use of an individual budget were a small and selective subgroup of early adapters. In a survey, those individuals, more often than non-participants, said to be healthy and to be motivated to get back to work (Schrijvershof et al., 2008). Effects of individual budgets for the inflow in 2003 might therefore be overestimated.

programs in a propensity score matching estimators, if detailed labour market history of the individual is included in the match.⁴ They argue that unobserved characteristics, especially those that are constant over time, are captured by prior labour market performance. Moreover, our estimated effects on the probability of employment are very much in line with results presented by Heyma and van der Werff (2014). They estimated the effect of active labour market programs in the Netherlands on the probability to regain employment for UI recipients after 18 months of unemployment with a multivariate mixed proportional hazard duration model, correcting for unobserved heterogeneity in their specification.

Second, any remaining selection by the caseworker or the individual is controlled for using a particularly rich set of background information. Based on a simulation study, and in line with Caliendo (2017), Lechner and Wunsch (2013) compose a list of the major characteristics that should be included in the match. These characteristics are:

- 1. Personal characteristics (age, education, nationality, number of children, age youngest child, marital status)
- 2. Information on unemployment period (month of entry into unemployment, time to treatment, benefit height, remaining potential benefit duration, no UI claim)
- 3. Regional indicators
- 4. Short-term labour market and earnings history (up to two years before inflow: number of months worked, number of employers, number of months UI, number of times unemployed, income in the 1, 2, 3, 4 years preceding unemployment etc.)

Characteristics that are less important for correct inference on the effectiveness of labour market programmes are:

- 1. Last employment: firm and non-firm characteristics (industry, profession, fulltime or parttime employment, company size, age distribution within the company etc.)
- 2. Long-term labour market history up to 10 years before unemployment.
- Industry and occupation-specific experience (tenure in last occupation/industry, total duration in last occupation/industry, number of occupation/industry changes)
- 4. Health (health impairments, duration reported in sick in the past etc.)
- 5. Characteristics of job looked for (skill profile, full/part-time, occupation)
- 6. Detailed regional information (e.g. regional unemployment)

We can control for all major characteristics and some of the less important characteristics such as the part-time factor of the last job, number of months receiving disability insurance (as a crude indicator of health), searching for a full-time of part-time job, and regional information on the level of the municipality such as employment rate and number of inhabitants. Appendix A contains full estimation results for several of the estimated probit models for selection into treatment.

Third, in the Netherlands policy in the period 1997-2007 stated that every unemployed should be offered a program within the first 12 months of unemployment (UI or welfare). In practice, not every individual was offered a program: around 75% of individuals who were unemployed for 12 months were not offered a program in the first 12 months (Kok et al., 2004). However, there was no well-defined targeting of programs during this period (Heyma and van der Werff, 2014), thereby

The treatment effects estimated by Caliendo et al. (2017) are the probability of employment at 12 and 30 months, the number of months employed within 30 months and cumulated earnings within 30 months.

mitigating any potential selection issues. The only official selection criterion for the timing of participation in an active labour market program was the so called 'distance' of the individual: a subjective assessment of the labour market chances of an individual by the caseworker. Individuals in 'distance' 1 were considered to be able to find work within 6 months without any training program and for this reason were not offered a training program within the first 6 months of UI/welfare. The data includes a variable indicating the 'distance' for individuals flowing into welfare/UI in 2003 (but not for those flowing into UI in 2006). Adding a variable that reflects a subjective assessment of the caseworker can be of major importance since the judgment of the caseworker may include some factors which are not observable to us (Sianesi 2004, 2008; Lechner and Wiehler, 2013).

4.3 Program start dates for non-participants

All conditioning variables are measured from the beginning of unemployment instead of the beginning of program start, such that they are not affected by treatment status or anticipation effects. However, both the probability of attending a program and the employment prospects of (potential) participants likely also depend on the number of months in UI/welfare at the moment that the program starts. Start dates of programs for those who did not participate in a program are not observed. We therefore simulate start dates of a program for non-participants using a logit model which includes monthly dummy variables for the duration since inflow in UI/welfare and other personal and regional characteristics that are able to predict timing of program start.⁵ The logit model predicts the probability of starting a program after 1, 2, 3 ... 12 months for each individual. Subsequently, this predicted probability distribution if confronted with a random probability between 0 and 1 to determine the start date of the non-participant. The advantage of using a logit model instead of a log-lineair model as in Lechner et al. (2011) is that all simulated program dates are between 0 and 12, such that we do not need to remove any non-participants with simulated starting dates exceeding 12 months. The distribution of simulated starting dates for non-participants mirrors the observed distribution of starting dates for participants closely.⁶ Non-participants who flow out of UI/welfare before the start of their (simulated) program are removed from the matching procedure. They are not eligible for program participation at the moment of program start and therefore cannot serve as a proper control group. Moreover, removing those non-participants who flow out of welfare/UI before they can start a program serves as a correction for a possible selection effect mentioned by Fredriksson and Johansson (2003, 2008): non-participants can be selective in the sense that they are not attending any program because they already found a job. Assuming that all relevant factors for the joint determination of program date and outflow probability have been included in the logit models, a non-selective subset of non-participants remains.

⁵ Other variables included in the logit depend on the sample of individuals (UI/welfare) and include gender, age, the subjective assessment of the caseworker, education, quarter of inflow, short-term labour market history and vicinity of child care. Importantly, we include regional dummy's for regions that jointly bought active labour market programs from private re-employment companies for their UI recipients.

⁶ Results from the logit models and simulated starting dates of non-participants are available from the authors on request.

5 Estimation Results

5.1 Treatment effects on the treated

Table 5.1 shows the average treatment effects on the treated populations in terms of employment and benefit receipt and earnings. Since we have data up to the year 2011, individuals who become unemployed in 2003 (2006) can be followed for up to 8 (5) years after inflow into unemployment.

	UI	inflow 2	2003		UI inflow 2006			Welfare inflow 2003		
	Regular	Free space	Indivi- dual budget	Regular	Free space	Indivi- dual budget	Training	Career coun- selling	Training	Place- ment services
P(employment) 60 months	3.1*	3.3*	6.8*	1.6	4.0	5.7*	5.3*	2.9	5.1*	6.6*
P(employment) 96 months	2.8*	4.0*	9.6*					1.7	2.4	7.2*
Months em- ployed within 60 months	-0.4*	-0.2	0.3	-0.1	0.6	1.4*	2.6*	0.6	1.4	4.9*
Months em- ployed within 96 months	0.5	1.1	3.8*					1.5	2.7	7.3*
P(benefit) 60 months	0.8	-1.3	-5.0*	3.5*	2.6	0.5	-2.7	-2.7	-0.7	-4.2*
P(benefit) 96 months	1.1*	-1.7	-1.9					-1.2	-2.0	-4.9*
Months benefit within 60 months	1.7*	0.4	-1.5*	1.4*	2.5*	0.8*	1.4*	0.2	0.1	-2.9*
Months benefit within 96 months	2.1*	-0.1	-3.2*					-0.4	-0.6	-4.2*
Ν	25.386	1.574	535	6.819	527	7.370	1.152	2.118	680	1.598

Table 5.1 A	Average treatment	effect on the treate	d: employment	, benefit receipt	and earnings
-------------	-------------------	----------------------	---------------	-------------------	--------------

 indicates a significant difference in number of months employed between program participants and nonparticipants at the 5% level. Benefit receipt indicates any benefits: UI, welfare or disability benefits.
 Source: Statistics Netherlands, calculation SEO Amsterdam Economics

Positive long run impact on the probability of employment

All programs have a positive impact on the probability of employment in the long run (60 months after inflow into unemployment). For UI recipients, individual budgets and specific training measures are more effective than the more general 'regular trajectories' and 'free space trajectories'. For welfare recipients, placement services seem especially effective in increasing employment probability.

Figure 5.1 shows the probability of employment for the various programs on a monthly basis, taking the matched group of nonparticipants as a baseline. Starting at the left-hand side, each figure shows that (a) before inflow into unemployment, there are no persistent significant differences in the probability of unemployment between the participants and the matched group of nonparticipants, which is a sign of a good match (b) in the first 12-24 months after inflow into unemployment,

participants experience a negative *lock-in effect* while participating in the program⁷ and (c) after the initial lock-in effect, all programs show a positive effect on the probability of employment. For most programs this effect sustains for the full follow-up period of 8 years. Apparently, individuals who are able to find a job as a result of participation in active labour market policies are either able to keep that job or having a job makes them more attractive on the labour market such that it is easier to find another job in case they get unemployed (again).

The increase in the probability of employment is about 3-10 percentage points after eight years, which is substantially lower than the 10-20 percentage points increase in employment found in Lechner et al. (2011). However, our results are in line with the effects found in Heyma and van der Werff (2014), who study the employment probabilities of Dutch UI recipients 18 months after inflow in UI during the years 2008-2011, using a multivariate mixed proportional hazard model. They show that regular trajectories decrease the probability of employment with about 3 percentage points 18 months after inflow in UI, whereas individual budgets increase employment probability with 1.4 percentage points.

Long-run effects are larger for the UI inflow in 2003 than for the UI inflow in 2006. The year 2003 was a recession, followed by a boom. Individuals who take place in a program in 2003/2004 start their search period later, during the boom, as compared to the situation when they would not take place in a program and start applying for jobs directly (during a recession). According to Lechner and Wunsch (2009), delayed search during a recession therefore can increase program impact. For individual budgets, another explanation for the high effectiveness in 2003 is that individuals who became unemployed in 2003 and made use of an individual budget were a small and selective group of early adapters (individual budgets were only available from 2004, see Chapter 3).⁸ Effects of individual budgets for the inflow in 2003 might therefore be overestimated. Alternatively, it might be that the use of the individual budget was especially beneficial for the selective group of participants who became unemployed in 2003.

The average duration of a program is eight months for UI recipients (Tempelman et al., 2010). We examine programs starting up to 12 months after inflow in UI, the major share of programs of UI recipients in our sample will therefore run up to 20 months after inflow in UI.

There are some indications that the 2006 individual budget-group was less selective than the 2003 individual budget-group. Non-participants in 2003, with the same characteristics as those with an individual budget in 2003, had a 46% employment probability two years after UI-inflow. For non-participants with the same characteristics as those with a regular trajectory in 2003, the employment probability after two years was 42%, a difference of four percentage points. In 2006, this difference is only 2 percentage points.





Note: ■▲ ●● indicates a significant difference in employment probability between program participants and nonparticipants at the 5% level

Small lock-in effects for welfare recipients

Figure 5.1 shows that the lock-in effect is much smaller for welfare recipients as compared to UI recipients. For placement services in particular, the lock-in effect seems to be non-existent. The literature on ALMP's identifies three situations in which lock-in effects can be more severe: (1) 'positive' characteristics of unemployed that enable them to find a job without participating in a program (2) an economic boom and/or (3) long program duration. The first seems to be the most likely explanation for the virtual absence of lock-in effects for welfare recipients: welfare recipients typically do not have (much) recent labour market experience, since either they already went through a period of UI before receiving welfare, or they were not eligible for UI benefits in the first place. Non-participants flowing into welfare in 2003 only had a 21 percent probability to find a job within two years, as opposed to 42 percent for non-participants flowing into UI in 2003 (50 percent for those flowing into UI in 2006). A difference in regulations can also play a role. In the Netherlands, UI recipients are *automatically exempted* from any job search efforts when they participate in a training course which is believed to be necessary for reintegration on the labour market. Welfare recipients *can* be exempted from their job search requirements when attending any reintegration program.

Figure 5.1 also shows that the lock-in effect for UI recipients in 2003 lasts longer than that for UI recipients in 2006. Again, more 'positive' characteristics of UI recipients in 2003 can explain this finding: participants of ALMP's in 2003 were higher educated and on average worked a higher number of months in the period before unemployment (compare Table 3.2 and Table 3.3). This can be explained by the fact that relatively more unemployed individuals were offered a program in 2003, such that individuals with higher a priori employment probabilities were also targeted. Alternative explanations like a boom or longer program durations cannot offer an explanation since there was a recession in 2003 (and a boom in 2006), and since program duration did not change in the period 2003-2006 (source: Public Employment Services).

Probability of benefit receipt does not decline for UI recipients

Although (almost) all programs for UI recipients increase the probability of employment in the long run, the probability of benefit receipt does not decline.⁹ In fact, the probability of benefit receipt actually increases after participating in a regular program. In the long term, the number of months of benefit receipt increases for UI recipients who follow a program (Table 5.1, Figure 5.2). This finding confirms previous results from Germany: Fitzenberg and Völter (2007) and Lechner et al. (2011) conclude that ALMP's for UI recipients do not lead to a significant decline in the probability to receive UI benefits. Table 5.1 and Figure 5.2 show that the probability of benefit receipt does decline for *welfare recipients* who are offered placement services.

An exception is the possibly selective result on the individual budgets for those who become unemployed in 2003.

Figure 5.2 Probability of (any) benefit receipt: percentage point difference between participants and non-participants



Note: ■▲ ●● indicates a significant difference in probability of benefit receipt between program participants and non-participants at the 5% level

Why does benefit dependency not decline for UI recipients who receive a trajectory, while employment probability increases? The most likely explanation is that when a UI recipient starts a job after following a training program, he will become eligible for renewed UI benefits after 26 weeks of work, meaning that he can start a new UI-spell at the moment he loses (part of) his job. On the other hand, when he does not start a training program and therefore does not find a job, his eligibility for UI benefits expires after 6 months to 7.5 years (depending on working history and age). When eligibility for UI expires, the only option left is to apply for welfare, which is tested against the household's savings and income of the spouse. Some former UI recipients will not be eligible for welfare benefits and will stop receiving benefits all together. This process does not affect welfare recipients, since they can receive welfare benefits for an indefinite period of time.

For welfare recipients career counselling and training lead to a small lock-in effect, which increases welfare dependency in the first 24 months. Thereafter these instruments have marginal positive effects on employment, but do not lead to a significant decline of welfare dependency. Potentially part of those who find work do not earn enough to support their family, and therefore still receive (partial) welfare payments.

5.2 Cost-benefit analysis

In order to assess the cost-effectiveness of active labour market policies form a societal point of view we compare the costs of these programs with the productivity increase caused by the program. Productivity increases are the main benefit of active labour market policies (Kok et al 2006). An increase in production leads to a higher gross national product. There are also benefits in terms of greater happiness of those who find work, better health and less crime. On the other hand, leisure time of those who find work decreases. The balance of these costs and benefits appear to be small in comparison with the production increase. Because the benefit dependency is not reduced, there is no saving in benefit costs. Moreover, benefits are transfers: they are costs for the taxpayer and benefits for the unemployed who receive them. They are therefore irrelevant for the balance of a cost-benefit analyses from a societal point of view. For the same reason taxes paid by the unemployed that get back to work are irrelevant from a societal point of view.

Productivity of employees is proxied by total labour costs: gross wage plus employer's costs (like contributions for pensions and UI-contributions). The net present value of productivity gains in 2003 or 2006 is calculated by using a discount factor of 5,5%.

Table 5.2 shows that after 7 years the productivity changes are larger than after 4 years, and generally positive, except for regular programs for those on UI-benefit. For the unemployed only training and individual budgets which started in 2003 are cost-effective. Training for those on UI-benefits are short term trainings, like courses in computer skills or administrative skills, or trainings to become a taxi-driver. For individual budgets we cannot exclude the possibility this effect is driven by unobserved characteristics of participants. It was only a very small, probably highly motivated group which opted for an individual budget in 2003. After 2003 the use of this program grew rapidly. For welfare recipients, placement services are highly cost-effective, already after 4 years, and even more so after 7 years. This is probably because this program does not have a lock-in effect. Training programs are effective if they are short term.¹⁰ The costs of short term trainings for welfare recipients are estimated at \notin 3.300, while long term training costs \notin 10.200. The result that short term trainings are cost effective is consistent with the results of Osikominu (2012) for Germany. This result holds as well for welfare recipients as for UI-recipients.

UI inflow 2003	Regular	Free space	Individual budget	
Productivity change after 4 years	- €1.740	- €1.940	€580	
Productivity change after 7 years	-€670	€530	€10.910	
Costs	€3.200	€2.200	€2.900	
UI inflow 2006	Regular	Free space	Individual budget	Training
Productivity change after 4 years	-€2.130	-€1.090	€1.430	€4.800
Costs	€3.400	€2.400	€3.100	€3.400
Welfare inflow 2003	Career counselling	Training	Placement services	
Productivity change after 4 years	-€1 0	€1.270	€8.310	
Productivity change after 7 years	€1.250	€3.770	€13.820	
Costs	€3.500	€3.300-€10.200	€3.200	

Table 5.2 Cost-effectiveness programs

Source productivity change: Statistics Netherlands, calculation SEO Amsterdam Economics

Note: Costs of programs in 2008 have been estimated based on Tempelman et al. 2011. These costs have been deflated with the increase in hourly labour costs in the sector business services in the period 2003-2008 or 2006-2008; 14,1 and 6,5 respectively (www.statline.nl).

5.3 Impact heterogeneity

To test whether treatment effects differ across groups of individuals with different observable characteristics, we stratify the sample and perform matching on the resulting subsamples:

- Males versus females
- Low educated versus high educated
- Young (25-45 years) versus middle-aged (45-55 years)
- Recent labour market history versus no recent labour market history
- Singles versus couples

Some interesting results stand out (see Table 5.3). Almost all trajectories are more effective for those without recent labour market history. An exception are placement services, which seems slightly more effective for those who worked in the period just prior to inflow in welfare. These results are in line with results previously found in the literature on active labour market policies. Lechner et al. (2011) find that UI recipients with an a priori low probability of a job offer benefit more from ALMP's in comparison to individuals with an a priori high probability of a job offer.

¹⁰ The data do not allow us to measure the effects of short-term and long-term training programs for welfare recipients separately. It is however likely that the effects of short term trainings are on average larger than those of long term trainings, because the short term trainings are aimed directly at acquiring job specific skills, while the long term trainings are directed at more general skills and at getting the unemployed back to school.

Lower educated benefit more from schooling than higher educated. This holds for both welfare recipients and UI recipients. In contrast, placement services are especially effective for higher educated welfare recipients. A job hunter might experience less difficulty in 'selling' a highly educated individual to employers. There are no large or systematic differences in effectiveness between gender, age, or household composition.¹¹

An exception are individual budgets in 2003, which seem to be especially effective for middle-aged individuals. However, the individuals who took up an individual budget in 2003 were a small and probably selective group of early adapters. The results for individual budgets in 2003 are therefore likely driven by self-selection. There is only a small difference in effectiveness across age groups for individual budgets in 2006.

		UI inflow 2003				UI inflow 2006			Welfare inflow 2003		
		Regular	Free space	Individual budget	Regular	Free space	Individual budget	Training	Career counselling	Training	Placement services
Gender											
Ma	ale	1,5*	-0,4	4,3	0,7	2,0	2,0*	2,6*	1,4	3,1	7,6*
Fer	male	-0,3	1,4	0,4	-0,1	-0,3	0,8	0,8	2,6*	1,8	8,6*
Education											
Lov	w (primary or low level of condary school)	0,3	4,3*	x	-0,1	-0,3	2,2*	5,4*	-0,7	4,9*	5,1*
Hig sch	gh (high level of secondary nool up to university degree)	0,7	0,3	1,2	0,3	0,5	-0,1	1,0*	1,6	2,1	8,5*
Age											
25-	-45 years	0,7	1,9	0,3	0,3	2,9*	0,8	2,0*	0,5	2,7	5,5*
45-	-55 years	-0,2	-0,7	6,6	-1,0	-1,8	1,2*	3,1*	0,4	0,8	7,2*
Recent labou	ur market history										
Did bef	d not work in 24 months fore inflow in welfare	1,2*	2,4	x	1,4*	1,1	3,8*	4,3*	4,2*	7,2*	5,8*
Wo 24	orked at least one day in months before inflow	-0,2	1,2	2,9	-1,3*	-0,3	-0,5	1,2	0,2	1,6	6,6*
Household co	omposition										
Sing	gle/single parent	0,6	0,3	x	-2,3*	x	1,3	1,4	-0,5	x	5,4*
Mar	rried/co-habiting	0,2	1,1	5,5*	0,5	0,0	1,1*	2,2*	1,5	3,5*	7,3*

Table 5.3	Heterogeneous treatment effect on the treated: effect on number of months worked until 8	years after inflow (5 years for UI inflow 2006)
		J	· · · · · · · · · · · · · · · · · · ·

* indicates a significant difference in number of months employed between program participants and non-participants at the 5% level. Results for groups of less than 100 partici-pants were not calculated and are indicated with an x. Source: Statistics Netherlands, calculation SEO Amsterdam Economics

6 Conclusion

We show that in the long run, 4 to 7 years after the start of the program, active labour market programs have a positive and persistent effect on the probability of employment. In the short run active labour market programs show only modest results. The difference between short run and long run effects can be explained by the lock-in effect: during the program participants do not seek a job, which lowers their probability of finding a job compared to non-participants. Only after this initial lock-in effect, the employment probability of those who took place in an active labour market program increases. The productivity gains in the long run are therefore larger than in the short run.

However, also in the long run only the productivity gains of placement services and short term training courses outweigh the costs. Placement services have no lock-in effect because the nature of the program is that the unemployed are assisted in searching a job. Search effort therefore immediately increases from the start of the program. Short term training courses do have a lock-in effect, but also show large positive effects on the probability of employment in the long run.

For other programs, it takes more than 7 years before the financial costs and productivity losses during the initial lock-in phase are fully compensated by the long-run productivity gains. Career counselling for welfare recipients is not cost-effective, and neither are full programs for UI-recipients (regular programs, individual budgets and free space programs). Full programs are usually a combination of job application training and job search assistance. These programs typically last for about nine months to a year, during which job search effort is reduced. Moreover, these programs are less effective than short term training courses in raising the long run employability of UI recipients.

Almost all active labour market programs are more effective for those with a relatively *low* probability to find work. These are the lower educated and those without recent work experience. The program does not 'lock them in', since they are unable to find a job without any assistance. This may imply that labour market programs can be more effective for welfare recipients as compared to UI-recipients. Indeed, we observe a much smaller lock-in effect for welfare recipients. On the other hand, after the initial lock-in, short term training appears to be far more effective for UI-recipients than for welfare recipients. This might be due to the kind of training (training of welfare recipients might be less aimed at finding a job), or because welfare recipients have such a large distance to the labour market that they are unable to find a job even with assistance.

Programs that immediately increase search effort such as placement services are more effective for individuals with a *high* probability to find work. These programs do not suffer from a lock-in effect, and the effect of the program on job chances is higher for individuals that are easier to employ.

To ensure positive welfare effects of active labour market policies, unemployed with a low probability to find a job should be offered a program which increases their probability to find a job in the long run, such as training courses. Unemployed with a high probability to find a job can be offered trajectories which immediately increase search effort such as placement services, or training programs which do have a lock-in effect but substantially increase employment probabilities afterwards. Programs which temporarily decrease search effort ideally start during a recession, since the lock-in effect of such programs is much smaller in times of economic downturn.

Literature

- Caliendo M., Mahlstedt R., Mitnik O.A. (2017). Unobservable, but Unimportant? The relevance of usually unobserved variabels for the evaluation of labor market policies. *Labour Economics*, 46, 14-25.
- Card D., Kluve J., Weber A. (2010). Active labour market policy evaluations: a meta-analyses. *The Economic Journal*, 120(548). F452-F477
- Card D., Kluve J., Weber A. (2015). What works? A meta-analysis of recent active labor market program evaluations. NBER paper no. 21431, Cambridge: National Bureau of Economic Research
- Dolton P.J., Smith J.A. (2011). The impact of the UK New Deal for lone parents on benefit receipt, Discussion Paper, Institute for the Study of Labor (IZA)
- Frederiksson P., Johansson P. (2003). Program evaluation and random program starts. IFAU Discussion Paper, Uppsala
- Fredriksson P., Johansson P. (2008). Dynamic treatment assignment the consequences for evaluations using observational studies, *Journal of Business Economics and Statistics*, 26. 435-445
- Groenewoud M., Slotboom S. (2009). Scholing via UWV. Een onderzoek naar de mate waarin scholingstrajecten tot werk leiden (Education via UWV. An examination of the extent to which education programs lead to work), Regioplan publicatienr. 1828, Amsterdam: Regioplan Beleidsonderzoek
- Heyma A., Werff S. van der (2014). Een goed gesprek werkt, SEO rapport 2013-72, Amsterdam: Amsterdam Economics.
- Kok L., Korteweg J.A., Meer M. van der (2004). Evaluatie Sluitende Aanpak 1998-2003 (Evaluation comprehensive approach), SEO rapport 739, Amsterdam: Amsterdam Economics
- Huber M., Lechner M., Steinmayr A. (2012). Radiusmatch: Stata module to perform distanceweighted radius matching with bias adjustment.
- Huber M., Lechner M., Wunsch C. (2013). The performance of estimators based on the propensity score. *Journal of Econometrics*, 175. 1-21.
- Kuve J. (2010). The effectiveness of European active labor market programs. *Labour Economics*, 17. 904-918

- Kluve J., Schneider H., Uhlendorff A., Zhao Z. (2012). Evaluating continuous training programmes by using the generalized propensity score. *Journal of the Royal Statistical Society*, 175, part 2. 587-617
- Lechner M., Wunsch C. (2009). Are training programs more effective when unemployment is high? Journal of Labor Economics, 27(4). 653-692
- Lechner M., Miquel R., Wunsch C. (2011). Long-run effects of public sector sponsored training in West-Germany. *Journal of the European Economic Association*, 9(4). 742-784
- Lechner M., Wiehler S. (2013). Does the order and timing of active labour market programmes matter? Oxford Bulletin of Economics and Statistics, 75(2). 180-212
- Martin J.P. (2014). Activation and active labour market policies in OECD countries: stylized facts and evidence on their effectiveness. *IZA Policy Paper No 84*
- Ours J.C. van (2004). The locking-in effect of subsidized jobs. *Journal of Comparative Economics*, 32. 37-55
- Rosenbaum P.R., Rubin D.B. (1985). Constructing a control group using multivariate matched sampling methods that incorporate the propensity score. *The American Statistician*, 39(1). 33-38
- Schrijvershof C., Thijs C., Visscher K., Aarts L. (2008). Eindevaluatie IRO (Final evaluation individual re-employment budgets). Den Haag: APE
- Sianesi B. (2004). An evaluation of the Swedish system of active labour market programmes in the 1990s', Review of Economics and Statistics, 86. 133-155
- Sianesi B. (2008). Differential effects of Swedish active labor market programmes for unemployed adults during the 1990s', *Labour Economics*, 15. 370-399
- Tempelman, D. C. G., Berden, C., & Kok, L. M. (2010). Kosten en resultaten van re-integratie: (Costs and results of re-employment services). Amsterdam: SEO Economic Research.
- UWV (2005). UWV 4e kwartaal 2005 beperkte rapportage. Amsterdam, February 2005.

Appendix A Estimating the probability of program participation

Table 6.1	Probits for probabili	ity of program	participation,	various programs

	UI inflow 2003	UI inflow 2006	Welfare inflow 2003
	Regular	Regular	Career counselling
Male	0.03**	0.00	0.11***
Age 30-34 (ref=age 25-29)	0.09***	0.24***	0.02
Age 35-39	0.13***	0.32***	0.06
Age 40-44	0.18***	0.35***	0.08**
Age 45-49	0.23***	0.34***	0.13***
Age 50-55	0.24***	0.35***	0.09*
Distance 2/3 (ref=distance 1)	0.14***	-0.06**	0.09**
Distance 4	0.14***	-0.17***	0.17***
Distance unknown	0.03	-0.42***	0.00
High school 1 (ref=primary school)	0.06**	-0.50***	0.11**
High school 2/low vocational	0.09***	-0.14***	0.14***
Higher vocational degree	0.02	0.18***	0.13**
University degree	-0.02	-0.08	0.14**
Education unknown	0.28***	-0.06**	-0.09
No Dutch citizenship	0.03**	-0.06*	-0.09***
Single parent (ref=single household)	-0.06*	-0.02	-0.13
Married	-0.06***	0.06**	-0.28***
Co-habiting	-0.04*	0.01	-0.31***
Other household	-0.12***	0.25**	-0.24***
Child in household	0.04**	-0.05***	0.16**
Child in household <5	-0.03	0.00	-0.22**
Single parent with child <5	0.08	-0.06**	-0.02
Number of months employed 6 months before inflow	-0.07***	-0.17***	-0.02
Number of months employed 24 months before inflow	0.01***	-0.42***	0.00
Number of months employed 60 months before inflow		0.00	
Times employed 24 months before inflow	0.00	0.03	0.01
Times employed 60 months before inflow		-0.02	
Number of months since last job (max 24 months before inflow)	0.00	0.00	0.00
Number of months since last job (max 60 months before inflow)		0.00**	
Not employed in 24 months before inflow	0.14**	0.21**	-0.05

-0.09*

Duration last job	0.01**	0.00	0.00
Employed 6 months before inflow (y/n)			0.12**
Employed 18 months before inflow (y/n)			0.09
Number of months until program start	-0.02	0.09***	0.02***
Inflow month april-june (ref= jan-march)	-0.12***	-0.02	0.00
Inflow month july-sept	-0.08***	-0.05**	0.00
Inflow month oct-dec	0.09***	-0.09***	0.05
Looking for a job for 12-25 hours a week (ref=<12 hours)	0.33***		-0.01
Looking for a job for 25-32 hours a week	0.32***		0.15
Looking for a job for >=32 hours a week	0.35***		0.06
Wage 1 (calendar) year before inflow	0.00***	0.00***	0.00
Employed 1 (calendar) year before inflow (y/n)	0.03	0.02	0.02
Wage 2 (calendar) years before inflow	0.00	0.00**	0.00**
Employed 2 (calendar) years before inflow (y/n)	-0.02	-0.05	-0.11
Wage 3 (calendar) years before inflow	0.00**	0.00***	0.00
Employed 3 (calendar) years before inflow (y/n)	0.01	-0.03	0.05
Wage 4 (calendar) years before inflow	0.00**	0.00	0.00
Employed 4 (calendar) years before inflow (y/n)	0.01	0.01	0.03
Wage 5 (calendar) years before inflow		0.00**	
Employed 5 (calendar) years before inflow (y/n)		0.14*	
Wage 6 (calendar) years before inflow		0.00	
Employed 6 (calendar) years before inflow (y/n)		-0.05	
Wage 7 (calendar) years before inflow		0.00	
Employed 7 (calendar) years before inflow (y/n)		0.00	
Part time factor 1 (calendar) year before inflow	0.13***	0.16***	0.10
Part time factor 2 (calendar) years before inflow	0.10***	0.13**	0.16**
Part time factor 3 (calendar) years before inflow		0.10**	
Part time factor 4 (calendar) years before inflow		0.09*	
Part time factor 5 (calendar) years before inflow		0.03	
Number of working days 1 (calendar) year before inflow	0.00*	0.00	0.00
Number of working days 2 (calendar) years before inflow	0.00	0.00	0.00
Number of working days 3 (calendar) years before inflow	0.00	0.00**	0.00
Number of working days 4 (calendar) years before inflow	0.00***	0.00	0.00
Number of working days 5 (calendar) years before inflow	0.00	0.00	0.00
Number of working days 6 (calendar) years before inflow		0.00	
Number of working days 7 (calendar) years before inflow		0.00	
Number of months UI 6 months before inflow	-0.14***	-0.08***	0.02
Number of months UI 24 months before inflow	-0.02***	-0.03***	0.01
Number of months UI 60 months before inflow	0.02	0.00	0.01
Times LII 24 months before inflow	-0.01	0.00	0.00
Times UI 60 months before inflow	0.01	-0.01	0.00
Number of months since last LII spell (may 24 months before inflow)	0 02***	0.01	-0.01
Number of months since last UI spell (max 60 months before inflow)	0.02	0.01	0.01
No LII in 24 months before inflow	በ 28***	0.00	-0.12
Number of months welfare 6 months before inflow	0.20 _0.01	_0.00	-0.12
Number of months welfare 24 months before inflow	-0.01 _0.01*	0.01	-0.00
Number of months welfare 60 months before inflow	-0.01	0.00	-0.04
Times welfare 24 months before inflow	0.06	0.00	0.04
	0.00	0.14	0.04

Times welfare 60 months before inflow

Number of months since last welfare spell (max 24 months before inflow)	0.00	-0.01	-0.01
Number of months since last welfare spell (max 60 months before inflow)		0.00**	
No welfare in 24 months before inflow	0.06	0.04	0.01
Welfare 6 months before inflow (y/n)			-0.13
Welfare 12 months before inflow (y/n)			0.06
Welfare 18 months before inflow (y/n)			0.11
Welfare 24 months before inflow (y/n)			0.28***
Number of months DI 6 months before inflow	-0.05***	0.06***	-0.09**
Number of months DI 24 months before inflow	0.00**	0.00	0.01
Number of months DI 60 months before inflow		0.00	
Times DI 24 months before inflow	-0.41***	0.12	0.27
Times DI 60 months before inflow		-0.13**	
Number of months since last DI spell (max 24 months before inflow)	-0.03***	-0.02**	0.01
Number of months since last DI spell (max 60 months before inflow)		0.00*	
No DI in 24 months before inflow	-0.76***	0.17	0.44
Employment rate	1.00***	-0.15	1.78***
Municipality with 50.000-100.000 inhabitants (ref=20.000-50.000)	0.12***	-0.15**	0.48***
Municipality with 100.000-150.000 inhabitants	0.09***	-0.05	0.42***
Municipality with 150.000-250.000 inhabitants	0.10***	-0.04*	0.28***
Municipality with 250.000+ inhabitants	0.10***	0.02	0.86***
High number of inhabitants per km2 (ref=very high)	0.14***	-0.05**	0.10*
Low number of inhabitants per km2	0.05***	-0.09***	0.39***
Very low number of inhabitants per km2	0.03*	-0.08***	0.27**
Unemployment rate	-0.04***	0.00	0.01
% low income households in municipality	0.01***	0.01	-0.02*
% high income households in municipality	0.00	-0.01	0.02*
East-Netherlands (ref=North-Netherlands)	-0.27***	-0.27***	
South East-Netherlands	-0.21***	-0.22***	
South West-Netherlands	-0.26***	-0.29***	
Mid West-Netherlands	-0.33***	-0.14***	
North West-Netherlands	-0.12***	-0.23***	
Maximum potential UI benefit duration	0.00**	0.01**	
Short term UI eligibility	0.09	0.21**	
Long term UI eligibility	-0.03	-0.01	
Constant	-2.25***	-1.94***	-3.19***

Note: Probits for probability of a free space trajectory and an individual budget budget for UI inflow 2003 have the same specification as the probit for probability of a regular trajectory for the 2003 inflow. Probits for probability of a free space trajectory, an individual budget budget and training for UI inflow 2006 have the same specification as the probit for probability of a regular trajectory for the 2006 inflow. Probits for probability of training and probability of placement services for welfare inflow 2003 have the same specification as the probit for probability of career counselling. All estimation results are available from the authors on request.



seo amsterdam economics

Roetersstraat 29 .1018 WB Amsterdam .T (+31) 20 525 16 30 .F (+31) 20 525 16 86 .www.seo.n