What Did All the Money Do? On the General Ineffectiveness of Recent West German Labour Market Programmes

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On the General Ineffectiveness of Recent West German Labour Market Programmes[1]

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Abstract

We provide new evidence on the effectiveness of West German labour market programmes by evaluating training and employment programmes that have been conducted 2000 - 2002 after the first large reform of German labour market policy in 1998. We employ exceptionally rich administrative data that allow us to use microeconometric matching methods and to estimate interesting effects for different types of programmes and participants at a rather disaggregated level. We find that, on average, all programmes fail to improve their participants' chances of finding regular, unsubsidised employment. Rather, participants accumulate 2 - 13 more months of unemployment than nonparticipants over the 2.5 years following programme start, which, in addition to direct programme costs, induces net costs in terms of benefit payments and wage subsidies amounting to, on average, 1500- 7000 EUR per participant. However, we show that there is some scope for improvements in mean employment rates as well as potential for considerable cost savings by a reallocation of participants to the different programmes.

Keywords

Matching estimation, causal effects, programme evaluation, panel data

JEL Classification

J68

1 Introduction

In recent years, large advancements have been made in understanding the effects of active labour market policies (ALMPs). The early literature, which was mainly concerned with labour market training and focused on short to medium-run effects (see the surveys by Fay, 1996; Heckman, LaLonde, and Smith, 1999; Martin and Grubb, 2001; Kluve and Schmidt, 2002), was rather pessimistic about the effectiveness of such programmes as most vividly illustrated by a quote from Jim Heckman, who said in the Economist: "Zero is not a bad number." (April 6, 1996, p.23). In contrast, the first studies that were able to estimate long-term effects of ALMPs suggested that some wage subsidies and training programmes actually seem to increase the employability and earnings of their participants in the long run (e.g. Couch, 1992; Hotz, Imbens, and Klerman, 2000; Winter-Ebmer, 2001; Jacobson, LaLonde, and Sullivan, 2004; Jespersen, Munch, and Skipper, 2004; Fitzenberger and Speckesser, 2005; Fitzenberger, Osikominu, and Völter, 2007). Furthermore, there is increasing evidence that, in the presence of treatment effect heterogeneity, the optimality of the assignment process of jobseekers to programmes also becomes crucial for the overall effectiveness of the programmes (see e.g. Frölich, Lechner, and Steiger, 2003; Lechner and Smith, 2005; Lechner and Wunsch, 2006a; Frölich, 2007).

Recently, Lechner, Miquel, and Wunsch (2006) provided a potential explanation for the diversity of the estimates of the effects of training. Being able to observe outcomes over 8 years after programme start they show that all programmes they consider exhibit negative employment and earnings effects in the short run, which are directly related to programme duration (so-called lock-in effects in the terminology of van Ours, 2004).[1] In the medium to long-run, however, most programmes show sustainable positive effects. There are two general conclusions from their study. First, the longer the programmes and the shorter the available time horizon for observing outcomes, the less likely it is to detect potential positive effects of the programmes. Second,

[1] Negative lock-in effects are a common finding in the microeconometric evaluation literature, see e.g. Gerfin and Lechner (2002); van Ours (2004); Sianesi (2004, 2007); Jespersen, Munch, and Skipper (2004).

programme durations are the key determinant of the size of the lock-in effects and the speed of recovery of employment rates and earnings.

In this paper, we provide new insights on the differential effects of ALMPs. We employ exceptionally rich administrative data that allows us to use microeconometric matching methods and to estimate interesting effects for different types of programmes and participants at a rather disaggregated level. We evaluate 7 types of training, which differ considerably in the extent of the human capital investment, as well as subsidised non-market jobs (so-called employment programmes) that have been conducted in West Germany 2000-2002 after the first large reform of German ALMP in 1998.

We find that, after the typical lock-in effects, all programmes fail to improve their participants' chances of finding regular, unsubsidised employment within 2.5 years after programme start. Rather, participants accumulate 2-13 more months of unemployment than nonparticipants over this period, partly because of additional programme participation. In addition to direct programme costs, this induces net costs in terms of benefit payments and wage subsidies of, on average, 1500-7000 EUR per participant. Moreover, there is no evidence that positive employment effects can be expected for later periods lying outside our observation window.

These findings are in contrast to Fitzenberger and Speckesser (2005), Lechner, Miquel, and Wunsch (2006), Lechner and Wunsch (2006b) and Fitzenberger, Osikominu, and Völter (2007), who provide a rather positive assessment of the effectiveness of different types of West German training programmes conducted before 1998,[2] but are in line with the evidence of Caliendo, Hujer, and Thomsen (2004a,b, 2005a,b), Hujer and Thomsen (2006) on recent employment programmes. However, comparing our results to the previous findings of Lechner, Miquel, and Wunsch (2006) for training conducted 1993-1994, which are based on similar data and a similar methodology, we can rule out that differences in the aggregation of programme types or the definition of the

[2] These studies use administrative data that has been compiled specifically for the evaluation of labour market training. One drawback of these data is, however, that it is not possible to distinguish subsidised from non-subsidised employment when measuring outcome variables.

outcome variables or the unavailability of some control variables are responsible for their more positive results. Hence, either the quality of the programmes, the participants or the assignment process, or certain characteristics of the labour market, which make programme participation less rewarding, seem to have changed since the early 1990s.

Our results are also in contrast to Biewen, Fitzenberger, Osikominu, and Waller (2006), who assess the effectiveness of three broad types of training programmes conducted 2000-2001 in West Germany applying matching methods to subsamples of participants stratified by unemployment duration. They find positive effects for women with longer unemployment durations and in some cases also for men. Their results are not directly comparable, though. Because they define participants and nonparticipants as those persons who either do or do not start a programme at a specific point in time in the unemployment spell, their finding of positive programme effects might merely be due to a fraction of the so defined nonparticipants starting a programme when the actual participants just completed theirs. Moreover, some of their estimates are based on rather small samples.[3]

We detect considerable effect heterogeneity, though. Jobseekers with relatively good a-priori employment prospects fare particularly badly because of prohibitively large lock-in effects from which they recover only very slowly. Correspondingly, jobseekers with disadvantageous a-priori employment prospects show below average lock-in effects. For this group we even find positive employment effects of some of the shorter training programmes, as well as for persons without any vocational education and unemployed who start training later in the unemployment spell. However, when looking at the net effects over our 30-month observation period after programme

[3] The surprisingly large effects for females with longer unemployment durations may also be due to young women reacting to continuing unemployment and/or not being assigned to a programme by becoming pregnant, thus exploiting the relatively low opportunity costs during (passive) unemployment. On the one hand, the unobservability of pregnancies at programme start induces selection bias. On the other hand, reacting to nonparticipation makes these women less likely to be employed after programme start. In both cases the true effect of the programmes on employment will be overestimated. Evidence for the presence and consequences of such incentives has been provided recently by Wiehler and Lechner (2007) for similar programmes in Austria. Note that the selection bias is likely to be smaller the shorter the time to treatment within the unemployment spell. This is substantiated by the absence of positive employment effects for women with short unemployment durations in Biewen, Fitzenberger, Osikominu, and Waller (2006). In our sample time to treatment is relatively short as well, which may be one explanation why we do not find positive employment effects for women.

start, it seems unlikely that the programmes are cost-effective even for these groups of participants because net gains in employment (or earnings) are either absent or small.

We use our estimates of the programme effects within subgroups of participants as well as inter-programme comparisons to assess the optimality of the allocation process of jobseekers to the programmes. We find supporting evidence for the importance of the assignment mechanism for the overall effectiveness of ALMPs and show that there is scope for improvements in mean employment rates as well as potential for considerable cost savings by a reallocation of participants and nonparticipants to the different programmes.

The remainder of the paper is organised as follows. Section 2 provides background information on the economic conditions, unemployment insurance and ALMP in West Germany. In Section 3 we present details on the data, the definition of the different programmes as well as the construction of and descriptive statistics for our evaluation sample. In Section 4 we discuss our identification and estimation strategy for the effects of interest. Section 5 contains all results as well as a summary of our sensitivity checks. Section 6 concludes. An appendix that is available in the internet contains further details on the data, methodology and results.

2 Economic conditions and labour market policy in West Germany

2.1 Economic development since 1990

West Germany experienced a boom directly after unification in 1990 because of substantial East German spending diverted away from domestic products to previously unavailable West German goods. Registered unemployment declined to a rate of 6% in 1991 despite a significant growth of the labour force due to migration from East Germany and East Europe to West Germany.[4] At the same time, the world economy was experiencing a recession. In 1992, this recession also began to affect West Germany because of its large export share. Already one year later, the West

[4] Annual migration from East to West Germany during 1989 and 1990 amounted to about 2% of the East German population (Akerlof, Rose, Yellen, and Hessenius, 1991).

German economy was in recession with GDP declining by almost 2% in 1993 and unemployment rising to 8%. With the recovery of the world economy in the late 1990s, the situation also began to improve in West Germany. Registered unemployment fell from almost 11% in 1997 to about 8% in 2000. However, economic growth decelerated following the slowdown of the world economy after September 11, 2001, and registered unemployment returned to about 10% in 2005. Since 2005, the West German economy is recovering slowly.[5]

2.2 Unemployment insurance in West Germany

In Germany, unemployment insurance (UI) covers all employees. Persons who have contributed for at least 12 months within the 3 years before becoming unemploymed are eligible for unemployment benefits (UB), which they receive only if they register with the public employment service (PES). The minimum UB entitlement is 6 months. In the period under consideration, the maximum claim increased stepwise with the total duration of the contributions in the 7 years before becoming unemployed, and age, up to a maximum of 32 months at age 54 or above with previous contributions of at least 64 months. Since 1994, the replacement rate is 67% of previous average net earnings from insured employment with dependent children, and 60% without. Actual payment of UB is conditional on active job search, regular show-up at the PES, and participation in labour market programmes. In case of noncompliance with benefit conditions, sanctions, i.e. reductions in or suspensions of benefits, can be imposed.

Until 2005, unemployed could become eligible for unemployment assistance (UA) after exhaustion of UB. In contrast to UB, UA was means tested and potentially indefinite. However, like UB, UA was proportional to previous earnings but with lower replacement rates than UB (57% and 53% with and without dependent children, respectively). Unemployed who were ineligible for UB and UA could receive social assistance, which was a fixed monthly payment unrelated to previous earnings, means-tested and administered by local authorities.

[5] All numbers are taken from BA (2001-2006) or Wunsch (2006).

One important feature of German labour market policy has always been that (most) programme participations extend the period for which UB can potentially be drawn. The extension occurs either directly by explicitly counting programme participation in the same way as insured employment towards the acquisition of UB claims, or it occurs indirectly by receiving a different form of benefit (so-called maintenance allowance, MA, during participation in certain types of training). MA is of the same amount as UB (or UA) during participation without or only less than proportionately reducing the UB claim at programme start. Since 1998, all major reforms of German labour market policy have reduced the possibilities to renew or extent UB claims by programme participation as legislators have increasingly become aware of the adverse effects these rules can have on search intensity and the budget of the PES.

2.3 West German ALMP after the 1998 reform

Table 1 provides numbers on the use of and expenditure on the most important active measures in West Germany. In terms of the number of participants, so-called training measures (TM), which have been introduced with the 1998 reform and provide basic job search assistance or minor adjustment of skills, have become the most important activation measure, by far. Expenditures are moderate because durations are short (up to 3 months but usually no more than 2 months; see also Table 2). Support of self-employment has also gained importance in recent years while use of subsidised employment is declining, both in the number of entries and in durations and expenditure. The latter consists of both subsidised non-market jobs, and temporary wage subsidies paid to employers who provide regular jobs to unemployed people during the first months of employment to compensate for initial deficits in productivity. Short-time work, which is a reduction in work hours combined with a subsidy from the unemployment insurance system to compensate the resulting earnings loss, is also of minor importance although relative expenditure has increased somewhat.

Table 1: The most important instruments of ALMP in West Germany 2000-2005

	2000	2001	2002	2003	2004	2005
	Expenditure in million EUR					
Total expenditure on ALMP	8277	8536	8264	8054	7398	5251
	Share in per cent					
Training measures (TM)	2	2	3	5	2	2
Further vocational training (FVT)	51	52	48	38	23	23
Short-time work	3	4	6	7	7	7
Employment programmes (EP)	14	12	8	6	2	2
Temporary wage subsidies	11	7	10	8	3	3
Support of self-employment	6	7	9	16	44	44
Other	12	16	15	21	19	19
	Entries in 1000					
Training measures (TM)	286	319	513	690	789	607
Further vocational training (FVT)	338	242	259	161	124	91
Short-time work	59	94	162	160	122	101
Employment programmes (EP)	90	73	63	39	41	17
Temporary wage subsidies	120	101	115	96	95	85
Support of self-employment	62	65	89	178	249	188

Source: BA (2001-2006).
Note: The numbers for 2005 are not comparable due to a complete change in legislation and statistics.

Further vocational training has always been on of the most important instruments of West German ALMP, though the number of participants has declined considerably in recent years. Expenditure on FVT is substantial, given the number of participants, for two reasons. First, with durations of up to two years, training programmes are relatively long in Germany compared to most OECD countries. Second, participants usually receive a special form of benefit (so-called maintenance allowance, MA) while in the programme, which is of the same amount as UB or UA.

Besides the usual counselling and placement services, there are also special instruments for youth, elderly unemployed and the disabled in Germany (included in *Other* expenditure in Table 1). For further details on these measures and German UI see Wunsch (2006).

One important feature of German ALMP is the large heterogeneity of training courses. Course contents, the amount of human capital added and planned durations vary considerably, particularly among FVT courses. With our data, we are able to account for heterogeneity in training measures and FVT in a detailed way. Table 2 summarises the programme types we evaluate in our empirical analysis. Besides seven types of training courses, we analyse subsidised non-market jobs. We do not include temporary wage subsidies and support of self-employment though, because

our identification strategy (see Section 4.1) might not be valid for these programmes. Short-time work is not observable in our data.

Table 2: Description of the programmes to be evaluated

Programme type (acronym)	Description	Mean planned duration (days)
Short combined measures (SCM)	Acquisition of specific knowledge and skills.	62
Jobseeker assessment (JSA)	Assessment of jobseekers' ability and willingness to search for job and to work, basic job search assistance.	56
Short training (ST)	Minor adjustment of skills.	56
Job-related training (JRT)	Combined off-the-job and on-the-job training in a specific field of profession.	186
General further training $\leq$ 6 months GT6)	General update, adjustment and extension of knowledge and skills; mainly off the job, planned duration $\leq$ 6 months.	122
General further training $>$ 6 months (GT6+)	General update, adjustment and extension of knowledge and skills; mainly off the job, planned duration $>$ 6 months.	292
Degree course (DC)	Vocational training that awards a formal professional degree and that corresponds to regular vocational training in the German apprenticeship system.	690
Employment programme (EP)	Subsidised non-market jobs.	313

Note: Calculations of the mean planned durations are based on our evaluation sample (see Section 3.2).

Short combined measures (SCM) are a series of very short training courses aiming at removing specific minor skill deficits. *Jobseeker assessment* (JSA) courses have the main objective of assessing a jobseeker's availability, willingness, and ability for active job search or specific kinds of jobs or programmes, but they also provide basic job search assistance. *Short training* (ST) courses provide minor adjustments of skills. All three types of programmes belong to the category of so-called training measures (TM) and have durations of no more than three months with mean planned durations of about two months.

Job-related training (JRT) combines off-the-job training with a substantial amount of on-the-job training in a specific field of profession, where the latter often takes place in a simulated work environment rather than a regular firm (so-called practice firms). The mean planned duration is about six months. *General training* (GT) subsumes the classical, mainly off-the-job, further vocational training courses which provide a general update, adjustment, and extension of knowledge and skills. Planned durations range from only a few months to up to two years. *Degree courses* (DC) provide a usually two-year training which is equivalent to an apprenticeship in the

German apprenticeship system. It awards an officially recognised vocational degree if completed successfully. JRT, GT, and DC belong to the category of further vocational training (FVT).

Employment programmes (EP) are subsidised jobs, which are outside of and should not compete with the regular labour market. They are targeted at unemployed with particularly bad employment prospects like the elderly or the long-term unemployed or aim at smoothing the effects of large job losses in a region by absorbing the unemployed in subsidised employment. Participants hold these jobs usually for about one year.

3 Data and definition of the evaluation sample

3.1 The data

We use exceptionally rich administrative data that has been built up by the German Institute for Employment Research. The database is a 2% random sample from all individuals who have been subject to German social insurance at least once since 1990. It covers the period 1990 to 2005 and combines spell information from social insurance records, programme participation records and the benefit payment and jobseeker registers of the PES.

The data cover participation in all major German active labour market programmes for the unemployed from 2000 to mid 2005, and the information about programmes is very detailed so that it is possible to account for programme heterogeneity in a uniquely detailed way. Besides being very recent, the database is also very rich in terms of covariate information and observed pre-programme employment histories (at least 10 years) to control for selectivity in programme participation (see Section 4.1).

Nevertheless, the database also has several drawbacks that may be important for the interpretation of our results. Firstly, exact information on direct programme costs is not available in the data. Therefore, we have to rely on very rough measures of these costs when trying to draw some conclusions on the net effects of the programmes. Secondly, prior to 2000 there is no explicit

information on participation in ALMP except for benefit payments (MA) during training. In particular, it is not possible to distinguish subsidised from non-subsidised employment. Thirdly, the common observation period after programme start is relatively short (only 2.5 years) since we are interested in relatively recent programmes conducted 2000-2002. Because of the rather long durations of some programmes (see Table 2), Lechner, Miquel, and Wunsch (2006, 2008) show that the ability to measure long-run effects is crucial for the evaluation of German ALMP. However, their results also imply that after 30 months we can already get a reasonable idea about the magnitude of possible long-term effects, at least for the shorter programmes.

3.2 Definition of our evaluation sample and programme participation

Our initial sample consists of the inflow into unemployment from insured employment or out of labour force between January 2000 and the first half of December 2002.[6] Focusing on the prime-age part of the West German population and to avoid most influences coming from retirement, early retirement, and primary education, we impose an age restriction (25-49 years). Moreover, concentrating on the main body of the active labour force, we exclude unemployed who were trainees, home workers, apprentices or without previous employment, as well as unemployed with an intensity of the last employment before programme participation below half of the usual full-time working hours.

To ensure eligibility, we require that all individuals received unemployment benefits (UB) or assistance (UA) directly before programme start.[7] According to German legislation, this is also the main target group of German ALMP. However, drawing this subpopulation requires the use of variables measured relatively to programme start, which is only available for participants. In this paper, we use an adapted version of one of the approaches suggested by Lechner (1999, 2002b) to simulate start dates for nonparticipants. We regress the log time to treatment within the unem-

[6] If there are multiple entries into unemployment, we consider the first one as the sample inflow date.

[7] In fact, receipt of UB or UA directly before entering a programme is not sufficient to ensure eligibility. In general, individuals must also have a vocational degree or at least three years of work experience. Since receipt of UB or UA implies that a person has been employed for at least one year in the past, the remaining group of participants and nonparticipants is most likely to be eligible.

ployment spell of participants on a set of time invariant personal and regional characteristics and use the estimated coefficients plus a draw in the residual distribution to predict a corresponding value for nonparticipants. Thus, by finding a control observation, that is still eligible and, hence, comparable at the assigned start date within the unemployment spell, the simulation is a kind of first matching step with respect to elapsed unemployment duration until (potential) treatment.[8] Moreover, to minimise the effect of simulating start dates for nonparticipants we measure all variables (except time to treatment) at or relatively to the beginning of the unemployment spell in which (potential) treatment takes place rather than at or relatively to (hypothetical) programme start.

We define participants as those unemployed who participate at least once in a programme in the 18 months following the inflow date into our sample. Accordingly, nonparticipants are all persons who do not enter a programme in this period. For them we also require that they received UB or UA at simulated programme start. Since we observe outcomes only up to mid 2005, we only evaluate the first participation of a person in a programme that occurs within the 18-month window and if it occurred before 2003. We extensively checked the sensitivity of our results to the choice of the treatment window (see Section 5.6).

3.3 Selected descriptive statistics

In Table 3 we present selected descriptive statistics for all 9 treatment groups (for a full list of variables and statistics, see the internet appendix). The numbers indicate that programme participation is highly selective. The most pronounced differences appear for EP, GT6+ and DC. In EP, women are underrepresented while blue-collar workers and people with health problems, low earnings, no benefit claims and large shares of unemployment in the employment history are overrepresented. Moreover, EP are used in regions with particularly high unemployment

[8] By deleting non-treated observations that do not fulfil the eligibility condition, we cannot get a consistent estimate of the average treatment effect for the population, but the average treatment effect on the treated, which is the parameter we are interested in, can still be recovered from the data because none of the programme participants is removed by this procedure.

rates. In contrast, participants in GT6+ have fewer health problems, are better educated, have higher earnings and benefit claims as well as more favourable employment histories than the other treatment groups. Participants in DC are, on average, youngest, exhibit the largest share of people without a vocational education as well as the largest fraction of out-of-labour force status in their employment history.

Table 3: Means and shares (in %) of selected variables

	NP	EP	SCM	JSA	ST	GT6	GT6+	DC	JRT
Observations	15013	211	846	960	657	551	772	415	558
					Personal characteristics				
Age (years)	37	37	37	36	37	38	37	34	38
Female	41	34	46	40	48	48	43	42	42
Foreigner	14	11	13	13	11	8	10	12	12
Health problems	15	18	19	17	13	12	10	12	19
No vocational education	35	45	38	43	28	28	21	51	40
Completed apprenticeship	58	45	58	53	63	67	64	44	59
University/polytechnic college degree	7	9	4	4	9	5	15	4	1
White-collar worker	23	14	17	19	17	15	13	19	18
Blue-collar worker	35	50	37	40	29	27	20	41	44
					Remaining unemployment benefit claim				
No claim	45	62	55	48	47	29	26	34	41
Claim (days)	123	66	81	106	103	173	175	142	139
					Ten-year pre-programme employment history				
Time to treatment (months)	4	8	5	5	5	5	5	5	6
Fraction employed	70	51	68	67	72	71	72	65	69
Fraction unemployed	13	27	13	13	10	11	10	11	14
Fraction out of labour force	16	17	16	17	15	15	15	21	14
Last monthly earnings (EUR)	1811	1567	1739	1722	1860	1849	2021	1787	1669
					Regional information				
Local unemployment rate > 10%	39	54	37	47	38	37	39	43	40
					Predicted probability to be employed without participation**				
Mean	23	17	19	19	20	25	27	21	20
Median	18	12	14	15	17	20	23	17	17
33%-Quantile	11	7	9	9	10	13	15	11	10
67%-Quantile	28	21	23	23	25	32	33	26	25
Correlation with participation probability***		-12*	-24*	-20*	-15*	9*	11*	-5*	-9*

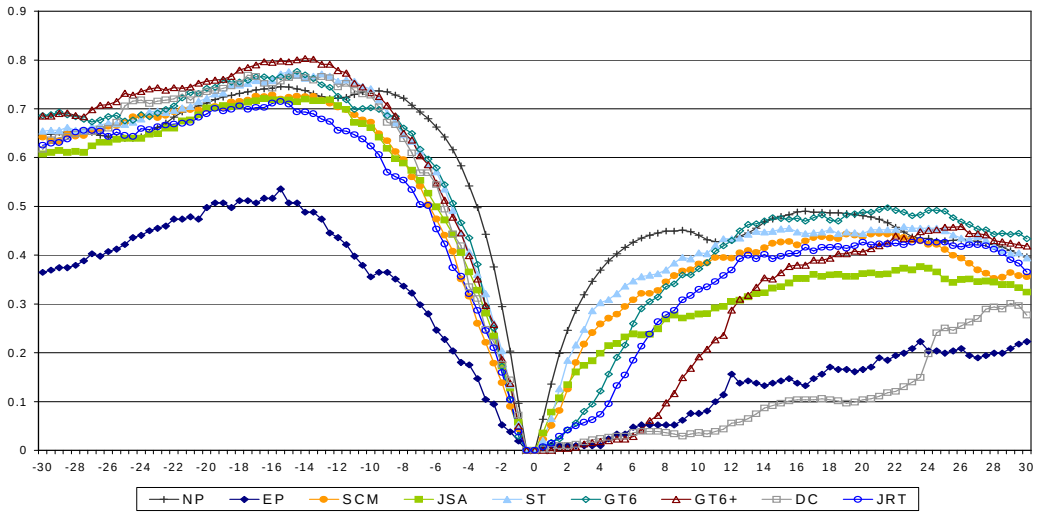
Note: If not stated otherwise, entries are in percent. All variables except time to treatment are measured at or relative to the beginning of the unemployment spell in which (simulated) programme start takes place. Time to treatment is measured at (simulated) programme start. *Correlation is significant on the 5% level. **Predicted probabilities from a probit estimation among nonparticipants. Dependent variable: Employed in unsubsidised employment with at least 90% of the last pre.programme earnings, measured in half-month 60 after programme start. ***Predicted probability to participate in the respective programme or not to participate at all. Correlation computed in the population.

To obtain a better understanding of how selection into different programmes works with respect to employment prospects, we predict the employment chances the different groups of participants would have had without the programme, conditional on a rich set of covariates. This prediction is based on a probit estimation of the employment chances of nonparticipants at the end of the

observation period. We only consider employment that generates at least 90% of the earnings from the last job before entering unemployment. As explanatory variables we use all variables that are important in the selection models for the different programme participations versus nonparticipation. This includes personal characteristics, variables that summarise individual pre-programme employment histories and regional characteristics.

The lower part of Table 3 shows that by various measures EP, SCM and JSA received the most difficult cases in terms of reemployment chances. These programmes as well as ST exhibit a rather strong negative correlation of the predicted employment probability with the participation probability in the respective programme. For DC and JRT this correlation is negative as well but not as strong. In contrast, for both forms of general training there is a positive correlation implying that these programmes attract the better risks with respect to employment prospects.

Figure 1: Rates of unsubsidised employment before and after programme start (unmatched sample)



Note: Month zero is the (simulated) programme start. Negative values on the abscissa refer to months before programme start, positive values to the months thereafter.

In Figure 1 we compare the (unsubsidised) employment rates of the different treatment groups before and after programme start without correcting for any selectivity. By construction of our sample, the employment rates are zero at and directly before programme start. Participants in EP have considerably lower employment rates before programme start than the other treatment

groups, which have relatively similar rates. Here, the only notable difference is that the deterioration of the employment rate starts somewhat later for nonparticipants than for participants. After programme start, the employment rate of nonparticipants shows the fastest recovery. The rates of participants follow in the order of programme duration with the shortest programmes recovering earliest. However, none of the treatment groups reaches its pre-programme level. At the end of the observation period, participants in EP show particulary low employment rates, followed by participants in DC, JSA and SCM. The other groups of participants end up with similar employment rates as nonparticipants 2.5 years after programme start.

4 Identification and estimation

4.1 Conditional independence

We are interested in the average effects of a programme on its participants compared to participation in another programme or no participation at all. To identify these parameters we rely on the conditional independence assumption to solve the selection problem that arises from the fact that persons in the different treatments differ systematically in a way that might be related to the outcome variables of interest (see Section 3.3). The assumption states that if we can observe all factors that jointly influence outcomes in the comparison state and the participation decision, then - conditional on these factors - participation and the outcomes, which the participants would have obtained in the comparison state, are independent, and the effects of interest are identified (Rubin, 1974; Imbens, 2000; Lechner, 2001, 2002a,b).

Programme participation is determined by eligibility, selection by caseworkers and self-selection by potential participants. Eligibility is ensured by the choice of our evaluation sample (see Section 3.2). Given eligibility, based on an assessment of the employment prospects and the specific deficits or needs of the unemployed the caseworker decides - usually in consultation with the candidate - on programme participation. According to German legislation, caseworkers have to take into account the chances of the unemployed for completing the programme successfully, and local

labour market conditions. To account for the latter, we supplemented the data with rich regional information which include federal state, local unemployment rate, demographic and industry structure, tax revenue, income, migration, infrastructure and urbanity. Individual variables in our data capturing information about employment prospects and chances for successful completion of a programme include age, educational attainment, family and health status, characteristics of the desired job, compliance with benefit conditions, the number of placement propositions by the PES as well as employment histories for at least 10 years before the programme. The latter include information on employment status, employers, earnings, occupational status, specific occupation, and industry.

From the point of view of the unemployed, his decision whether or not to participate in a programme is guided by considerations very similar to those of the caseworker, but there are also additional reasons for joining or not joining a programme. If, for example, the unemployed sees no chance to find a job with or without a programme, he may prefer not to join a programme that reduces his leisure time. This again requires controlling for all factors that determine individual employment prospects and labour market conditions. Moreover, legislation provides rather strong incentives to participate. On the one hand, unemployed who refuse to join a programme, risk suspension of their unemployment benefits. On the other hand, most programmes count towards acquisition of new unemployment benefit claims (see Section 2.2). Therefore, we include a variable that indicates the UB claim at the beginning of an unemployment spell.

The internet appendix, contains a complete list of all variables that are available in the data. In contrast to administrative data previously available for Germany, we observe whether a jobseeker has health problems or a disability affecting employability. We also observe a set of characteristics of the job the unemployed is looking for, the number of placement propositions by the PES, as well as information on benefit sanctions and compliance with benefit conditions (e.g. attendance at interview with PES or cooperation with PES staff). Thus, though we are still not able to observe soft characteristics like motivation and ability of the unemployed directly, we have a set

of previously unavailable important proxy variables, and we are able to capture their indirect effects on 10 years of pre-programme employment histories.

4.2 Estimation

All possible parametric, semi- and nonparametric estimators of treatment effects with observational data are built on the principle that for every comparison of two programmes, for participants in the programme of interest, we need comparison observations from the other programme with the same distribution of relevant characteristics. Characteristics are relevant if they jointly influence selection and outcomes (see Section 4.1 for these variables). Here, we use adjusted propensity score matching estimators for multiple treatments as our baseline estimator to produce such comparisons. A clear advantage of these estimators is that they are essentially nonparametric and that they allow for arbitrary individual effect heterogeneity.[9]

To obtain estimates of the conditional choice probabilities (the so-called propensity scores), which we use in our selection correction mechanism to form our comparison groups, we estimate probit models for all comparisons (all programmes against each other as well as nonparticipation). The analysis revealed that gender, age, qualification, family status, health and compliance with benefit conditions are important individual characteristics that determine participation. Furthermore, observed employment and unemployment histories are significantly correlated with participation choice. Moreover, the characteristics of the job an unemployed is looking for as well as regional information, which entered the probits in a highly disaggregated way to capture the specifics of supply and demand in the local labour market, play important roles in the selection process. Finally, remaining unemployment benefit claims indeed seem to provide rather strong incentives to enter a programme.

We use a matching procedure that incorporates the improvements suggested by Lechner, Miquel, and Wunsch (2006). To allow for higher precision when many 'good' comparison ob-

[9] See Imbens (2000) and Lechner (2001) for matching with multiple treatments. For matching with binary treatments see Heckman, LaLonde, and Smith (1999).

servations are available, they incorporate the idea of calliper or radius matching (e.g. Dehejia and Wahba, 2002) into the standard algorithm used for example by Gerfin and Lechner (2002). Second, matching quality is increased by exploiting the fact that appropriate weighted regressions that use the sampling weights from matching have the so-called double robustness property. This property implies that the estimator remains consistent if either the matching step is based on a correctly specified selection model, or the regression model is correctly specified (e.g. Rubin, 1979; Joffe, Ten Have, Feldman, and Kimmel, 2004). Moreover, this procedure may reduce small sample bias as well as asymptotic bias of matching estimators (see Abadie and Imbens, 2006) and thus increase robustness of the estimator. For more information on this estimator and its performance see Lechner, Miquel, and Wunsch (2006) as well as the internet appendix.

5 Results

5.1 Measurement of the labour market outcomes

According to German legislation, the main objective of German ALMP is to reduce unemployment by improving the chances of the unemployed to find regular, unsubsidised employment. But there may also be other objectives like preventing or reducing human capital depreciation, keeping the unemployed attached to the labour market or providing social contacts and organised daily routines by 'keeping them busy' in subsidised employment or training programmes without the direct prospect of finding a regular job.

We try to capture the different aspects of the potential effectiveness of the programmes by considering a variety of outcome variables. The outcome unsubsidised employment measures the programmes' success in helping their participants to find regular employment. We also assess the quality of employment in terms of tenure and stability of the earnings compared with previous jobs as well as potential gains in productivity measured by actual earnings differences. In contrast, registered unemployment, which here includes programme participation, measures whether individual unemployment is indeed reduced. The outcome programme participation assesses whether

the programme participation we evaluate changes the probability of future participation in the same or a different programme. Moreover, we measure whether participants are better off in terms of total earnings, i.e. the sum of earnings from subsidised and unsubsidised employment and any benefits from the PES.

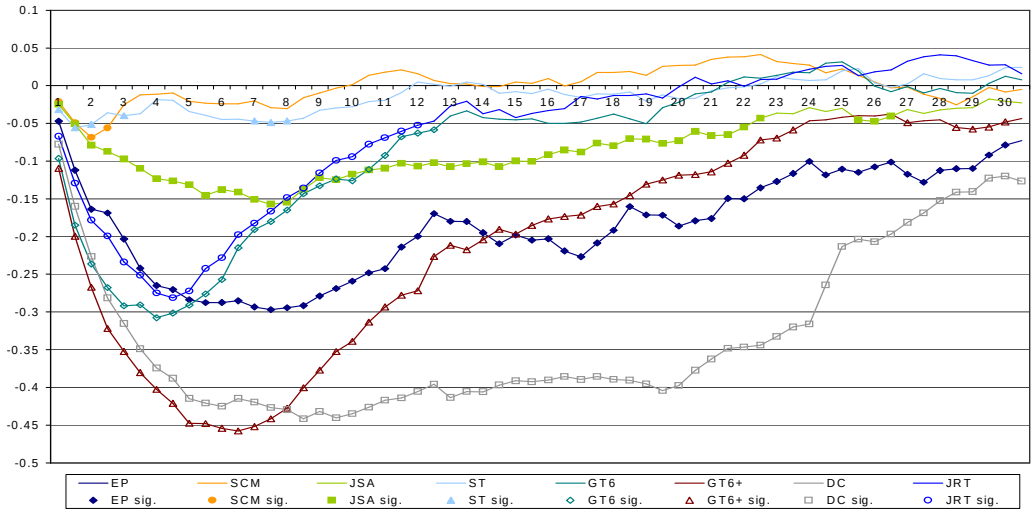
To assess some of the programme costs, received benefits measures the benefits and subsidies paid by the PES to the unemployed. This outcome variable includes all benefits (UB, UA, MA) received during participation in training courses and 60% of the wages from subsidised employment. The latter is a conservative proxy for subsidies paid by the PES, since that share is not directly observable in the data.

All effects are measured half-monthly based on time relative to (simulated) programme start, because whether to start a programme or not is the policy question of interest. Moreover, focusing on the beginning instead of the end takes into account the potential endogeneity of actual programme duration. Below we present figures displaying the average programme effects for the programme participants of the different programmes for various outcome variables. Each line in the respective figure represents a different programme and relates to the effects for the specific population of participants in that programme. Dots appear on a particular line if the effect is point-wise significant on the 5%-level. Outcomes are either measured in percentage points when they relate to changes in labour market status, or in differences of EUR when they relate to some earnings variable. The results are displayed for every half-month after the programme start, but the labeling on the corresponding axes refers to the respective month after the start of the programme. In the figures presented below, we only focus on the comparisons with nonparticipation. Extensive inter-programme comparisons are available in the internet appendix of this paper, as well as in one of the following tables.

5.2 The effects of programme participation

Figure 2 shows that none of the programmes succeeds in improving the chances of their participants to find regular, unsubsidised employment within our 30-month observation period. After the typical lock-in effects, only SCM, ST, GT6 and JRT recover relatively quickly but, still, fail to produce any significant gains in employment. The longer programmes, EP, GT6+ and DC recover only very slowly and exhibit negative employment effects compared to nonparticipation even 2.5 years after programme start. JSA, which is a very short programme and should, therefore, only show a small lock-in effect, displays a substantial negative effect for most of the observation period. Below, we will show that future programme participations of the participants in JSA are largely responsible for this finding.

Figure 2: Effects of programme participation compared to nonparticipation: unsubsidied employment



Note: Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.).

Overall it seems that the employment rates of all programmes stop recovering towards the end of the observation period, so that there is so far no indication that positive employment effects can be expected for later periods.

When looking at the net effects of the programmes by cumulating the half-monthly employment effects over the full 30-month period we find that, with the exception of SCM and ST, participants face losses in unsubsidised employment between 2 months for the shorter programmes and 10 months for DC (see Table 4). When taking into account the quality of employment in terms of stability (more than 6 months employed) and earnings (at least 90% of previous earnings) the losses are somewhat smaller. For total employment, which includes subsidised employment, the picture is very similar, except for EP because the programme itself is counted as (subsidised) employment.

Table 4: Cumulated effects of programme participation compared to nonparticipation

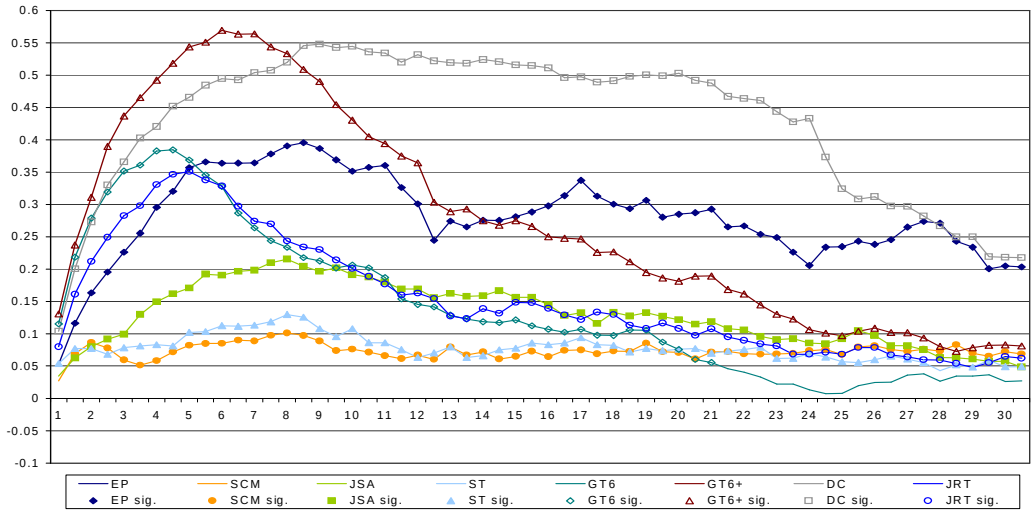
	EP	SCM	JSA	ST	GT6	GT6+	DC	JRT
Observations	211	846	960	657	551	772	415	558
	Cumulated effects in months							
Unsubsidised employment (USE)	-5.5*	-0.1	-2.2*	-0.5	-2.4*	-6.1*	-9.9*	-2.0*
Stable USE[a]	-3.6*	0.0	-1.4*	-0.2	-1.7*	-4.8*	-6.7*	-1.4*
USE with stable earnings[b]	-3.4*	0.4	-1.6*	-0.4	-1.9*	-3.6*	-5.6*	-1.4*
Total employment[c]	7.4*	0.6	-1.7*	0.3	-1.9*	-5.6*	-10.1*	-1.5*
Unemployment	8.3*	2.2*	3.9*	2.1*	4.1*	8.2*	13.0*	4.4*
Programme participation[d]	0.2	2.1*	3.2*	2.5*	1.1*	0.8*	-0.1	0.7*
Not passively unemployed[e]	7.4*	3.6*	4.5*	3.2*	2.8*	3.6*	9.5*	4.7*
	Cumulated effects in EUR							
Received benefits[f]	7054*	1367*	2236*	1535*	2751*	5994*	7197*	2479*
Earnings from USE	-8615*	589	-4282*	-1511	-4582*	-12778*	-16276*	-3640*
Total earnings[g]	4616*	2473*	-1544	702	-1198	-5813*	-9085*	-233
	Approximate direct programme costs per participant in EUR							
Direct costs[h]	-	570	570	570	2400	5400	12000	3600

Note: [a] Employed for more than 6 consecutive months (common probation period in Germany). [b] Employed with earnings of at least 90% of the last pre-programme earnings. [c] Subsidised and unsubsidised employment. [d] Programme participation excluding the one we evaluate. [e] All types of employment and programme participation. [f] UB, UA, MA payments and 60% of earnings from subsidised employment. [g] All earnings and benefits. [h] Calculated from total expenditure, number of programme entrants and average durations (BA, 2001-2006). * Effect is significant on the 5% level.

From Figure 3 we see that in addition to the absence of positive employment effects, the programmes exhibit strong adverse effects on registered unemployment (which includes programme participation). The short training measures and EP do not at all or hardly recover after programme start and the longer training programmes only recover very slowly. Moreover, with the exception of GT6, all programmes exhibit significantly higher unemployment rates for their participants compared to nonparticipation, even after 2.5 years. For SCM, JSA, ST and GT6+ the difference levels off at 5-10%-points, while for EP and DC it still persists at 20%-points towards

the end of our observation period. However, for the shorter programmes the overall accumulation of unemployment is moderate with 2-4 months, but for EP and GT6+ with 8 months and DC with even 13 months the implicit costs of the programmes in terms of prolonged unemployment are substantial (see Table 4).

Figure 3: Effects of programme participation compared to nonparticipation: registered unemployment

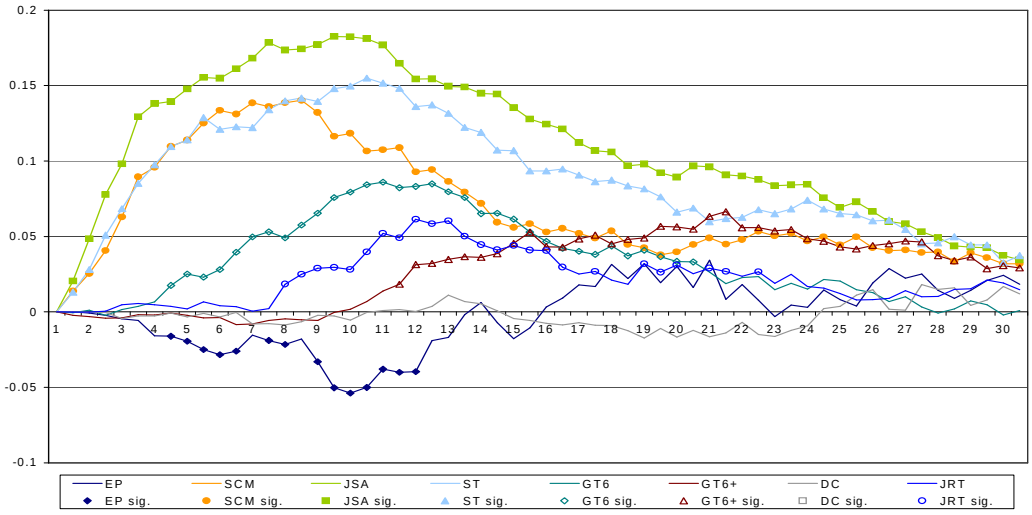


Note: Registered unemployment includes programme participation. Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.).

Figure 4 provides an explanation for why especially the short measures fare particularly badly with respect to registered unemployment. Compared with nonparticipants, a substantially larger fraction of participants in SCM, JSA and ST exhibits future participations, which are counted as unemployment, and many participants attend another programme shortly after completing the first one. In total, they accumulate 2-3 more months of future programme participation than nonparticipants (see Table 4). Participants in GT6+ also show a non-negligible amount of additional participations. For JRT and GT6 the difference in further programme participation is noticeably lower and becomes insignificant after 2 years.

Table 5 provides more detailed insights on future programme participations of the participants and nonparticipants in our sample. The latter may attend programmes after the end of the

Figure 4: Effects of programme participation compared to nonparticipation: further programme participation



Note: Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.).

18-month window we use to define treatment status. From the last column of Table 5 we see that 16% of nonparticipants and 20-45% of participants attend some other programme in the 30 months after programme start. The relatively large numbers for participants reflect the repeated use of training measures, in particular of JSA, as well as increased promotion of becoming self-employed in recent years (included in *Other*). Moreover, temporary wage subsidies (TWS) are often used to ease the transition to regular employment after completing a programme.

Table 5: Further programme participation (in % of treatment group)

Treatment status (acronym)	EP	SCM	JSA	ST	GT	DC	JRT	TWS	Other	At least one
Nonparticipation (NP)	1	2	3	2	1	1	0	2	7	16
Employment programme (EP)	6	6	5	6	4	1	2	3	7	30
Short combined measures (SCM)	2	9	4	4	5	5	5	7	14	41
Jobseeker assessment (JSA)	1	3	12	3	8	9	3	7	17	45
Short training (ST)	2	2	6	10	7	5	3	10	16	44
General training (GT)	1	3	5	6	4	1	1	7	14	34
Degree course (DC)	1	3	5	6	3	1	1	7	15	18
Job-related training (JRT)	0	1	3	3	2	3	1	1	7	30

Note: TWS: temporary wage subsidies. The largest fraction of *Other* is support of self-employment.

Unfortunately, the sample sizes in our data do not allow us to use a dynamic treatment evaluation approach as suggested by Lechner and Miquel (2001, 2005) to account for sequential

programme participation. Therefore, we have to pursue less ambitious objectives. In this study, we evaluate the first programme participation within an unemployment spell and treat future participations as (part of the) outcome variable. Thus, we basically evaluate a sequence of one or more programmes and variable length and composition which starts with a particular programme. Because we only restrict the first part of the sequence and since we measure outcomes beginning with the first period after programme start rather than relative to the end of the programme, a static evaluation approach is able to account for the relevant selection problem. But, of course, the estimated parameters are very different from those obtained from a dynamic approach. It may be the case that some particular sequences of programmes turn out to be effective in improving the employment chances of their participants, and that, because of prolonged periods of participation, our observation period is merely too short to detect first indications of such effects. However, so far our results do not substantiate such a conjecture because the employment effects seem to stop recovering towards the end of our observation period for virtually all programmes.

Are there any other effects the programmes might have? In Table 4 we present estimates of the difference in accumulated months not passively unemployed, which counts all types of employment and programme participation. According to this measure, participants experience 3-9 more months than nonparticipants which provide daily routines, social contacts, require effort and keep them 'busy' or 'off the street'. Furthermore, in times of high and persistent unemployment, programme participation may also be used to increase disposable incomes. From the estimates for total earnings in Table 4 we see, however, that such an effect is only present for participants in SCM and EP. For the other programmes the losses in earnings from unsubsidised employment are too large to be compensated by benefit payments and subsidised earnings.

To complete our assessment of the programmes we estimate the direct costs of programme participation compared to nonparticipation in terms of cumulated benefit payments and expenditure on wage subsidies (both included in *Received benefits* in Table 4). These costs are substantial, ranging from about 1500 EUR for SCM and ST to more than 7000 EUR for EP and DC. We

also provide numbers for the direct costs of the programmes,[10] for which we only have a very rough measure, though. Based on this measure, the absence of positive effects on unsubsidised employment implies total net costs of programme participation of, at best, 2000 EUR per participant for SCM and, at worst, 20000 EUR per participant for DC (without discounting and not accounting for tax or general equilibrium effects). These numbers are immense and provide a rather pessimistic view on the more recent West German labour market programmes.

5.3 Are there groups of participants that benefit from the programmes?

Despite the rather discouraging evidence on the average effectiveness of the programmes, we investigate whether there are some groups of participants for which the programmes improve their employment chances. For this purpose, we estimate the effects of the programmes on unsubsidised employment for different subgroups of participants defined by gender, age, local unemployment rate and industry quota. For none of these groups we find positive employment effects (see the internet appendix for all details).

We also divide our sample into participants with and without a vocational education (apprenticeship, college/university degree). For the latter group we obtain a positive effect of ST on unsubsidised employment at a magnitude of 10%-points after about 12 months after programme start (see panel (a) of Figure 5). Table 6 shows that over the 30-month period this results in gains of 2 months in employment and almost 3500 EUR in (gross) earnings relative to nonparticipants, at a cost of about 1000 EUR (estimate for benefits not significant, though).

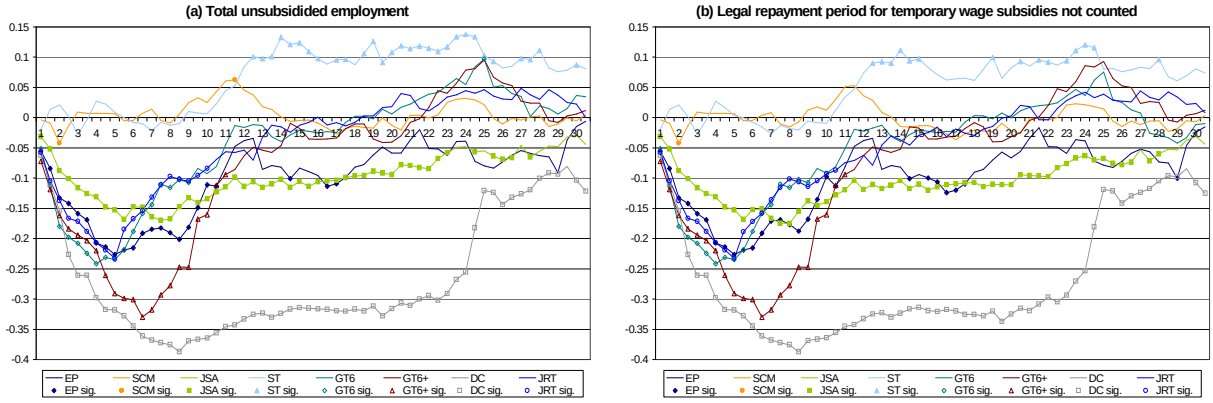
We find, however, that the positive effect of ST seems to be largely driven by participants in ST remaining in a job that was formerly subsidised by temporary wage subsidies (see the internet appendix for all details). To check whether the positive effects we obtain merely reflect incentives of employers to keep formerly subsidised employees for the minimum legal period after which they do not have to repay (part of) the subsidy,[11] we redefine our outcome variable by not

[10] These comprise the direct cost of training courses, which are reimbursed to the providers of training. Expenses on PES staff are not included. Therefore, the number for EP is zero.

[11] When a job formerly subsidised by temporary wage subsidies is terminated by the employer without good reason

counting periods of unsubsidised employment which lie within this legal repayment period. Panel (b) of Figure 5 shows that the effect is somewhat reduced but it does not vanish, implying that ST, potentially in combination with temporary wage subsidies, seems to succeed in generating positive employment effect for individuals without a vocational education.

Figure 5: Effects of programme participation compared to nonparticipation: individuals without a vocational education



Note: In panel (b) we only count unsubsidised employment after holding a job subsidised by temporary wage subsidies for at least the same period but no more than 12 months after the end of subsidisation period. Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.). See the internet appendix for the number of observations in each group.

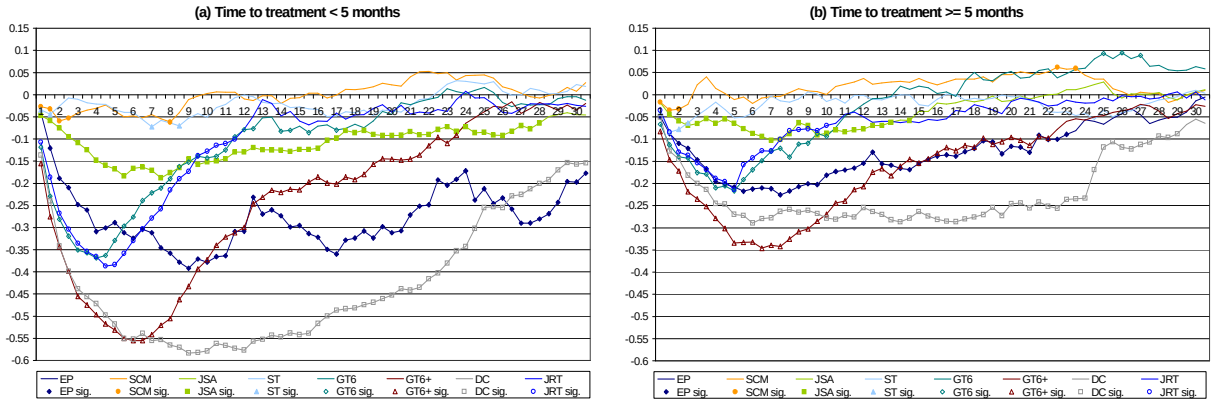
When dividing our sample according to time to treatment within the unemployment spell we find positive employment effects for unemployed starting a programme after 5 months for short general training (GT6), which become significant close to the end of the observation period. There is also some indication of positive effects for SCM for this group (see Figure 6). In fact, there is a small gain of one month in unsubsidised employment with stable earnings for this programme (see Table 6).

As a final check we split our sample at the median of the no-programme employment index we generated for characterising participants and nonparticipants (see Section 3.3). The estimation results for unsubsidised employment are displayed in Figure 7. Panel (b) shows that for participants with relatively goods employment prospects the negative lock-in effects are particulary

within a period of the same length as the subsidisation period but no more than 12 months, the employer has to repay (part of) the subsidy.

large. Hence, consistent with the evidence of Lechner and Wunsch (2006b) on the impact of overall employment prospects in terms of labour market conditions we show that the size of the lock-in effects is also positively related to individual employment prospects. Moreover, we find that rather substantial negative employment effects persist for most of the programmes even in the longer run so that participation turns out to be rather harmful.

Figure 6: Effects of programme participation compared to nonparticipation: unsubsidised employment



Note: Time to treatment is the number of months from the beginning of the unemployment spell until (simulated) programme start. Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.). See the internet appendix for the number of observations in each group.

Table 6: Cumulated effects of programme participation compared to nonparticipation for different subgroups of participants and selected programmes

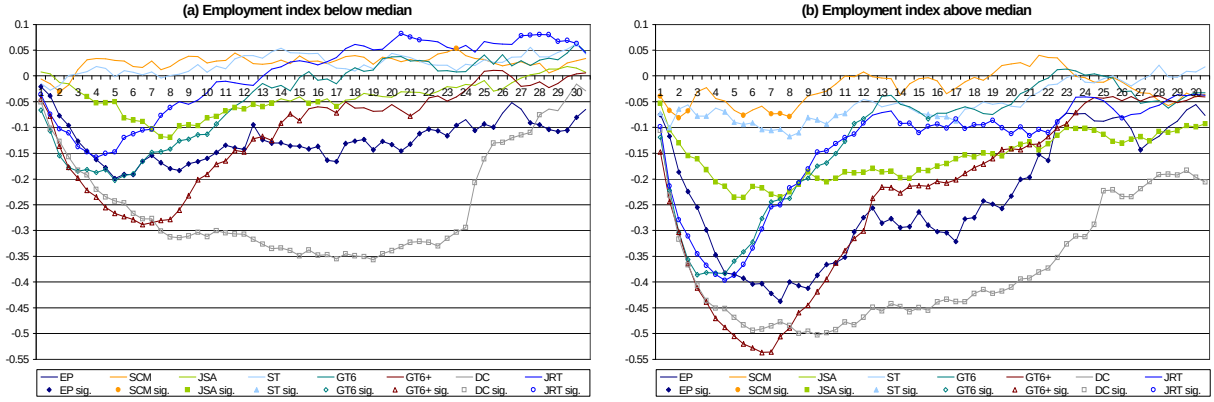
	Unsubsidised employment (USE)			Earnings		Benefits	Direct
	Total	Stable	With stable earnings	from USE	Unemployment	received	costs
			No vocational education				
ST	2.0*	1.9*	1.2	*3393*	0.5	564	570
			Time to treatment $\geq$ 5 months				
SCM	0.5	0.4	*0.9*	1867	0.4	507	570
GT6	-0.7	-0.8	-0.6	-510	3.0*	2233*	2400
			Employment index below median				
SCM	0.8	0.5	0.5	2348*	1.7*	*856*	570
ST	0.7	0.5	0.3	1913	1.4	*1001*	570
GT6	-1.3	*-1.0*	-0.9	-1796	2.8*	1679*	2400
JRT	0.0	-0.2	0.0	634	2.9*	1651*	3600

Note: See below Table 4. Cumulated employment and unemployment effects in months. Earnings, benefits and approximate direct programme costs in EUR. USE: unsubsidised employment. * (*Italics*) effect is significant on the 5% (10%) level.

For participants with worse a-priori employment prospects the picture is less pessimistic. The lock-in effects are considerably lower and, with the exception of EP, none of the programmes harms

participants in the longer run. JRT even succeeds in increasing chances to find regular employment at a magnitude of 5-7%-points after about 20 months after programme start. Furthermore, it seems that SCM, ST and GT6 have some positive effects as well, though they seem to be not large enough to become significant with the limited sample sizes in this subgroup of participants. Yet, Table 6 shows that SCM actually generates a positive net gain in earnings from unsubsidised employment of almost 2500 EUR.

Figure 7: Effects of programme participation compared to nonparticipation: unsubsidised employment



Note: The employment index is equal to the predicted probabilities from a probit in the pool of nonparticipants. Dependent variable: employed in unsubsidised employment with at least 90% of the earnings of the last job before programme start, measured in half-month 60 after programme start. Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.). See the internet appendix for the number of observations in each group.

To conclude, there are some groups or participants for which some of the shorter programmes exhibit positive effects on unsubsidised employment. However, overall it seem unlikely that any of the programmes is cost-effective even for these participants because net gains in employment or earnings are either absent or small compared with the cost of programme participation.

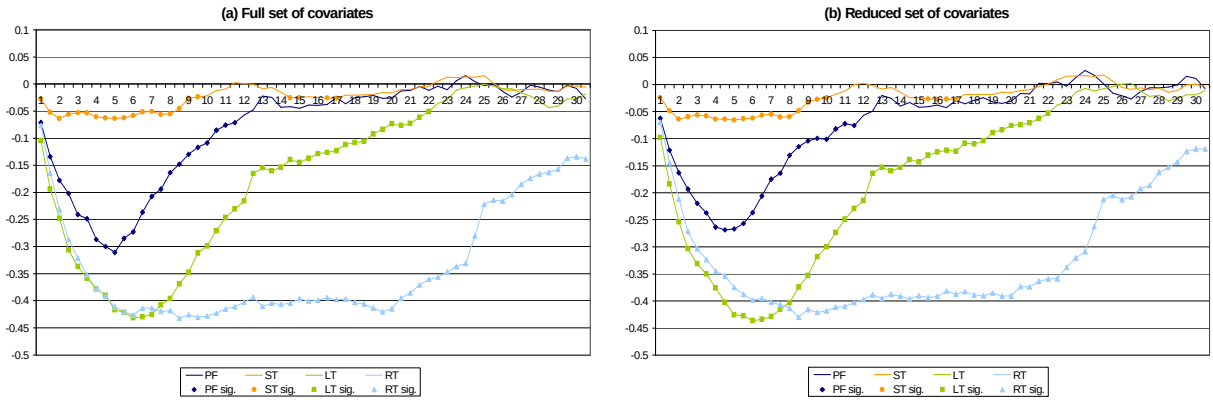
5.4 Why were the previous results more positive?

Using similar Geman data and applying a similar methodology, Lechner, Miquel, and Wunsch (2006) find, after the typical lock-in effects, lasting positive employment effects for short training (up to 6 months planned duration, ST), long training (more than 6 months, LT) and retraining

(comparable to degree courses, RT) conducted 1993-1994 under the old legislation. They also look at practice firms (PF), for which they do not find positive effects.[12] To compare our results with these earlier findings, we aggregate the training programmes in our data in a similar way and consider the outcome total employment that includes both subsidised and unsubsidised employment as in the study of Lechner, Miquel, and Wunsch (2006).

From panel (a) of Figure 8 we see that the inability of Lechner, Miquel, and Wunsch (2006) to distinguish subsidised from unsubsidised employment is not responsible for their positive findings. With the redefined programme types and outcome we still do not find any positive effects on (total) employment, and the lock-in effects are also considerably larger compared with the ones obtained by Lechner, Miquel, and Wunsch (2006) although programme durations are comparable (or even shorter). Also in contrast to the finding of larger lock-in effects, the participants in the more recent training programmes have characteristics that make them likely to have more disadvantageous a-priori employment prospects than participants in 1993-1994.[13]

Figure 8: Effects of programme participation compared to nonparticipation: total employment



Note: Panel (a): all available covariates used. Panel (b): only covariates used that had also been available in the data Lechner, Miquel, and Wunsch (2006) use. PF: practice firm (387 observations). ST: short training with planned duration $\leq$ 6 months (includes all training measures; 3084 observations). LT: long training with planned duration $>$ 6 months (830 observations). RT: retraining (degree course; 415 observations). Abscissa: Months after programme start. Ordinate: Effect in %-points. Each line represents the respective population of participants, which differs for each programme. Dots indicate that the effect is significant on the 5% level (sig.).

[12] Fitzenberger and Speckesser (2005) and Fitzenberger, Osikominu, and Völter (2007) obtain similar results but use a methodology which is not comparable to ours and the one of Lechner, Miquel, and Wunsch (2006).

[13] The more recent participants e.g. are lower skilled, older and have higher fractions of females and foreigners on average.

Another explanation for the more positive findings of Lechner, Miquel, and Wunsch (2006) might be the unavailability of important control variables in their data, like health limitations, disability status, compliance with benefit conditions, imposition of benefit sanctions, the characteristics of the desired job and the number of placement propositions by the PES. To obtain comparable estimates, we excluded these variables from the estimation of our selection models for programme participation. However, panel (b) of Figure 8 shows that the results remain almost unchanged, so that we can rule out inability to properly account for selectivity in programme participation with respect to these variables as a reason for the earlier findings.

Lechner and Wunsch (2006b) show that the labour market conditions at programme start also impact on the effectiveness of the programmes, especially on the lock-in effects. Controlling for changing composition of programmes and participants over time, they find a positive relation between the unemployment rate at programme start and the employment effects of the programmes. Indeed, labour market conditions were better in 2000-2001 than in 1993-1994. However, after September 2001 they deteriorated as well. Moreover, given the size of the correlation Lechner and Wunsch (2006b) find and the fact that during both 1993-1994 and 2000-2002 the unemployment rate varied (only) between 8-9% (Wunsch, 2006), this could, at best, only explain a very small part of the large differences in the estimated effects.

To conclude, there remain several reasons for why the programme effects have changed. On the one hand, the design and use of the programmes has changed quite a lot since the early nineties. Moreover, it could be that the programme quality, or the quality of the selection process into the programmes, or the availability of suitable potential participants declined. Finally, changes in the characteristics of the labour market other than just the unemployment rate may have made it more difficult to reward programme participation.

5.5 Is there anything that could be improved?

Given our rather pessimistic assessment of the more recent West German labour market programmes, is there scope for improvement? From Section 5.3 we conclude that a better targeting of the programmes to those groups of participants, for whom we find positive employment effects, is likely to improve the overall effectiveness of the programmes. Moreover, inter-programme comparisons allow us to assess whether participants would have been better off had they participated in a different programme.

Table 7 presents this comparisons for the persons in all participation states (given in lines) compared with all alternatives (given in columns) based on the outcome variable measuring unsubsidised employment at the end of the observation period. Whenever an effect is negative, it means that, on average, the participants in that programme would have fared better in the alternative programme. The numbers in brackets on the main diagonal of this table show the level of the outcome variable for the persons in the respective treatment state.

Table 7: Inter-programme comparisons: unsubsidised employment

Treatment status	Comparison state								
	NP	EP	SCM	JSA	ST	GT6	GT6+	DC	JRT
	Effect 2.5 years after programme start in %-points								
NP	[0.40]	0.06	0.01	0.05*	-0.01	-0.01	-0.01	0.11*	0.02
EP	*-0.09*	[0.25]	*-0.12*	-0.07	-0.13*	-0.06	*-0.10*	-0.03	-0.04
SCM	0.03	-0.03	[0.37]	0.02	-0.04	-0.02	-0.03	0.10*	-0.03
JSA	-0.01	0.00	-0.02	[0.33]	-0.07*	-0.04	-0.08*	0.03	-0.04
ST	0.02	0.04	0.03	0.06	[0.40]	0.05	0.00	0.12*	0.01
GT6	0.01	0.05	0.00	0.04	-0.02	[0.41]	0.02	0.16*	0.00
GT6+	-0.02	0.04	0.02	0.02	-0.03	0.01	[0.41]	0.08	0.06
DC	-0.15*	-0.12	-0.12*	-0.11*	-0.19*	-0.18*	-0.07	[0.24]	-0.06
JRT	0.03	0.03	0.00	0.03	-0.04	-0.07	-0.02	*0.08*	[0.36]

Note: * (*Italics*) effect is significant on the 5% (10%) level. Entries in brackets on the diagonal are the levels of the respective potential outcome in the respective group of persons defined by treatment status. Off-diagonal elements are the effects of the treatment given in the line for its participants compared with the state in the header of the column.

Ignoring nonparticipation, we find that participants in those programmes faring worst compared to nonparticipation would have been better off in some of the other programmes. Participants in EP would have fared better in SCM, ST or GT6+. Those in DC would also have been better

off in SCM and ST as well as in JSA and GT6.[14] However, participants in JSA would have fared better in ST. Thus, there is scope for improvement in the allocation of unemployed to the different programmes.

Given our estimates of the mean potential outcomes in all states for each population of participants and nonparticipants we are able to directly simulate the outcome of different policies. In Table 8 we present the mean employment rate in our sample 2.5 years after programme start under different assignment rules, as well as the corresponding approximate programme cost (excluding benefit payments). Ignoring potential general equilibrium effects and lacking exact cost data as well as estimates of individual (conditional on characteristics) treatment response, this provides a rough assessment of potential improvements in the allocation of participants.

Table 8: Outcome of different assignment rules

Assignment rule	Mean employment rate in %	Approximate cost in billion EUR p.a.
Actual allocation	38.7	2.0
Everyone in nonparticipation	38.9	-
Only persons without vocational education in ST	38.8	2.0
Only persons with time to treatment $\geq$ 5 months in GT6	38.9	2.0
Only persons with employment index below median in JRT	39.1	2.0
Only persons with employment index below median in programmes	40.0	2.0
Everyone in short training (ST)	41.3	1.6
Everyone where mean employment rate largest*	46.5	7.2
All participants where mean employment rate largest*	40.9	1.5

Note: Mean employment rates are calculated from the estimated mean potential outcomes 30 months after programme start and the fraction of people in each state after imposing common support. Approximate programme costs are the numbers from Table 4 multiplied by the numbers of participants in the respective programme in our evaluation sample and scaled by the fraction of participants per year that we cover with our sample (0.007). *Conditional on no-programme employment index below or above median and treatment status.

We find that letting nobody participate would have generated the same mean employment rate of 39% 2.5 years after programme start but would have saved the programme cost of roughly 2 billion EUR per year. This provides an interesting summary on our evidence on the (general lack of) effectiveness of the more recent West German labour market programmes.

Yet, what happens if we send those groups of participants to those programmes for which we find some positive effects? When assigning only persons without a vocational education to ST,

[14] Note, however, that participants in DC are still largely affected by the lock-in effects of this rather long programme after 2.5 years.

or only those with time to treatment ≥ 5 months to GT6, or only persons with disadvantageous a-priori employment prospects to JRT, the mean employment rate is raised slightly, at no additional cost if the number of participants is kept unchanged. The combination of these rules is likely to have a somewhat larger impact. Moreover, targeting programmes exclusively at persons with disadvantageous a-priori employment prospects, for which the programmes effects overall look most favourably, the mean employment rate would increase by more than 1% when total participation rates are unchanged.

From Table 7 we see that ST seems to be the most attractive programme for most treatment groups. So one possible assignment rule could be sending everyone to this inexpensive short programme. Indeed, this would raise the mean employment rate by more than 2% and interestingly, programme costs would even be reduced compared with the actual allocation because nobody is sent to the expensive programmes.

Now, what if everyone is assigned to the state where employment rates are actually maximised? Answering this question would require estimates of individual (conditional on characteristics) treatment response for all states.[15] Here, we only have estimates of the mean effects within subgroups defined by treatment status and potentially one additional characteristic. Thus, we can explore this question only very roughly. Since the no-programme employment index we constructed provides a nice summary of several important characteristics, we determine the state for which the mean employment rate conditional on treatment status and the index being below or above the sample median is largest. Reallocating all persons accordingly would raise the men employment rate by almost 8%.[16] However, the costs are immense because about half of the nonparticipants would be sent to one of the rather expensive programmes. If we only reallocate actual participants to the programmes with the largest expected return, then the

[15] Estimating individual treatment response requires a different methodology to estimate counterfactual outcomes. See e.g. Frölich, Lechner, and Steiger (2003), Lechner and Smith (2005), Frölich (2007).

[16] Assignment rule below median employment index: nonparticipants and participants in SCM and JSA to GT6+, participants in EP, ST, GT6 and JRT to GT6, those in GT6+ to ST and those in DC to JRT. Above median employment index: participants in EP and JRT to GT6, those in SCM, ST and DC to ST, those in GT6 to SCM and those in JSA and GT6+ to nonparticipation.

mean employment rate would only be raised by 2% but the programme costs would be reduced considerably compared to the actual allocation.

In conclusion, there seems to be some scope for improvements in the mean employment rate. Most interestingly, however, is the potential for cost savings of roughly 0.5 billion EUR per year by a reallocation of participants and nonparticipants.

5.6 Sensitivity checks

We conducted several sensitivity analyses, the details of which are presented in the internet appendix. Given the importance of the choice of the time window for defining participants and nonparticipants (see e.g. the arguments made by Fredriksson and Johansson, 2003, 2004; Sianesi, 2004), we checked the sensitivity of our results to this issue quite extensively. We repeated our estimations using a 12, 24 and 36-month window instead of the 18-month window. The effects increase slightly the longer the time window but overall conclusions do not change. We also varied the criteria to define the common support. No significant changes appeared. For further sensitivity checks of the matching estimator used see Lechner, Miquel, and Wunsch (2006).

6 Conclusion

We provide new evidence on the effectiveness of West German ALMP by evaluating training and employment programmes that have been conducted 2000-2002, after the first large reform of German labour market policy in 1998. We employ exceptionally rich administrative data that allow us to use microeconometric matching methods to account for selectivity in programme participation and to estimate interesting effects for different types of programmes and participants at a rather disaggregated level.

After the typical lock-in effects, we find that, on average, all programmes fail to improve their participants' chances of finding regular, unsubsidised employment within 2.5 years after programme start. The longer training and employment programmes even make their participants

worse off compared to nonparticipation. Rather, participants accumulate 2-13 more months of unemployment than nonparticipants over this period, partly because of additional programme participations. This induces net costs in terms of benefit payments and wage subsidies amounting to, on average, 1500-7000 EUR per participant without taking into account direct programme costs. Based on a very rough measure of the latter, total net costs of programme participation add up to 2000-20000 EUR per participant.

Since there are also no indications that positive employment effects can be expected for later periods lying outside our observation window, the only effect of the programmes seems to be to prevent participants from being passively unemployed by keeping them busy and requiring effort in training programmes and subsidised employment, thus, also providing social contacts and daily routines.

Comparing our rather pessimistic findings to previous estimates of Lechner, Miquel, and Wunsch (2006), who evaluate West German training programmes conducted 1993-1994 using similar data and a similar methodology, we can rule out that differences in the aggregation of programme types or the definition of the outcome variable, or the unavailability of some control variables are responsible for their more positive results. Thus, either the quality of the programmes, the participants or the assignment process, or certain characteristics of the labour market, which make programme participation less rewarding, have changed since the early 1990s.

Yet, there are some groups of participants for which certain types of programmes exhibit positive effects on employment. Persons without any vocational education gain almost 10%-point in terms of the probability to begin unsubsidised employment after about one year after starting short training. Over the full 30-month period they gain about 2 months of employment. We also find positive employment effects for unemployed starting general further training with planned duration up to 6 months not earlier than 5 months after entering unemployment. Moreover, for participants with disadvantageous a-priori employment prospects job-related training turns

out to be effective after about 20 months. Despite these positive findings, when looking at the net effects over the 30-month observation period after programme start, it seems unlikely that the programmes are cost-effective even for these groups of participants because net gains in employment (or earnings) are either absent or only small.

So is there anything that could be improved? We use our estimates of the programme effects within subgroups of participants as well as inter-programme comparisons to assess the optimality of the allocation of jobseekers to the programmes. We find supporting evidence for the importance of the assignment process for the overall effectiveness of ALMPs and show that there is some scope for improvements in mean employment rates as well as potential for considerable cost savings by a reallocation of participants and nonparticipants to different programmes.

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